## 2.4 Records

### 2.4.1 AlRuns

The **AlRuns** record specifies Rich Text Formatting within **chart titles** (section [2.2.3.3](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c)), **trendline** (section [2.2.3.12](#Section_61d74ebc36714d6dbdc0626db604530d)), and **data labels** (section [2.2.3.11](#Section_cac7f43a3af142f58ff2814c2870427f)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cRuns | | | | | | | | | | | | | | | | rgRuns (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cRuns (2 bytes):** An unsigned integer that specifies the number of Rich Text Format runs. MUST be greater than or equal to 3 and less than or equal to 256.

**rgRuns (variable):** An array of **FormatRun structures** (section [2.5.132](#Section_24d30c9e350e4d55a1c3f4404cc41f99)) that specifies the Rich Text Format runs. The number of elements in the array MUST be equal to **cRuns**.

### 2.4.2 Area

The **Area** record specifies that the **chart group** (section [2.2.3.7](#Section_c91fdf3195e2495fa48a5546ce20c0c5)) is an area **chart group** (section 2.2.3.7) and specifies the **chart group** (section 2.2.3.7) attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | reserved | | | | | | | | | | | | |

**A - fStacked (1 bit):** A bit that specifies whether the **data points** (section [2.2.3.10](#Section_9c986ad250d44fa1a157063ac5c971a0)) in the **chart group** (section 2.2.3.7) that share the same [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) are stacked.

**B - f100 (1 bit):** A bit that specifies whether the **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) are displayed as a percentage of the sum of all **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) that share the same category (2). MUST be 0 if **fStacked** is 0.

**C - fHasShadow (1 bit):** A bit that specifies whether one or more **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) has shadows.

**reserved (13 bits):** MUST be zero, and MUST be ignored.

### 2.4.3 AreaFormat

The **AreaFormat** record specifies the patterns and colors used in a filled region of a **chart** (section [2.2.3.3](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c)). If this record is not present in the sequence of records that conforms to the **SS rule** (section [2.1.7.20.1](#Section_732ff614d939416bb7c76d983471ff11)) of the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), the patterns and colors used are specified by the default values of the fields of this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgbFore | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbBack | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fls | | | | | | | | | | | | | | | | A | B | reserved | | | | | | | | | | | | | |
| icvFore | | | | | | | | | | | | | | | | icvBack | | | | | | | | | | | | | | | |

**rgbFore (4 bytes):** A **LongRGB structure** (section [2.5.177](#Section_dfedc14244ef4981b6c650d607abf756)) that specifies the [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a) of the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e).[<23>](#Appendix_A_23" \o "Product behavior note 23) The default value of this field is automatically selected from the next available color in the **chart** (section 2.2.3.3) color table.

**rgbBack (4 bytes):** A **LongRGB structure** (section 2.5.177) that specifies the [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c) of the fill pattern.[<24>](#Appendix_A_24" \o "Product behavior note 24) The default value of this field is 0xFFFFFF.

**fls (2 bytes):** An unsigned integer that specifies the type of fill pattern. If **fls** is neither 0x0000 nor 0x0001, this record MUST be immediately followed by a corresponding **GelFrame** record (section [2.4.131](#Section_fd655637a8e94d4e85880a02afc99fae)) that specifies the fill pattern. The fillType as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.3.7.1 of the **OPT1** field of the corresponding **GelFrame** record (section 2.4.131) MUST be **msofillPattern** as specified in [MS-ODRAW] section 2.4.11. The default value of this field is 0x0001. **fls** MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The fill pattern is none (no [**fill**](#gt_215c1c51-d5ef-46af-8596-d7ef63c1fe89)). When **rgbFore** or **rgbBack** are specified, a pattern of 'none' overrides and means there is no fill. |
| 0x0001 | The fill pattern is solid. When solid is specified, **rgbFore** is the only color rendered, even when **rgbBack** is also specified. |
| 0x0002 | The fill pattern is medium gray. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following gray patterns is used.  Medium gray 50% hatch Percent50 - Specifies a 50 percent hatch. The ratio of foreground color to background color is 50:100. |
| 0x0003 | The fill pattern is dark gray. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following dark gray patterns is used.  Dark gray 60 percent hatch Percent60 - Specifies a 60 percent hatch. The ratio of foreground color to background color is 60:100.  Dark gray 70 percent hatch Percent70 - Specifies a 70 percent hatch. The ratio of foreground color to background color is 70:100.  Dark gray 75 percent hatch Percent75 - Specifies a 75 percent hatch. The ratio of foreground color to background color is 75:100.  Dark gray 80 percent hatch Percent80 - Specifies a 80 percent hatch. The ratio of foreground color to background color is 80:100.  Dark gray 90 percent hatch Percent90 - Specifies a 90 percent hatch. The ratio of foreground color to background color is 90:100. |
| 0x0004 | The fill pattern is light gray. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light gray patterns is used.  Light gray 25 percent hatch Percent25 - Specifies a 25 percent hatch. The ratio of foreground color to background color is 25:100. |
| 0x0005 | The fill pattern is horizontal stripes. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following horizontal stripe pattern is used.  Dark horrizontal stripes DarkHorizontal - Specifies a pattern of horizontal lines. |
| 0x0006 | The fill pattern is vertical stripes. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following vertical stripes patterns is used.  Dark vertical stripes DarkVertical - Specifies a pattern of vertical lines. |
| 0x0007 | The fill pattern is downward diagonal stripes. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following diagonal stripes patterns is used.  Dark downward diagonal stripes DarkDownwardDiagonal - Specifies diagonal lines that slant to the right from top points to bottom points. This hatch pattern is not anti-aliased.  Wide downward diagonal stripes WideDownwardDiagonal - Specifies diagonal lines that slant to the right from top points to bottom points, are 1.5 times the width of DarkDownwardDiagonal, but are not anti-aliased. |
| 0x0008 | The fill pattern is upward diagonal stripes. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following diagonal stripes patterns is used.  Dark upward diagonal stripes DarkUpwardDiagonal - Specifies diagonal lines that slant to the left from top points to bottom points, but the lines are not anti-aliased.  Dark wide upward diagonal stripes WideUpwardDiagonal - Specifies diagonal lines that slant to the left from top points to bottom points, are 1.5 times the width of DarkUpwardDiagonal, but are not anti-aliased. |
| 0x0009 | The fill pattern is grid. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following grid patterns is used.  Large checker board pattern LargeCheckerBoard - Specifies a hatch that has the appearance of a checkerboard with squares that are twice the size of SmallCheckerBoard.  Plaid hatch looks like  plaid material Plaid - Specifies a hatch that has the appearance of a plaid material.  Small checker board hatch SmallCheckerBoard - Specifies a hatch that has the appearance of a checkerboard.  Solid diamond hatch looks like checkerboard placed diagonally SolidDiamond - Specifies a hatch that has the appearance of a checkerboard placed diagonally.  Sphere hatch looks like spheres laid adjacent to one another Sphere - Specifies a hatch that has the appearance of spheres laid adjacent to one another. |
| 0x000A | The fill pattern is trellis. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following trellis patterns is used.  Trellis hatch Trellis - Specifies a hatch that has the appearance of a trellis. |
| 0x000B | The fill pattern is light horizontal stripes. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light horizontal stripes patterns is used.  Dashed horizontal lines DashedHorizontal - Specifies dashed horizontal lines.  Light horizontal lines LightHorizontal - Specifies a pattern of horizontal lines.  Narrow light horizontal lines NarrowHorizontal - Specifies horizontal lines that are spaced 25 percent closer together than LightHorizontal. |
| 0x000C | The fill pattern is light vertical stripes. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light vertical stripes patterns is used.  Light dashed vertical lines DashedVertical - Specifies dashed vertical lines.  Light vertical lines LightVertical - Specifies a pattern of vertical lines.  Narrow light vertical lines NarrowVertical - Specifies vertical lines that are spaced 25 percent closer together than LightVertical. |
| 0x000D | The fill pattern is light down. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light down patterns is used.  Dashed downward diagonal lines DashedDownwardDiagonal – Specifies dashed diagonal lines that slant to the right from top points to bottom points.  Diagonal brick hatch DiagonalBrick – Specifies a hatch that has the appearance of layered bricks that slant to the left from top points to bottom points.  Dotted grid lines DottedGrid – Specifies horizontal and vertical lines (each of which is composed of dots) that cross.  Light downward diagonal lines LightDownwardDiagonal - Specifies diagonal lines that slant to the right from top points to bottom points, but are not anti-aliased.  Outlined diamond pattern OutlinedDiamond - Specifies forward diagonal and backward diagonal lines that cross but are not anti-aliased.  Shingle hatch looks like diagonally layered shingles Shingle - Specifies a hatch that has the appearance of diagonally layered shingles that slant to the right from top points to bottom points.  Horizontal wave lines Wave - Specifies horizontal lines that is composed of tildes.  Horizontal zig zag lines ZigZag - Specifies horizontal lines that are composed of zigzags. |
| 0x000E | The fill pattern is light up. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light up patterns is used.  Dashed upward diagonal lines DashedUpwardDiagonal – Specifies dashed diagonal lines that slant to the left from top points to bottom points.  Divot hatch. Divots look like small holes Divot - Specifies a hatch that has the appearance of divots.  Light upward diagonal lines LightUpwardDiagonal - Specifies diagonal lines that slant to the left from top points to bottom points, but they are not anti-aliased.  Weave hatch looks like woven material Weave - Specifies a hatch that has the appearance of a woven material. |
| 0x000F | The fill pattern is light grid. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light grid patterns is used.  Horizontal brick hatch HorizontalBrick - Specifies a hatch that has the appearance of horizontally layered bricks.  Large grid lines LargeGrid - Specifies horizontal and vertical lines that cross.  Small grid lines SmallGrid - Specifies horizontal and vertical lines that cross and are spaced 50 percent closer together than hatch [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) LargeGrid. |
| 0x0010 | The fill pattern is light trellis. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following light trellis patterns is used.  30 percent hatch Percent30 - Specifies a 30 percent hatch. The ratio of foreground color to background color is 30:100.  40 percent hatch Percent40 - Specifies a 40 percent hatch. The ratio of foreground color to background color is 40:100.  Large confetti hatch LargeConfetti - Specifies a hatch that has the appearance of confetti, and is composed of larger pieces than SmallConfetti. |
| 0x0011 | The fill pattern is grayscale of 0.125 (1/8) value. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following grayscale patterns is used.  20 percent hatch Percent20 - Specifies a 20 percent hatch. The ratio of foreground color to background color is 20:100.  Dotted diamond pattern DottedDiamond - Specifies forward diagonal and backward diagonal lines (each of which is composed of dots) that cross.  Small confetti hatch SmallConfetti - Specifies a hatch that has the appearance of confetti. |
| 0x0012 | The fill pattern is grayscale of 0.0625 (1/16) value. Additional properties in the corresponding **GelFrame** record (section 2.4.131) specify which of the following grayscale patterns is used.  5 percent hatch Percent5 - Specifies a 5 percent hatch. The ratio of foreground color to background color is 5:100.  Ten percent hatch Percent10 - Specifies a 10 percent hatch. The ratio of foreground color to background color is 10:100. |

**A - fAuto (1 bit):** A bit that specifies whether the fill colors are automatically set. If **fls is equal to** 0x1 formatting is automatic. The default value of this field is 1.

**B - fInvertNeg (1 bit):** A bit that specifies whether the foreground and background are swapped when the data value of the filled area is negative. This field MUST be ignored if the formatting is not being applied to a **data points** (section [2.2.3.10](#Section_9c986ad250d44fa1a157063ac5c971a0)) on a bar or column **chart group** (section [2.2.3.7](#Section_c91fdf3195e2495fa48a5546ce20c0c5)). The default value of this field is 0.

**reserved (14 bits):** MUST be zero, and MUST be ignored.

**icvFore (2 bytes):** An **IcvChart structure** (section [2.5.162](#Section_ab0d01c3cf5945b4aef14e02811b61cb)) that specifies the foreground color of the fill pattern. The default value of this field is automatically selected from the next available color in the **chart** (section 2.2.3.3) color table.

**icvBack (2 bytes):** An **IcvChart structure** (section 2.5.162) that specifies the background color of the fill pattern. The default value of this field is 0x0009.

### 2.4.4 Array

The **Array** record specifies an array **formula** (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) for a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that performs calculations on one or more sets of values, and then returns either a single result or multiple results across a continuous range of cells. This record is preceded by a single **Formula** record (section [2.4.127](#Section_8e3c69786c9f4915a82607613204b244)) that defines the first cell in the range that uses this array **formula** (section 2.2.2). Other **Formula** records (section 2.4.127) that use this array **formula** (section 2.2.2) follow later in the file, not necessarily in a contiguous sequence. **Formula** records (section 2.4.127) that use this array **formula** (section 2.2.2) MUST have a **cell** field that is within the range specified in the **ref** field of this record and MUST have their **formula** begin with **PtgExp** (section [2.5.198.58](#Section_f9aa266ff1e94341a232e9f7ec94b8f1)). Also, each cell specified in the **ref** field MUST have a **Formula** (section 2.4.127) that uses this array **formula** (section 2.2.2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | reserved | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| formula (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ref (6 bytes):** A **Ref structure** (section [2.5.207](#Section_46fb8a73542941a4b74593d2ed62637a)) that specifies the range of the array **formula** (section 2.2.2).

**A - fAlwaysCalc (1 bit):** A bit that specifies whether the array **formula** (section 2.2.2) needs to be calculated during the next recalculation.

**reserved (15 bits):** MUST be zero, and MUST be ignored.

**unused (4 bytes):** Undefined and MUST be ignored.

**formula (variable):** An **ArrayParsedFormula structure** (section [2.5.198.1](#Section_242bcf20047b43aaad589a7288545cbc)) that specifies the array **formula** (section 2.2.2).

### 2.4.5 AttachedLabel

The **AttachedLabel** record specifies properties of a **data label** (section [2.2.3.11](#Section_cac7f43a3af142f58ff2814c2870427f)) on a **chart group** (section [2.2.3.7](#Section_c91fdf3195e2495fa48a5546ce20c0c5)), **series** (section [2.2.3.9](#Section_527ce4dfc9f84e50a314d4b07519593c)), or **data point** (section [2.2.3.10](#Section_9c986ad250d44fa1a157063ac5c971a0)). Refer to the **data label** (section 2.2.3.11) overview for additional information about how this record is used and when this record is ignored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | G | reserved | | | | | | | | |

**A - fShowValue (1 bit):** A bit that specifies whether the value, or the vertical value on bubble or scatter **chart groups** (section 2.2.3.7), is displayed in the **data label** (section 2.2.3.11).

This value MUST be 0 if this record is in a **chart group** (section 2.2.3.7) and either **fShowLabelAndPerc** or **fShowPercent** is equal to 1.

**B - fShowPercent (1 bit):** A bit that specifies whether the value, represented as a percentage of the sum of the values of the **series** (section 2.2.3.9) the **data label** (section 2.2.3.11) is associated with, is displayed in the **data label** (section 2.2.3.11).

MUST equal 0 if the **chart group** (section 2.2.3.7) type of the corresponding **chart group** (section 2.2.3.7), **series** (section 2.2.3.9), or **data point** (section 2.2.3.10), is not bar of pie, doughnut, pie, or pie of pie **chart group** (section 2.2.3.7).

If this record is contained in a **chart group** (section 2.2.3.7) and **fShowLabelAndPerc** is equal to 1 then this field MUST equal 1.

**C - fShowLabelAndPerc (1 bit):** A bit that specifies whether the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) name and value, represented as a percentage of the sum of the values of the **series** (section 2.2.3.9) the **data label** (section 2.2.3.11) is associated with, are displayed in the **data label** (section 2.2.3.11).

MUST equal 0 if the **chart group** (section 2.2.3.7) type of the corresponding **chart group** (section 2.2.3.7), **series** (section 2.2.3.9), or **data point** (section 2.2.3.10), is not bar of pie, doughnut, pie, or pie of pie **chart group** (section 2.2.3.7).

**D - unused (1 bit):** Undefined and MUST be ignored.

**E - fShowLabel (1 bit):** A bit that specifies whether the category (2), or the horizontal value on bubble or scatter **chart groups** (section 2.2.3.7), is displayed in the **data label** (section 2.2.3.11) on a non-area **chart group** (section 2.2.3.7), or the **series** (section 2.2.3.9) name is displayed in the **data label** (section 2.2.3.11) on an area **chart group** (section 2.2.3.7).

This field MUST equal 0 if this record is contained in a **chart group** (section 2.2.3.7) and one of the following conditions is satisfied:

 The **fShowValue** field is equal to 1.

 The **fShowLabelAndPerc** field is equal to 0 and the **fShowPercent** field is equal to 1.

**F - fShowBubbleSizes (1 bit):** A bit that specifies whether the [**bubble size**](#gt_3a0cf938-5b61-4460-bdbb-3540d84d4180) is displayed in the **data label** (section 2.2.3.11).

MUST equal 0 if the **chart group** (section 2.2.3.7) type of the corresponding **chart group** (section 2.2.3.7), **series** (section 2.2.3.9), or **data point** (section 2.2.3.10) is not bubble **chart group** (section 2.2.3.7).

If the current record is contained in a **chart group** (section 2.2.3.7) and **fShowPercent**, **fShowValue**, or **fShowLabel** equal 1, this field MUST equal 0.

**G - fShowSeriesName (1 bit):** A bit that specifies whether the **data label** (section 2.2.3.11) contains the name of the **series** (section 2.2.3.9).

If the current record is contained in a **chart group** (section 2.2.3.7) and **fShowLabelAndPerc**, **fShowPercent**, **fShowValue**, **fShowValue**, **fShowLabel**, or **fShowBubbleSizes** equal 1 then this MUST equal to 0.

**reserved (9 bits):** MUST be zero, and MUST be ignored.

### 2.4.6 AutoFilter

The **AutoFilter** record specifies an [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35). An **Lbl record** (section [2.4.150](#Section_d148e89845044841a793ee85f3ea9eef)) where the **Name** field has a value of 0x0D (\_FilterDatabase) MUST exist for the current [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). The **rgce.rgce** field of the **Lbl record** (section 2.4.150) MUST consist of a single **PtgArea3d operand** (section [2.5.198.28](#Section_869033ad63044b9ab2ba1e7794ae345a)).)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iEntry | | | | | | | | | | | | | | | | A | | B | C | D | E | F | wTopN | | | | | | | | |
| doper1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | doper2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| str1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| str2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iEntry (2 bytes):** An unsigned integer that specifies the sheet (1) column that this AutoFilter applies to. The column index is determined by the following formula:

((the **area.columnFirst** field of the **PtgArea3d** (section 2.5.198.28) in the **rgce.rgce** field of the **Lbl record** (section 2.4.150) where the **Name** field is equal to 0x0D (\_FilterDatabase) and the **Lbl record** (section 2.4.150) is for the current sheet (1)) + **iEntry**).

The value of **iEntry** MUST be less than the **cEntries** field of the proceeding **AutoFilterInfo** record (section [2.4.8](#Section_48d72277d8054ea08a518a36bc6e32d1)).

**A - wJoin (2 bits):** A **Boolean** (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether **doper1** and **doper2** are combined using a logical AND operation or a logical OR operation. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | **doper1** and **doper2** are combined using a logical AND operation. |
| 1 | **doper1** and **doper2** are combined using a logical OR operation. |

If **fTopN** is 1, **wJoin** is undefined and MUST be ignored.

**B - fSimple1 (1 bit):** A bit that specifies whether an application-specific performance optimization can be used to compute this AutoFilter. MUST be 1 if and only if **doper1.vt** is 0x06 and **doper1.vtValue** is not a regular expression string, or **doper1.vt** is 0x0C, or **doper1.vt** is 0x0E. If **fTopN** is 1, **fSimple1** is undefined and MUST be ignored.

**C - fSimple2 (1 bit):** A bit that specifies whether an application-specific performance optimization can be used to compute this AutoFilter. MUST be 1 if and only if **doper2.vt** is 0x06 and **doper2.vtValue** is not a regular expression string, or **doper2.vt** is 0x0C, or **doper2.vt** is 0x0E. If **fTopN** is 1, **fSimple2** is undefined and MUST be ignored.

**D - fTopN (1 bit):** A bit that specifies whether the AutoFilter is a [**Top N filter**](#gt_0f30d3fd-cc8f-4c20-ab45-4ccbb3f834d9).

**E - fTop (1 bit):** A bit that specifies whether the Top N filter selects the bottom items or the top items. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Top N filter selects the bottom items. |
| 1 | Top N filter selects the top items. |

If **fTopN** is 0, **fTop** is undefined and MUST be ignored.

**F - fPercent (1 bit):** A bit that specifies whether the Top N filter selects a count of items or a percent of items. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Top N filter selects a count of items. |
| 1 | Top N filter selects a percent of items. |

If **fTopN** is 0, **fPercent** is undefined and MUST be ignored.

**wTopN (9 bits):** An unsigned integer that specifies the number of Top N filter items to show. If **fTopN** is 0, **wTopN** MUST be ignored. If **fTopN** is 1, **wTopN** MUST be greater than or equal to 1 and less than or equal to 500.

**doper1 (10 bytes):** An **AFDOper structure** (section [2.5.5](#Section_0e30d7c2fe7a4c97a2bef40a9709a473)) that specifies the first AutoFilter condition. If **fTopN** is 1, **doper1** is undefined and MUST be ignored.

**doper2 (10 bytes):** An **AFDOper structure** (section 2.5.5) that specifies the second AutoFilter condition. If **fTopN** is 1, **doper2** is undefined and MUST be ignored.

**str1 (variable):** An optional **XLUnicodeStringNoCch structure** (section [2.5.296](#Section_e64abeee2f3a4004b9e33d67e29d6066)) that specifies the string comparison constant for **doper1**. MUST exist if and only if **doper1.vt** is equal to 0x06. The length MUST be equal to **doper1.vtValue.cch**.

**str2 (variable):** An optional **XLUnicodeStringNoCch structure** (section 2.5.296) that specifies the string comparison constant for **doper2**. MUST exist if and only if **doper2.vt** is equal to 0x06. The length MUST be equal to **doper2.vtValue.cch**.

### 2.4.7 AutoFilter12

The **AutoFilter12** record specifies [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) properties.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iEntry | | | | | | | | | | | | | | | | fHideArrow | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ft | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cft | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cCriteria | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cDateGroupings | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | | | B | unused1 | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idList | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| guidSview (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgCriteria (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgDateGroupings (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeader (12 bytes):** An **FrtRefHeader structure** (section [2.5.137](#Section_21d54bbb614e414a91805fffda407d4f)). The **frtRefHeader.rt** MUST be 0x087E. **frtRefHeader.grbitFrt.fFrtRef** MUST be 0x1. The **frtRefHeader.ref8** field MUST refer to the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with this record.

**iEntry (2 bytes):** An unsigned integer that specifies the [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) column that this AutoFilter applies to. The column index is determined by the following formula:

**frtRefHeader**.**ref8**.**colFirst** + **iEntry**.

The value of **iEntry** MUST be less than or equal to 255.

**fHideArrow (4 bytes):** A **Boolean** (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the user interface used to display AutoFilter settings is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd).

**ft (4 bytes):** An unsigned integer that specifies the [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) type. MUST be one of the values in the table specified in **rgb.**

**cft (4 bytes):** An unsigned integer that specifies the [**custom filter**](#gt_8593ee2f-c2dd-4793-a684-45fe40c840d2) type. MUST be one of the values in the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | No custom filter |
| 0x00000001 | The custom filter displays items that are above average. |
| 0x00000002 | The custom filter displays items that are below average. |
| 0x00000008 | The custom filter displays items that are from tomorrow. |
| 0x00000009 | The custom filter displays items that are from today. |
| 0x0000000A | The custom filter displays items that are from yesterday. |
| 0x0000000B | The custom filter displays items that are from next week. |
| 0x0000000C | The custom filter displays items that are from this week. |
| 0x0000000D | The custom filter displays items that are from last week |
| 0x0000000E | The custom filter displays items that are from next month. |
| 0x0000000F | The custom filter displays items that are from this month. |
| 0x00000010 | The custom filter displays items that are from last month. |
| 0x00000011 | The custom filter displays items that are from next quarter. |
| 0x00000012 | The custom filter displays items that are from this quarter. |
| 0x00000013 | The custom filter displays items that are from last quarter. |
| 0x00000014 | The custom filter displays items that are from next year. |
| 0x00000015 | The custom filter displays items that are from this year. |
| 0x00000016 | The custom filter displays items that are from last year. |
| 0x00000017 | The custom filter displays items that are from year-to-date. |
| 0x00000018 | The custom filter displays items that are from the 1st quarter. |
| 0x00000019 | The custom filter displays items that are from the 2nd quarter. |
| 0x0000001A | The custom filter displays items that are from the 3rd quarter. |
| 0x0000001B | The custom filter displays items that are from the 4th quarter. |
| 0x0000001C | The custom filter displays items that are from the 1st month. |
| 0x0000001D | The custom filter displays items that are from the 2nd month. |
| 0x0000001E | The custom filter displays items that are from the 3rd month. |
| 0x0000001F | The custom filter displays items that are from the 4th month. |
| 0x00000020 | The custom filter displays items that are from the 5th month. |
| 0x00000021 | The custom filter displays items that are from the 6th month. |
| 0x00000022 | The custom filter displays items that are from the 7th month. |
| 0x00000023 | The custom filter displays items that are from the 8th month. |
| 0x00000024 | The custom filter displays items that are from the 9th month. |
| 0x00000025 | The custom filter displays items that are from the 10th month. |
| 0x00000026 | The custom filter displays items that are from the 11th month. |
| 0x00000027 | The custom filter displays items that are from the 12th month. |

**cCriteria (4 bytes):** An unsigned integer that specifies the number of items in **rgCriteria**. MUST be ignored if **ft** is nonzero.

**cDateGroupings (4 bytes):** An unsigned integer that specifies the number of items in **rgDateGroupings**. MUST be ignored if **ft** is nonzero.

**A - reserved1 (3 bits):** MUST be zero, and MUST be ignored.

**B - fWorksheetAutoFilter (1 bit):** A bit that specifies whether this filter is a sheet (1) AutoFilter. A sheet (1) AutoFilter filters items in the sheet specified by the **Worksheet part** (section [2.1.7.20.5](#Section_f41c06f2905749a18c3fa4a4d211fc56)) that contains this record. MUST be 1 if and only if **idList** is equal to 0xFFFFFFFF.

**unused1 (12 bits):** Undefined and MUST be ignored.

**unused2 (4 bytes):** Undefined and MUST be ignored.

**idList (4 bytes):** An unsigned integer that specifies the [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) with items that are filtered by this AutoFilter. MUST either be equal to the **idList** field of the associated **TableFeatureType structure** (section [2.5.266](#Section_0db919872a05497cac1cfbd588e10047)) or MUST be 0xFFFFFFFF if this filter is a sheet (1) AutoFilter.

**guidSview (16 bytes):** A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that specifies the associated **UserSViewBegin** record (section [2.4.334](#Section_c75bbfe0f69546109d1eb7d93fc25fe9)). MUST be 0, or MUST be equal to the **guid** field of the preceding **UserSViewBegin** record (section 2.4.334).

**rgb (variable):** A variable type field whose type and meaning is specified by the value of **ft**, as defined in the following table:

| Value of ft | Type of rgb |
| --- | --- |
| 0x00000000 | **rgb** does not exist. Either **cCriteria** or **cDateGroupings** MUST be greater than zero. |
| 0x00000001 | **rgb** is a **DXFN12NoCB structure** (section [2.5.98](#Section_30d7a5a8b5cf4fb3abc85a90942d7021)) that specifies the cell color to use for the filter. |
| 0x00000002 | **rgb** is a **DXFN12NoCB structure** (section 2.5.98) that specifies the cell [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) to use for the filter. |
| 0x00000003 | **rgb** is an **AF12CellIcon structure** (section [2.5.2](#Section_3dc61490e67148668d706c2ebbaad6dc)) that specifies the cell [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) to use for the filter. |

**rgCriteria (variable):** An optional array of **AF12Criteria structures** (section [2.5.3](#Section_795902357225471b9cb5888bad376f3b)). The length of the array MUST be equal to **cCriteria**. MUST exist if and only if **ft** is zero and **cCriteria** is nonzero. Each element of the array MUST be specified in a separate **ContinueFrt12** record (section [2.4.62](#Section_e6527fe5f420420fad3fe5a242d04eee)).

**rgDateGroupings (variable):** An optional array of **AF12DateInfo structures** (section [2.5.4](#Section_57981757008e4d07966cf6e37192577a)). The length of the array MUST be equal to **cDateGroupings**. MUST exist if and only if **ft** is zero and **cDateGroupings** is nonzero. Each element of the array MUST be specified in a separate **ContinueFrt12** record (section 2.4.62).

### 2.4.8 AutoFilterInfo

The **AutoFilterInfo** record specifies the number of columns that have [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) enabled and specifies the beginning of a collection of records as defined by the [Macro Sheet Substream](#Section_0dddd943f77a4fc2bf92868acb4587f7) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) and [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF. The collection of records specifies AutoFilter information and data used for sorting a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cEntries | | | | | | | | | | | | | | | |

**cEntries (2 bytes):** An unsigned integer that specifies the number of columns that have AutoFilter enabled. MUST be greater than or equal to 1 and less than or equal to 256.

### 2.4.9 AxcExt

The **AxcExt** record specifies additional extension properties of a date **axis** (section [2.2.3.6](#Section_4117f73aa0f348d89c0f65864918ffb3)), along with a **CatSerRange record** (section [2.4.39](#Section_07bdb87444424468a7e2bd166769e6a9)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| catMin | | | | | | | | | | | | | | | | catMax | | | | | | | | | | | | | | | |
| catMajor | | | | | | | | | | | | | | | | duMajor | | | | | | | | | | | | | | | |
| catMinor | | | | | | | | | | | | | | | | duMinor | | | | | | | | | | | | | | | |
| duBase | | | | | | | | | | | | | | | | catCrossDate | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | reserved | | | | | | | |

**catMin (2 bytes):** An unsigned integer that specifies the minimum date, as a date in the [**date system**](#gt_cfc29c5e-eb23-4077-b6eb-492f20f5c87f) specified by the **Date1904 record** (section [2.4.77](#Section_4a5e900a0eb043558fc181aab8f46e8b)), in the units defined by **duBase**. SHOULD[<25>](#Appendix_A_25" \o "Product behavior note 25) be less than or equal to **catMax**. If **fAutoMin** is set to 1, MUST be ignored. If **fDateAxis** is set to 0, MUST be ignored.

**catMax (2 bytes):** An unsigned integer that specifies the maximum date, as a date in the date system specified by the **Date1904 record** (section 2.4.77), in the units defined by **duBase**. SHOULD[<26>](#Appendix_A_26" \o "Product behavior note 26) be greater than or equal to **catMin**. If **fAutoMax** is set to 1, MUST be ignored. If **fDateAxis** is set to 0, MUST be ignored.

**catMajor (2 bytes):** An unsigned integer that specifies the interval at which the [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) are displayed on the **axis** (section 2.2.3.6), in the unit defined by **duMajor**. MUST be greater than or equal to **catMinor** when **duMajor** is equal to **duMinor**. If **fAutoMajor** is set to 1, MUST be ignored. If **fDateAxis** is set to 0, MUST be ignored.

**duMajor (2 bytes):** A **DateUnit enumeration** (section [2.5.66](#Section_a1025474859b4d88a686b8c01406496f)) that specifies the unit of time to use for **catMajor** when the **axis** (section 2.2.3.6) is a date **axis** (section 2.2.3.6). If **fDateAxis** is set to 0, MUST be ignored.

**catMinor (2 bytes):** An unsigned integer that specifies the interval at which the [**minor tick marks**](#gt_c2eb605a-6c5a-427e-8608-f16940de82a6) are displayed on the **axis** (section 2.2.3.6), in a unit defined by **duMinor**. MUST be less than or equal to **catMajor** when **duMajor** is equal to **duMinor**. If **fAutoMinor** is set to 1, MUST be ignored. If **fDateAxis** is set to 0, MUST be ignored.

**duMinor (2 bytes):** A **DateUnit enumeration** (section 2.5.66) that specifies the unit of time to use for **catMinor** when the **axis** (section 2.2.3.6) is a date **axis** (section 2.2.3.6). If **fDateAxis** is set to 0, MUST be ignored.

**duBase (2 bytes):** A **DateUnit enumeration** (section 2.5.66) that specifies the smallest unit of time used by the **axis** (section 2.2.3.6). If **fAutoBase** is set to 1, this field MUST be ignored. If **fDateAxis** is set to 0, MUST be ignored.

**catCrossDate (2 bytes):** An unsigned integer that specifies at which date, as a date in the date system specified by the **Date1904 record** (section 2.4.77), in the units defined by **duBase**, the value **axis** (section 2.2.3.6) crosses this **axis** (section 2.2.3.6). If **fDateAxis** is set to 0, MUST be ignored. If **fAutoCross** is set to 1, MUST be ignored.

**A - fAutoMin (1 bit):** A bit that specifies whether **catMin** is calculated automatically. If **fDateAxis** is set to 0, MUST be ignored. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **catMin** is used and **catMin** is not calculated automatically. |
| 1 | **catMin** is calculated such that the minimum **data points** (section [2.2.3.10](#Section_9c986ad250d44fa1a157063ac5c971a0)) value can be displayed. |

**B - fAutoMax (1 bit):** A bit that specifies whether **catMax** is calculated automatically. If **fDateAxis** is set to 0, then **fAutoMax** MUST be ignored. If the value of the **fMaxCross** field in the **CatSerRange** (section 2.4.39) record is 1, then **fAutoMax** MUST be ignored. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **catMax** is used and **catMax** is not calculated automatically. |
| 1 | **catMax** is calculated such that the minimum **data points** (section 2.2.3.10) value can be displayed. |

**C - fAutoMajor (1 bit):** A bit that specifies whether **catMajor** is calculated automatically. If **fDateAxis** is set to 0, MUST be ignored.

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **catMajor** is used and **catMajor** is not calculated automatically. |
| 1 | **catMajor** is calculated automatically. |

**D - fAutoMinor (1 bit):** A bit that specifies whether **catMinor** is calculated automatically. If **fDateAxis** is set to 0, MUST be ignored.

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **catMinor** is used and **catMinor** is not calculated automatically. |
| 1 | **catMinor** is calculated automatically. |

**E - fDateAxis (1 bit):** A bit that specifies whether the **axis** (section 2.2.3.6) is a date **axis** (section 2.2.3.6). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The **axis** (section 2.2.3.6) is not a date **axis** (section 2.2.3.6). |
| 1 | The **axis** (section 2.2.3.6) is a date **axis** (section 2.2.3.6). |

**F - fAutoBase (1 bit):** A bit that specifies whether the units of the date **axis** (section 2.2.3.6) are chosen automatically. If **fDateAxis** is set to 0, MUST be ignored. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **duBase** is used and **duBase** is not computed automatically. |
| 1 | **duBase** is calculated automatically. |

**G - fAutoCross (1 bit):** A bit that specifies whether **catCrossDate** is calculated automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **catCrossDate** is used and **catCrossDate** is not calculated automatically. |
| 1 | **catCrossDate** is calculated automatically such that it can be displayed. |

**H - fAutoDate (1 bit):** A bit that specifies whether the **axis** (section 2.2.3.6) type is detected automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The **axis** (section 2.2.3.6) will stay as specified by the **fDateAxis** field. |
| 1 | The **axis** (section 2.2.3.6) will automatically become a date **axis** (section 2.2.3.6) when the data it is related to contains date values. Otherwise, the **axis** (section 2.2.3.6) will be a [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) **axis** (section 2.2.3.6). |

**reserved (8 bits):** MUST be zero, and MUST be ignored.

### 2.4.10 AxesUsed

The **AxesUsed** record specifies the number of **axis groups** (section [2.2.3.5](#Section_578b739742624944b5a67ee6d4d3bb55)) on the **chart** (section [2.2.3.3](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cAxes | | | | | | | | | | | | | | | |

**cAxes (2 bytes):** An unsigned integer that specifies the number of **axis groups** (section 2.2.3.5) on the **chart** (section 2.2.3.3). MUST be a value from the following table:

| Value | Axis present |
| --- | --- |
| 0x0001 | A single primary **axis group** (section 2.2.3.5) is present. |
| 0x0002 | Both a primary **axis group** (section 2.2.3.5) and a secondary **axis group** (section 2.2.3.5) are present. |

If no **chart groups** (section [2.2.3.7](#Section_c91fdf3195e2495fa48a5546ce20c0c5)) are present on the **chart** (section 2.2.3.3), MUST be 0x0001. If the **chart sheet substream** (section [2.1.7.20.1](#Section_732ff614d939416bb7c76d983471ff11)) contains a **Chart3d record** (section [2.4.46](#Section_caefd44b1e5542acaed4c475442be33f)), MUST be 0x0001.

### 2.4.11 Axis

The **Axis** record specifies properties of an **axis** (section [2.2.3.6](#Section_4117f73aa0f348d89c0f65864918ffb3)) and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) that specifies an **axis** (section 2.2.3.6).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wType | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved4 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**wType (2 bytes):** An unsigned integer that specifies the type of **axis** (section 2.2.3.6). The value MUST be 0x0000 if the record is the first **axis** (section 2.2.3.6) in the **axis group** (section [2.2.3.5](#Section_578b739742624944b5a67ee6d4d3bb55)). The value MUST be 0x0001 if the record is the second **axis** (section 2.2.3.6) in the **axis group** (section 2.2.3.5). The value MUST be 0x0002 if the record is the third **axis** (section 2.2.3.6) in the **axis group** (section 2.2.3.5). MUST be a value from the following table:

| Value | Axis type |
| --- | --- |
| 0x0000 | **Axis** (section 2.2.3.6) type is a horizontal value **axis** (section 2.2.3.6) for a scatter **chart group** (section [2.2.3.7](#Section_c91fdf3195e2495fa48a5546ce20c0c5)) or a bubble **chart group** (section 2.2.3.7), or [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) **axis** (section 2.2.3.6) for all other **chart group** (section 2.2.3.7) types. |
| 0x0001 | **Axis** (section 2.2.3.6) type is a vertical value **axis** (section 2.2.3.6) for a scatter **chart group** (section 2.2.3.7) or a bubble **chart group** (section 2.2.3.7), or value **axis** (section 2.2.3.6) for all other **chart group** (section 2.2.3.7) types. |
| 0x0002 | **Axis** (section 2.2.3.6) type is a series **axis** (section 2.2.3.6). |

**reserved1 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved3 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved4 (4 bytes):** MUST be zero, and MUST be ignored.

### 2.4.12 AxisLine

The **AxisLine** record specifies which part of the **axis** (section [2.2.3.6](#Section_4117f73aa0f348d89c0f65864918ffb3)) is specified by the **LineFormat** record (section [2.4.156](#Section_1bff256238664b958a6bf3fea1659f6d)) that follows.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| id | | | | | | | | | | | | | | | |

**id (2 bytes):** An unsigned integer that specifies which part of the **axis** (section 2.2.3.6) is defined by the **LineFormat** record (section 2.4.156) that follows be unique among all other **id** field values in AxisLine records in the current **axis** (section 2.2.3.6). MUST be greater than the **id** field values in preceding AxisLine records in the current **axis** (section 2.2.3.6). MUST be a value from the following table:

| Value | Part of the axis defined |
| --- | --- |
| 0x0000 | The **axis** (section 2.2.3.6) line itself. |
| 0x0001 | The [**major gridlines**](#gt_2803347c-6396-46a5-9ede-6bef1149b013) along the **axis** (section 2.2.3.6). |
| 0x0002 | The [**minor gridlines**](#gt_49980976-6314-43ad-ad51-8d3e55ef4b59) along the **axis** (section 2.2.3.6). |
| 0x0003 | The [**walls**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c) or [**floor**](#gt_dc38c098-e0d3-4701-9656-5f2cf4d80f29) of a 3-D **chart** (section [2.2.3.3](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c)). |

In the case where **id** is set to 0x0003, this record MUST be preceded by an **Axis** record (section [2.4.11](#Section_33155f3a9afe44a493d178af188f77f6)) with the **wType** set to a value from the following table:

| Value of wType | Formatted object |
| --- | --- |
| 0x0000 | The walls of a 3-D **chart** (section 2.2.3.3). |
| 0x0001 | The floor of a 3-D **chart** (section 2.2.3.3). |

### 2.4.13 AxisParent

The **AxisParent** record specifies properties of an **axis group** (section [2.2.3.5](#Section_578b739742624944b5a67ee6d4d3bb55)) and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) that specifies an **axis group** (section 2.2.3.5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iax | | | | | | | | | | | | | | | | unused (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**iax (2 bytes):** A **Boolean** (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the **axis group** (section 2.2.3.5) is primary or secondary. MUST be a value from the following table. This field MUST equal 0 when in the first **AxisParent record** in the Chart Sheet Substream ABNF. This field MUST equal 1 when in the second **AxisParent record** in the Chart Sheet Substream ABNF.

| Value | Meaning |
| --- | --- |
| 0x0000 | **Axis group** (section 2.2.3.5) is primary. |
| 0x0001 | **Axis group** (section 2.2.3.5) is secondary. |

**unused (16 bytes):** Undefined and MUST be ignored.

### 2.4.14 Backup

The **Backup** record specifies whether to save a backup copy of the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fBackup | | | | | | | | | | | | | | | |

**fBackup (2 bytes):** A **Boolean** (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether to save a backup file. The value 1 means that a backup copy of the workbook is saved when the workbook is saved.

### 2.4.15 Bar

The **Bar** record specifies that the **chart group** (section [2.2.3.7](#Section_c91fdf3195e2495fa48a5546ce20c0c5)) is a bar **chart group** (section 2.2.3.7) or a column **chart group** (section 2.2.3.7), and specifies the **chart group** (section 2.2.3.7) attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| pcOverlap | | | | | | | | | | | | | | | | pcGap | | | | | | | | | | | | | | | |
| A | B | C | D | reserved | | | | | | | | | | | |

**pcOverlap (2 bytes):** A signed integer that specifies the overlap between **data points** (section [2.2.3.10](#Section_9c986ad250d44fa1a157063ac5c971a0)) in the same [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) as a percentage of the **data points** (section 2.2.3.10) width. MUST be greater than or equal to -100 and less than or equal to 100. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -100 to -1 | Size of the separation between **data points** (section 2.2.3.10). |
| 0 | No overlap. |
| 1 to 100 | Size of the overlap between **data points** (section 2.2.3.10). |

**pcGap (2 bytes):** An unsigned integer that specifies the width of the gap between the categories (2) and the left and right edges of the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) as a percentage of the **data point** (section 2.2.3.10) width divided by 2. It also specifies the width of the gap between adjacent categories (2) as a percentage of the **data point** (section 2.2.3.10) width. MUST be less than or equal to 500.

**A - fTranspose (1 bit):** A bit that specifies whether the **data points** (section 2.2.3.10) and value **axis** (section [2.2.3.6](#Section_4117f73aa0f348d89c0f65864918ffb3)) are horizontal (for a bar **chart group** (section 2.2.3.7)) or vertical (for a column **chart group** (section 2.2.3.7)). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | **Data points** (section 2.2.3.10) and value **axis** (section 2.2.3.6) are vertical. |
| 1 | **Data points** (section 2.2.3.10) and value **axis** (section 2.2.3.6) are horizontal. |

**B - fStacked (1 bit):** A bit that specifies whether the **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) that share the same category (2) are stacked.

**C - f100 (1 bit):** A bit that specifies whether the **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) are displayed as a percentage of the sum of all **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) that share the same category (2). MUST be 0 if **fStacked** is 0.

**D - fHasShadow (1 bit):** A bit that specifies whether one or more **data points** (section 2.2.3.10) in the **chart group** (section 2.2.3.7) has shadows.

**reserved (12 bits):** MUST be zero, and MUST be ignored.

### 2.4.16 BCUsrs

The **BCUsrs** record specifies the beginning of a collection of **UsrInfo records** (section [2.4.340](#Section_0c543b9fc6d441d8ad3a9332486c37fc)) as defined the [user names](#Section_1b98bc4df7c640a088dba99426635acd) stream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of **UsrInfo records** (section 2.4.340) specifies information about a user who currently has the **shared workbook** (section [2.2.11](#Section_e45a62c4490f4304a09668908b57dacc)) open.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iCount | | | | | | | | | | | | | | | |

**iCount (2 bytes):** An unsigned integer that specifies the number of users of an operating system [**Briefcase**](#gt_f95e9f06-66e9-4128-bd17-f8b60e41ef31) who have the current [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) open.

### 2.4.17 Begin

The **Begin** record specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies properties of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c).

### 2.4.18 BigName

The **BigName** record specifies a name/value pair of arbitrary user-defined data that is associated with the current [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | | lcbData | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cbName | | | | | | | | rgbName (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be 0x1000, and MUST be ignored.

**lcbData (4 bytes):** A signed integer that specifies the byte count for **rgbData**. MUST be greater than or equal to zero.

**cbName (1 byte):** An unsigned integer that specifies the byte count for **rgbName**.

**rgbName (variable):** An array of ANSI characters whose length is specified by **cbName** that specifies the name of the custom property.

**rgbData (variable):** An array of bytes that specifies the value of the custom property. It can continue with the [ContinueBigName](#Section_f45a9462f6eb49879dc99a20f37e8cf3) records.

### 2.4.19 BkHim

The **BkHim** record specifies image data for a [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) background.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cf | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| lcb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| imageBlob (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cf (2 bytes):** A signed integer that specifies the image format. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0009 | Bitmap format. The image data is stored in a bitmap format as described in [[MSDN-BMP]](https://go.microsoft.com/fwlink/?LinkId=89960). |
| 0x000E | Native format. The image data is stored in the native format of another application and cannot be directly processed. |

**reserved (2 bytes):** MUST be 0x0001, and MUST be ignored.

**lcb (4 bytes):** A signed integer that specifies the size of **imageBlob** in bytes. MUST be greater than or equal to 1.

**imageBlob (variable):** An array of bytes that specifies the image data for the given format.

### 2.4.20 Blank

The **Blank** record specifies an empty [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) with no formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) or value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**cell (6 bytes):** A [Cell](#Section_6bb50f66faf048f9b6a9f0f452a77598) structure that specifies the cell.

### 2.4.21 BOF

The **BOF** record specifies the beginning of the individual substreams as specified by the [workbook](#Section_f682f4b08c6b444e83f852d156f1e8ba) section. It also specifies history information for the substreams.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| vers | | | | | | | | | | | | | | | | dt | | | | | | | | | | | | | | | |
| rupBuild | | | | | | | | | | | | | | | | rupYear | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | | H | I | J | K | | L | M | | | | N | reserved1 | | | | | | | | | | | | |
| verLowestBiff | | | | | | | | O | | | | reserved2 | | | | | | | | | | | | | | | | | | | |

**vers (2 bytes):** An unsigned integer that specifies the [**BIFF**](#gt_f9965de8-cd18-4e26-a9c6-adfee3d67517) version of the file. The value MUST be 0x0600.

**dt (2 bytes):** An unsigned integer that specifies the document type of the substream of records following this record. For more information about the layout of the sub-streams in the workbook stream see [File Structure](#Section_2e6147d9e8ad48b09ff7bbfc51ca950d). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0005 | Specifies the workbook substream. |
| 0x0010 | Specifies the [dialog sheet](#Section_da37feb48b9a462d87772a5fddd4866e) substream or the [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream.  The [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) substream that starts with this BOF record MUSTcontain one [WsBool](#Section_ccbd73f9ff1d4069be3113d16c074ec4) record. If the **fDialog** field in that WsBool is 1 then the sheet (1) is [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8) otherwise the sheet (1) is a [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615). |
| 0x0020 | Specifies the [chart sheet](#Section_2c90d75bc92645aa8ff29d4483f51831) substream. |
| 0x0040 | Specifies the [macro sheet](#Section_0dddd943f77a4fc2bf92868acb4587f7) substream. |

**rupBuild (2 bytes):** An unsigned integer that specifies the [**build identifier**](#gt_0748643f-8a66-42ea-959a-3acd533eedc5).

**rupYear (2 bytes):** An unsigned integer that specifies the year when this BIFF version was first created. The value MUST be 0x07CC[<27>](#Appendix_A_27" \o "Product behavior note 27) or 0x07CD.

**A - fWin (1 bit):** A bit that specifies whether this file was last edited on a Windows platform. The value MUST be 1.

**B - fRisc (1 bit):** A bit that specifies whether the file was last edited on a RISC platform. The value MUST be 0.

**C - fBeta (1 bit):** A bit that specifies whether this file was last edited by a [**beta**](#gt_b7cc0e52-196c-41e1-afa2-14da4352ac5d) version of the application. The value MUST be 0.

**D - fWinAny (1 bit):** A bit that specifies whether this file has ever been edited on a Windows platform. The value SHOULD[<28>](#Appendix_A_28" \o "Product behavior note 28) be 1.

**E - fMacAny (1 bit):** A bit that specifies whether this file has ever been edited on a Macintosh platform. The value MUST be 0.

**F - fBetaAny (1 bit):** A bit that specifies whether this file has ever been edited by a beta version of the application. The value MUST be 0.

**G - unused1 (2 bits):** Undefined and MUST be ignored.

**H - fRiscAny (1 bit):** A bit that specifies whether this file has ever been edited on a RISC platform. The value MUST be 0.

**I - fOOM (1 bit):** A bit that specifies whether this file had an [**out-of-memory**](#gt_1607fcec-cc19-40a2-9a61-678f90f5943e) failure.

**J - fGlJmp (1 bit):** A bit that specifies whether this file had an out-of-memory failure during rendering.

**K - unused2 (2 bits):** Undefined, and MUST be ignored.

**L - fFontLimit (1 bit):** A bit that specified that whether this file hit the 255 [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) limit[<29>](#Appendix_A_29" \o "Product behavior note 29).

**M - verXLHigh (4 bits):** An unsigned integer that specifies the highest version of the application that once saved this file. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies the highest version of the application that has ever saved this file. [<30>](#Appendix_A_30" \o "Product behavior note 30) |
| 0x1 | Specifies the highest version of the application that has ever saved this file. [<31>](#Appendix_A_31" \o "Product behavior note 31) |
| 0x2 | Specifies the highest version of the application that has ever saved this file. [<32>](#Appendix_A_32" \o "Product behavior note 32) |
| 0x3 | Specifies the highest version of the application that has ever saved this file. [<33>](#Appendix_A_33" \o "Product behavior note 33) |
| 0x4 | Specifies the highest version of the application that has ever saved this file. [<34>](#Appendix_A_34" \o "Product behavior note 34) |
| 0x6 | Specifies the highest version of the application that has ever saved this file. [<35>](#Appendix_A_35" \o "Product behavior note 35) |
| 0x7 | Specifies the highest version of the application that has ever saved this file. [<36>](#Appendix_A_36" \o "Product behavior note 36) |

**N - unused3 (1 bit):** Undefined, and MUST be ignored.

**reserved1 (13 bits):** MUST be zero, and MUST be ignored.

**verLowestBiff (8 bits):** An unsigned integer that specifies the BIFF version saved. The value MUST be 6.

**O - verLastXLSaved (4 bits):** An unsigned integer that specifies the application that saved this file most recently. The value MUST be the value of field **verXLHigh** or less. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies the highest version of the application that has ever saved this file. [<37>](#Appendix_A_37" \o "Product behavior note 37) |
| 0x1 | Specifies the highest version of the application that has ever saved this file.[<38>](#Appendix_A_38" \o "Product behavior note 38) |
| 0x2 | Specifies the highest version of the application that has ever saved this file.[<39>](#Appendix_A_39" \o "Product behavior note 39) |
| 0x3 | Specifies the highest version of the application that has ever saved this file. [<40>](#Appendix_A_40" \o "Product behavior note 40) |
| 0x4 | Specifies the highest version of the application that has ever saved this file.[<41>](#Appendix_A_41" \o "Product behavior note 41) |
| 0x6 | Specifies the highest version of the application that has ever saved this file.[<42>](#Appendix_A_42" \o "Product behavior note 42) |
| 0x7 | Specifies the highest version of the application that has ever saved this file.[<43>](#Appendix_A_43" \o "Product behavior note 43) |

**reserved2 (20 bits):** MUST be zero, and MUST be ignored.

### 2.4.22 BookBool

The **BookBool** record specifies some of the properties associated with a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | | G | H | reserved2 | | | | | | |

**A - fNoSaveSup (1 bit):** A bit that specifies that [**external link**](#gt_496fd743-2045-4c53-81b9-83fb90a7fab1) values are saved in the workbook. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | External link values are saved. |
| 1 | External link values are not saved. |

**B - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**C - fHasEnvelope (1 bit):** A bit that specifies whether the workbook has an envelope as a result of sending the workbook to a mail recipient. If **fEnvelopeVisible** is 1 or **fEnvelopeInitDone** is 1, then this bit MUST be 1.

**D - fEnvelopeVisible (1 bit):** A bit that specifies whether the envelope is [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72).

**E - fEnvelopeInitDone (1 bit):** A bit that specifies whether the envelope has been initialized.

**F - grUpdateLinks (2 bits):** An unsigned integer that specifies when the application updates external links in the workbook. The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | Prompt user to update. |
| 1 | Do not update, and do not prompt user. |
| 2 | Silently update external links. The application can choose to prompt the user because of security concerns[<44>](#Appendix_A_44" \o "Product behavior note 44). |

**G - unused (1 bit):** Undefined and MUST be ignored.

**H - fHideBorderUnselLists (1 bit):** A bit that specifies whether to hide borders of [**tables**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) that do not contain the [**active cell**](#gt_2c0759a5-6721-422b-8cb9-f4bb09e07c84)[<45>](#Appendix_A_45" \o "Product behavior note 45).

**reserved2 (7 bits):** MUST be zero, and MUST be ignored.

### 2.4.23 BookExt

The **BookExt** record specifies properties of a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) file.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | | F | G | H | I | reserved | | | | | | | | | | | | | | | | | | | | | |
| grbit1 (optional) | | | | | | | | grbit2 (optional) | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0863.

**cb (4 bytes):** An unsigned integer that specifies the size of the record in bytes.

**A - fDontAutoRecover (1 bit):** A bit that specifies whether [**AutoRecover**](#gt_082e4fd1-0461-4797-baa0-d2797f0ba555) is disabled for the workbook.

**B - fHidePivotList (1 bit):** A bit that specifies whether the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) field list is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) for this workbook.

**C - fFilterPrivacy (1 bit):** A bit that specifies whether personal information is removed from this workbook on save.

**D - fEmbedFactoids (1 bit):** A bit that specifies whether [**smart tags**](#gt_2f57a49a-d503-4605-8798-0e53bd637609) are embedded in this workbook on save.

**E - mdFactoidDisplay (2 bits):** A bit that specifies how smart tags are displayed in the workbook. The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x00 | The application will display the [**smart tag actions button**](#gt_7c1f7dd0-048a-433e-a5ac-98b32121bcb9) and the [**smart tag indicator**](#gt_62e83b67-c6c5-4a3e-8a09-2a5f0f39f65f). |
| 0x01 | The application will display the smart tag actions button only. The smart tag indicators will not be displayed. |
| 0x02 | The application will not display the smart tag actions button or the smart tag indicator. |

**F - fSavedDuringRecovery (1 bit):** A bit that specifies whether the workbook was saved during AutoRecover.

**G - fCreatedViaMinimalSave (1 bit):** A bit that specifies whether the workbook was created by a [**minimal save**](#gt_37ba5c27-ec42-4ccf-8122-86166df37c61) during [**data recovery**](#gt_667a7046-739a-4c24-9674-837d88e0031b).

**H - fOpenedViaDataRecovery (1 bit):** A bit that specifies whether the workbook was opened by means of data recovery.

**I - fOpenedViaSafeLoad (1 bit):** A bit that specifies whether the workbook was opened in [**safe load**](#gt_78d75560-7171-4a5d-be0e-3b8c14bc62c4) mode.

**reserved (22 bits):** MUST be zero, and MUST be ignored.

**grbit1 (1 byte):** A [BookExt\_Conditional11](#Section_50cc0d44e2d14aa99a05d1dacd35f8d3) structure that specifies additional workbook-specific information. This structure MUST exist when **cb** is greater than 20.

**grbit2 (1 byte):** A [BookExt\_Conditional12](#Section_714e951cff5a48769e01bdfa1b548141) structure that specifies additional workbook-specific information. This structure MUST exist when **cb** is greater than 21.

### 2.4.24 BoolErr

The **BoolErr** record specifies a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that contains either a Boolean value or an error value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | bes | | | | | | | | | | | | | | | |

**cell (6 bytes):** A [Cell](#Section_6bb50f66faf048f9b6a9f0f452a77598) structure that specifies the cell.

**bes (2 bytes):** A [Bes](#Section_4a18edf4b88c4b39a857b31757314d0f) structure that specifies a Boolean or an error value.

### 2.4.25 BopPop

The **BopPop** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a bar of pie chart group or a pie of pie chart group and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| pst | | | | | | | | fAutoSplit | | | | | | | | split | | | | | | | | | | | | | | | |
| iSplitPos | | | | | | | | | | | | | | | | pcSplitPercent | | | | | | | | | | | | | | | |
| pcPie2Size | | | | | | | | | | | | | | | | pcGap | | | | | | | | | | | | | | | |
| numSplitValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | reserved | | | | | | | | | | | | | | |

**pst (1 byte):** An unsigned integer that specifies whether this chart group is a bar of pie chart group or a pie of pie chart group. MUST be a value from the following table:

| Value | Subtype |
| --- | --- |
| 0x01 | Pie of pie chart group |
| 0x02 | Bar of pie chart group |

**fAutoSplit (1 byte):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the split point of the chart group is determined automatically. If the value is 1, when a bar of pie chart group or pie of pie chart group is initially created the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) from the [**primary pie**](#gt_e2300016-b59d-4384-9b70-c000523747e0) are selected and inserted into the [**secondary bar/pie**](#gt_e452a278-4e13-44c6-9f1b-db3c93841bc6) automatically.

**split (2 bytes):** An unsigned integer that specifies what determines the split between the primary pie and the secondary bar/pie. MUST be ignored if **fAutoSplit** is set to 1. MUST be a value from the following table:

| Value | Type of split | Meaning |
| --- | --- | --- |
| 0x0000 | Position | The data is split based on the position of the data point in the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) as specified by **iSplitPos**. |
| 0x0001 | Value | The data is split based on a threshold value as specified by **numSplitValue**. |
| 0x0002 | Percent | The data is split based on a percentage threshold and the data point values represented as a percentage as specified by **pcSplitPercent**. |
| 0x0003 | Custom | The data is split as arranged by the user. Custom split is specified in a following [BopPopCustom](#Section_7ee5fcfc122b4f8d8eec5858642fbf30) record. |

**iSplitPos (2 bytes):** A signed integer that specifies how many data points are contained in the secondary bar/pie. Data points are contained in the secondary bar/pie starting from the end of the series. For example, if the value is 2, the last 2 data points in the series are contained in the secondary bar/pie. MUST be a value greater than or equal to 0 and less than or equal to 32000. If the value is more than the number of data points in the series, the entire series will be in the secondary bar/pie, except for the first data point. If **split** is not set to 0x0000 or **fAutoSplit** is set to 1, this value MUST be ignored.

**pcSplitPercent (2 bytes):** A signed integer that specifies the percentage below which each data point is contained in the secondary bar/pie as opposed to the primary pie. The percentage value of a data point is calculated using the following formula:

(value of the data point x 100) / sum of all data points in the series

If **split** is not set to 0x0002 or if **fAutoSplit** is set to 1, this value MUST be ignored

**pcPie2Size (2 bytes):** A signed integer that specifies the size of the secondary bar/pie as a percentage of the size of the primary pie. MUST be a value greater than or equal to 5 and less than or equal to 200.

**pcGap (2 bytes):** A signed integer that specifies the distance between the primary pie and the secondary bar/pie. The distance is specified as a percentage of the average width of the primary pie and secondary bar/pie. MUST be a value greater than or equal to 0 and less than or equal to 500, where 0 is 0% of the average width of the primary pie and the secondary bar/pie, and 500 is 250% of the average width of the primary pie and the secondary bar/pie.

**numSplitValue (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the split when the **split** field is set to 0x0001. The value of this field specifies the threshold that selects which data points of the primary pie move to the secondary bar/pie. The secondary bar/pie contains any data points with a value less than the value of this field. If **split** is not set to 0x0001 or if **fAutoSplit** is set to 1, this value MUST be ignored.

**A - fHasShadow (1 bit):** A bit that specifies whether one or more data points in the chart group have shadows.

**reserved (15 bits):** MUST be zero, and MUST be ignored.

### 2.4.26 BopPopCustom

The **BopPopCustom** record specifies which [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) in the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) are contained in the [**secondary bar/pie**](#gt_e452a278-4e13-44c6-9f1b-db3c93841bc6) instead of the [**primary pie**](#gt_e2300016-b59d-4384-9b70-c000523747e0). MUST follow a [BopPop](#Section_810df3fd650345459bf509ab2061818a) record that has its **split** field set to Custom (0x0003).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cxi | | | | | | | | | | | | | | | | rggrbit (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cxi (2 bytes):** An unsigned integer that specifies to the number of data points in the series plus one. MUST be less than 32000.

**rggrbit (variable):** A sequence of bits that specifies whether each data point in the series is contained in the primary pie or the secondary bar/pie. For each data point a corresponding bit specifies whether a data point is contained in the secondary bar/pie or primary pie as specified in the following table:

| Value | **Meaning** |
| --- | --- |
| 0 | Data point is contained in the primary pie. |
| 1 | Data point is contained in the secondary bar/pie. |

The size of this field, in bytes, is calculated using the following formula:

size of **rggrbit** in bytes = 1+floor(**cxi** / 8)

The padding of this field, in bits, is calculated using the following formula:

padding = size of **rggrbit** in bits - **cxi**

The position of each bit in the sequence corresponds to the position of each data point in the series arranged as follows:

 Any padding is placed in the most significant bits of the first byte. The next most significant bit of the first byte corresponds to the first data point in the series. If there are any more unused bits in the first byte, the next most significant bit corresponds to the second data point in the series. This pattern continues until there are no remaining unused bits in the first byte.

 The most significant bit of the next byte corresponds to the next data point in the series. The next most significant bit contains the next data point in the series. This pattern continues for each byte in the sequence.

 The least significant bit of the final byte is an additional bit that specifies whether the secondary bar/pie does not contain data points. If the value of the additional bit is 1, the value of every other bit MUST be 0.

The following figure demonstrates this order:

| Byte 0 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 (LSB) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Data Point 3 | Data Point 2 | Data Point 1 | Data Point 0 | Padding | | | |

| Byte 1 | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 (MSB) |
| Additional Bit | Data Point 10 | Data Point 9 | Data Point 8 | Data Point 7 | Data Point 6 | Data Point 5 | Data Point 4 |

### 2.4.27 BottomMargin

The **BottomMargin** record specifies the bottom margin of the current [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| num | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**num (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the bottom margin of the current sheet (1) in inches. The value MUST be greater than or equal to 0 and less than or equal to 49.

### 2.4.28 BoundSheet8

The **BoundSheet8** record specifies basic information about a [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d), including the sheet (1) name, [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) state, and type of sheet (1).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| lbPlyPos | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | | unused | | | | | | dt | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**lbPlyPos (4 bytes):** A FilePointer as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.2.1.5 that specifies the stream position of the start of the [BOF](#Section_4d6a3d1ed7c5405fbbaed01e9cb79366) record for the sheet (1).

**A - hsState (2 bits):** An unsigned integer that specifies the hidden state of the sheet (1). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | [**Visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) |
| 0x01 | Hidden |
| 0x02 | Very Hidden; the sheet (1) is hidden and cannot be displayed using the user interface. |

**unused (6 bits):** Undefined and MUST be ignored.

**dt (8 bits):** An unsigned integer that specifies the sheet (1) type. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | [**Worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615) or [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8)  The sheet substream that starts with the BOF record specified in **lbPlyPos** MUSTcontain one [WsBool](#Section_ccbd73f9ff1d4069be3113d16c074ec4) record. If the **fDialog** field in that WsBool is 1 then the sheet is dialog sheet. Otherwise, the sheet is a worksheet. |
| 0x01 | [**Macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491) |
| 0x02 | [**Chart sheet**](#gt_da561b7b-c629-4cd8-bfaa-6e62471d9e83) |
| 0x06 | [**VBA**](#gt_bc3968c6-4bd2-40a2-8619-5cd7695b3e4f) [**module**](#gt_3f7df968-a51b-4dea-9f2c-4cf6ce65ccc1) |

**stName (variable):** A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) structure that specifies the unique case-insensitive name of the sheet (1). The character count of this string, **stName.cch,** MUST be greater than or equal to 1 and less than or equal to 31. The string MUST NOT contain the any of the following characters:

 0x0000

 0x0003

 colon (:)

 backslash (\)

 asterisk (\*)

 question mark (?)

 forward slash (/)

 opening square bracket ([)

 closing square bracket (])

The string MUST NOT begin or end with the single quote (') character.

### 2.4.29 BRAI

The **BRAI** record specifies a reference to data in a sheet that is used by a part of a [series](#Section_527ce4dfc9f84e50a314d4b07519593c), [**legend entry**](#gt_6c27eb24-fb59-4bc8-8962-9cdac46a748e), [trendline](#Section_61d74ebc36714d6dbdc0626db604530d) or [error bars](#Section_762a461d0a45474ebd7d5994bb294af2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| id | | | | | | | | rt | | | | | | | | A | reserved | | | | | | | | | | | | | | |
| ifmt | | | | | | | | | | | | | | | | formula (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**id (1 byte):** An unsigned integer that specifies the part of the series, trendline, or error bars the referenced data specifies. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Referenced data specifies the series, legend entry, or trendline name. Error bars name MUST be empty. |
| 0x01 | Referenced data specifies the values or horizontal values on bubble and scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5) of the series and error bars. |
| 0x02 | Referenced data specifies the [**categories (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) or vertical values on bubble and scatter chart groups of the series and error bars. |
| 0x03 | Referenced data specifies the [**bubble size**](#gt_3a0cf938-5b61-4460-bdbb-3540d84d4180) values of the series. |

**rt (1 byte):** An unsigned integer that specifies the type of data that is being referenced. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | The [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) is a category (2) name, series name or bubble size that was automatically generated. |
| 0x01 | The data source is the text or value as specified by the **formula** field. |
| 0x02 | The data source is the value from a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells in a sheet specified by the **formula** field. |

**A - fUnlinkedIfmt (1 bit):** A bit that specifies whether the part of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) specified by the **id** field uses number formatting from the referenced data. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The data uses the number formatting of the referenced data. |
| 0x1 | The data uses the custom number formatting specified in the **ifmt** field. |

**reserved (15 bits):** MUST be zero, and MUST be ignored.

**ifmt (2 bytes):** An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) structure that specifies the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) to use for the data.

**formula (variable):** A [ChartParsedFormula](#Section_c5cd4a9adfc14dfcb06f94d31c7e116c) structure that specifies the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that specifies the reference.

### 2.4.30 BuiltInFnGroupCount

The **BuiltInFnGroupCount** record specifies the beginning of a collection of records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies information about the built-in [**function categories**](#gt_026a49a8-c3e8-49eb-a97f-58bd2c79c540) in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| count | | | | | | | | | | | | | | | |

**count (2 bytes):** An unsigned integer that specifies the number of built-in function categories in the workbook. The sum of **count,** the count of **FnGroupName** (section [2.4.120](#Section_3b945c1f208a481e91cc333111fce594)) records and the count of **FnGrp12** (section [2.4.121](#Section_a2c6b3b4267c4f858b5d21ebfb9e1cdd)) records in the current workbook MUST be less than or equal to 256. The user-defined function categories include those defined in **FnGroupName** records and **FnGrp12** records. The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x0E | There are 14 built-in function categories in the workbook. This implies that the file was last saved by a specific version of the application[<46>](#Appendix_A_46" \o "Product behavior note 46).  The following 9 built-in function categories are [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) to the end-user: Financial, Date & Time, Math & Trig, Statistical, Lookup & Reference, Database, Text, Logical, Information.  The following 5 built-in function categories are not visible to the end-user: UserDefined, Commands, Customize, MacroControl, DDEExternal. |
| 0x10 | There are 16 built-in function categories in the workbook. This implies that the file was last saved by a specific version of the application[<47>](#Appendix_A_47" \o "Product behavior note 47).  The following 11 built-in function categories are visible to the end-user: Financial, Date & time, Math & Trig, Statistical, Lookup & Reference, Database, Text, Logical, Information, Engineering, Cube.  The following 5 built-in function categories are not visible to the end-user: UserDefined, commands, Customize, MacroControl, DDEExternal |

### 2.4.31 CalcCount

The **CalcCount** record specifies the iteration count for a calculation in [**iterative calculation**](#gt_82aafd33-4105-4e36-a897-987cc03d8386) mode.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cIter | | | | | | | | | | | | | | | |

**cIter (2 bytes):** A signed integer that specifies the maximum number of iterations that can occur for a calculation in iterative calculation mode. MUST be greater than or equal to one and less than or equal to 32767.

### 2.4.32 CalcDelta

The **CalcDelta** record specifies the minimum value change required for [**iterative calculation**](#gt_82aafd33-4105-4e36-a897-987cc03d8386) to continue.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| numDelta | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**numDelta (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the amount of change in value for a given [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) from the previously calculated value for that cell that MUST exist for the iteration to continue. The value MUST be greater than or equal to 0.

### 2.4.33 CalcIter

The **CalcIter** record specifies the state of [**iterative calculation**](#gt_82aafd33-4105-4e36-a897-987cc03d8386).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| vfIter | | | | | | | | | | | | | | | |

**vfIter (2 bytes):** A **Boolean** (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether to enable iterative calculation.

If the value is 0, iterative calculation is disabled. If the value is 1, iterative calculation is enabled.

### 2.4.34 CalcMode

The **CalcMode** record specifies the [**calculation mode**](#gt_f02f81e1-8eda-4ec3-88e9-c2c483ff47ee) for the workbook.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fAutoRecalc | | | | | | | | | | | | | | | |

**fAutoRecalc (2 bytes):** A signed integer that specifies whether the calculation mode is automatic or manual.

The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | Manual |
| 1 | Automatic |
| 2 | Automatic, except for tables |

### 2.4.35 CalcPrecision

The **CalcPrecision** record specifies the calculation precision mode for the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fFullPrec | | | | | | | | | | | | | | | |

**fFullPrec (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the [**precision as displayed**](#gt_e2ff81a6-eb9a-4e49-a1d0-cd4483e2e9a6) mode is [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595).

If the value is 0, the precision as displayed mode is selected. If the value is 1, the precision as displayed mode is not selected.

### 2.4.36 CalcRefMode

The **CalcRefMode** record specifies the [**reference style**](#gt_71d7e4ad-d6b6-49d9-b247-e2ebba1469e9) for the workbook.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fRefA1 | | | | | | | | | | | | | | | |

**fRefA1 (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the reference style for all formulas.

If the value is 0, the mode is [**R1C1**](#gt_c7769777-74d5-4020-b9e5-4cd863f70132). If the value is 1, the mode is [**A1**](#gt_950691d0-4b64-4e03-84ae-10d6c872bbdb).

### 2.4.37 CalcSaveRecalc

The **CalcSaveRecalc** record specifies the recalculation behavior.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fSaveRecalc | | | | | | | | | | | | | | | |

**fSaveRecalc (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether to [**recalculate**](#gt_74366612-1dc4-4e8f-8e1a-d833b829f0c3) the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) before it is saved, when in manual [**calculation mode**](#gt_f02f81e1-8eda-4ec3-88e9-c2c483ff47ee). If the value is 0, the workbook is not recalculated before it is saved. If the value is 1, the workbook is recalculated before it is saved.

### 2.4.38 CatLab

The **CatLab** record specifies the attributes of the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) label.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wOffset | | | | | | | | | | | | | | | | at | | | | | | | | | | | | | | | |
| A | unused | | | | | | | | | | | | | | | reserved (optional) | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0856.

**wOffset (2 bytes):** An unsigned integer that specifies the distance between the axis and axis label. It contains the offset as a percentage of the default distance. The default distance is equal to 1/3 the height of the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) calculated in pixels. MUST be a value greater than or equal to 0 (0%) and less than or equal to 1000 (1000%).

**at (2 bytes):** An unsigned integer that specifies the alignment of the axis label. MUST be a value from the following table:

| Value | Alignment |
| --- | --- |
| 0x0001 | Top-aligned if the **trot** field of the [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record of the axis is not equal to 0. Left-aligned if the **iReadingOrder** field of the Text record of the axis specifies [**left-to-right**](#gt_b8c262f8-6c09-457a-9b68-4bf3a08ab067) [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361); otherwise, right-aligned. |
| 0x0002 | Center-alignment |
| 0x0003 | Bottom-aligned if the **trot** field of the Text record of the axis is not equal to 0. Right-aligned if the **iReadingOrder** field of the Text record of the axis specifies left-to-right reading order; otherwise, left-aligned. |

**A - cAutoCatLabelReal (1 bit):** A bit that specifies whether the number of [**categories (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) between axis labels is set to the default value. MUST be a value from the following table:

| Value | Description |
| --- | --- |
| 0 | The value is set to **catLabel** field as specified by [CatSerRange](#Section_07bdb87444424468a7e2bd166769e6a9) record. |
| 1 | The value is set to the default value. The number of category (2) labels is automatically calculated by the application based on the data in the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). |

**unused (15 bits):** Undefined, and MUST be ignored.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

### 2.4.39 CatSerRange

The **CatSerRange** record specifies the properties of a [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3), a date axis, or a [series](#Section_527ce4dfc9f84e50a314d4b07519593c) axis.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| catCross | | | | | | | | | | | | | | | | catLabel | | | | | | | | | | | | | | | |
| catMark | | | | | | | | | | | | | | | | A | B | C | reserved | | | | | | | | | | | | |

**catCross (2 bytes):** A signed integer that specifies where the value axis crosses this axis, based on the following table. If **fMaxCross** is set to 1, the value this field MUST be ignored.

| Axis Type | catCross Range |
| --- | --- |
| Category (2) axis | This field specifies the category (2) at which the value axis crosses. For example, if this field is 2, the value axis crosses this axis at the second category (2) on this axis. MUST be greater than or equal to 1 and less than or equal to 31999. |
| Series axis | MUST be 0. |
| Date axis | **catCross** MUST be equal to the value given by the following formula:  **catCross** = catCrossDate – catMin + 1  Where catCrossDate is the **catCrossDate** field of the [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record and catMin is the **catMin** field of the AxcExt record. |

**catLabel (2 bytes):** A signed integer that specifies the interval between axis labels on this axis. MUST be greater than or equal to 1 and less than or equal to 31999. MUST be ignored for a date axis.

**catMark (2 bytes):** A signed integer that specifies the interval at which [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) and [**minor tick marks**](#gt_c2eb605a-6c5a-427e-8608-f16940de82a6) are displayed on the axis. Major tick marks and minor tick marks that would have been visible are hidden unless they are located at a multiple of this field. MUST be greater than or equal to 1, and less than or equal to 31999. MUST be ignored for a date axis.

**A - fBetween (1 bit):** A bit that specifies whether the value axis crosses this axis between major tick marks. MUST be a value from to following table:

| Value | Meaning |
| --- | --- |
| 0 | The value axis crosses this axis on a major tick mark. |
| 1 | The value axis crosses this axis between major tick marks. |

**B - fMaxCross (1 bit):** A bit that specifies whether the value axis crosses this axis at the last category (2), the last series, or the maximum date. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value axis crosses this axis at the value specified by **catCross**. |
| 1 | The value axis crosses this axis at the last category (2), the last series, or the maximum date. |

**C - fReverse (1 bit):** A bit that specifies whether the axis is displayed in reverse order. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The axis is displayed in order. |
| 1 | The axis is display in reverse order. |

**reserved (13 bits):** MUST be zero, and MUST be ignored.

### 2.4.40 CbUsr

The **CbUsr** record specifies the size of each [UsrInfo](#Section_0c543b9fc6d441d8ad3a9332486c37fc) record stored as part of a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgCbUsr (512 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgCbUsr (512 bytes):** An array of 2-byte unsigned integers. Each element in the array specifies the byte count for the UsrInfo record whose index in the collection of UsrInfo records following CbUsr corresponds to the index of the element. Array elements with a zero-based index greater than or equal to the count of users specified in the **iCount** field in [CUsr](#Section_a51b97cb3c2644aa80180580808050da) MUST be zero and MUST be ignored.

### 2.4.41 CellWatch

The **CellWatch** record specifies a reference to a [**watched cell**](#gt_d385eaa5-d238-4320-8ac4-f1a55becdb68).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeaderU (12 bytes):** An [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297) structure that specifies the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) to be watched. The **frtRefHeaderU.rt** field MUST be 0x086C. The **frtRefHeaderU.grbitFrt.fFrtRef** MUST be 1. The **frtRefHeaderU.ref8** specifies the cell.

**reserved (4 bytes):** MUST be zero, and MUST be ignored.

### 2.4.42 CF

The **CF** record specifies a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ct | | | | | | | | cp | | | | | | | | cce1 | | | | | | | | | | | | | | | |
| cce2 | | | | | | | | | | | | | | | | rgbdxf (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgce1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgce2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ct (1 byte):** An unsigned integer that specifies the type of condition. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x01 | Apply the conditional formatting when the comparison [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) specified by **cp** applied to the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) value, **rgce1** and **rgce2**, evaluates to TRUE. |
| 0x02 | Apply the conditional formatting when the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) specified by **rgce1** evaluates to TRUE. |

**cp (1 byte):** An unsigned integer that specifies the comparison function used when **ct** is equal to 0x01. In the following table, *v* represents the cell value, and *v1* and *v2* represent the results of evaluating the formulas specified by **rgce1** and **rgce2**. The value of this field MUST be a value from the following table:

| Value | Apply the conditional formatting if |
| --- | --- |
| 0x01 | *v2* is greater than or equal to *v1*, and *v* is greater than or equal to *v1* and less than or equal to *v2*  –Or–  *v1* is greater than *v2*, and *v* is greater than or equal to *v2* and less than or equal to *v1* |
| 0x02 | *v2* is greater than or equal to *v1*, and *v* is less than *v1* or greater than *v2*  –Or–  *v1* is greater than *v2*, and *v* is less than *v2* or greater than *v1* |
| 0x03 | *v* is equal to *v1* |
| 0x04 | *v* is not equal to *v1* |
| 0x05 | *v* is greater than *v1* |
| 0x06 | *v* is less than *v1* |
| 0x07 | *v* is greater than or equal to *v1* |
| 0x08 | *v* is less than or equal to *v1* |

**cce1 (2 bytes):** An unsigned integer that specifies the size of **rgce1** in bytes. MUST be less than or equal to 16409.

**cce2 (2 bytes):** An unsigned integer that specifies the size of **rgce2** in bytes. MUST be zero when **ct** is equal to 0x02. MUST be zero when **ct** is equal to 0x01 and **cp** is greater than 0x02. MUST be less than or equal to 16409.

**rgbdxf (variable):** A [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) structure that specifies the formatting to apply to a cell that fulfills the condition.

**rgce1 (variable):** A [CFParsedFormulaNoCCE](#Section_d7926ace9fbf49b68b0c7502f38c1d97) structure that specifies the first formula. If **ct** is equal to 0x01, this field is the first operand of the comparison. If **ct** is equal to 0x02, this formula is used to determine if the conditional formatting is applied. The size of **rgce1** in bytes MUST be equal to **cce1**.

**rgce2 (variable):** A CFParsedFormulaNoCCE structure that specifies the formula that is the second operand of the comparison if **ct** is equal to 0x01 and **cp** is either equal to 0x01 or 0x02. The size of **rgce2** in bytes MUST be equal to **cce2**.

### 2.4.43 CF12

The **CF12** record specifies a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule.

All CF12 records MUST follow a [CondFmt12](#Section_b891e73712f641ddb8a87360a4826d4a) record, another CF12 record, or a [CFEx](#Section_60d13d2f8eb741bf975c8a1a51ad58b6) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ct | | | | | | | | cp | | | | | | | | cce1 | | | | | | | | | | | | | | | |
| cce2 | | | | | | | | | | | | | | | | dxf (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgce1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgce2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fmlaActive (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | | D | E | | | ipriority | | | | | | | | | | | | | | | | icfTemplate | | | | | | | |
| ... | | | | | | | | cbTemplateParm | | | | | | | | rgbTemplateParms (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rgbCT (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeader (12 bytes):** An [FrtRefHeader](#Section_21d54bbb614e414a91805fffda407d4f). The **frtRefHeader.rt** field MUST be 0x087A. The **frtRefHeader.grbitFrt.fFrtRef** field MUST be zero. All of the fields of the **frtRefHeader.ref8** structure MUST be zero and MUST be ignored.

**ct (1 byte):** An unsigned integer that specifies the type of condition. This field determines the type of the **rgbCT** fieldas specified in the following table. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x01 | Apply the conditional formatting if the comparison operation specified by **cp** evaluates to TRUE  **rgbCT** MUST be omitted. |
| 0x02 | Apply the conditional formatting if the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) specified by **rgce1** evaluates to TRUE.  **rgbCT** MUST be omitted. |
| 0x03 | Use [**color scale**](#gt_11144129-6c0d-4ad5-ba59-59439c4747db) formatting.  **rgbCT** is a [CFGradient](#Section_dd6c7ea2f6a945e092530989a7aa8421). |
| 0x04 | Use [**data bar**](#gt_d8d5ab5a-ebee-45a3-bd11-2a5779bb54ed) formatting.  **rgbCT** is a[CFDatabar](#Section_893f014ae4d14712978018206a91d254). |
| 0x05 | Apply the conditional formatting when the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) value passes a [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) specified in the **rgbCT** structure.  **rgbCT** is a [CFFilter](#Section_1fbbdfb0532043bca8a5c81dbeba9b7b). |
| 0x06 | Use [**icon set**](#gt_15e781d5-cddc-4852-b031-1ebc6b601ca9) formatting  **rgbCT** is a[CFMultistate](#Section_6c80a1a1f8c34352891c31c5ee418ffd). |

**cp (1 byte):** An unsigned integer that specifies the comparison [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) used when **ct** is equal to 0x01. In the following table, *v* represents the cell value, and *v1* and *v2* represent the results of evaluating **rgce1** and **rgce2**. The value of this field MUST be a value from the following table:

| Value | Apply the conditional formatting if |
| --- | --- |
| 0x01 | *v2* is greater than or equal to *v1*, and *v* is greater than or equal to *v1* and less than or equal to *v2*  –Or–  *v1* is greater than *v2*, and *v* is greater than or equal to *v2* and less than or equal to *v1* |
| 0x02 | *v2* is greater than or equal to *v1*, and *v* is less than *v1* or greater than *v2*  –Or–  *v1* is greater than *v2*, and *v* is less than *v2* or greater than *v1* |
| 0x03 | *v* is equal to *v1* |
| 0x04 | *v* is not equal to *v1* |
| 0x05 | *v* is greater than *v1* |
| 0x06 | *v* is less than *v1* |
| 0x07 | *v* is greater than or equal to *v1* |
| 0x08 | *v* is less than or equal to *v1* |

**cce1 (2 bytes):** An unsigned integer that specifies the size of **rgce1** in bytes. MUST be zero unless **ct** is equal to 0x01 or 0x02. MUST be less than or equal to 16409.

**cce2 (2 bytes):** An unsigned integer that specifies the size of **rgce2** in bytes. MUST be zero unless **ct** is equal to 0x01 and **cp** is equal to 0x01 or 0x02. MUST be less than or equal to 16409.

**dxf (variable):** A [DXFN12](#Section_d25951d951fb48f2863aa53d6508c96a) that specifies the formatting to apply to a cell that fulfills the condition. If **ct** is equal to 0x03, 0x04 or 0x06, then **dxf.cbDxf** MUST be equal to 0x00000000.

**rgce1 (variable):** A [CFParsedFormulaNoCCE](#Section_d7926ace9fbf49b68b0c7502f38c1d97) that specifies the formula used to evaluate the first operand in a comparison when **ct** is 0x01. If **ct** is 0x02 **rgce1** MUST be a Boolean function.

**rgce2 (variable):** A CFParsedFormulaNoCCE that specifies the formula used to evaluate the second operand of the comparison when **ct** is 0x01 and **cp** is either 0x01 or 0x02.

**fmlaActive (variable):** A [CFParsedFormula](#Section_ef40c8e88ffe4d72811b090f8123ba07) that specifies the formula that specifies an activity condition for the color scale, data bar and icon set formatting rule types. If **ct** is equal to 0x03, 0x04 or 0x06, then the conditional formatting is applied if **fmlaActive** evaluates to TRUE.

**A - unused1 (1 bit):** Undefined and MUST be ignored.

**B - fStopIfTrue (1 bit):** A bit that specifies whether, when a cell fulfills the condition corresponding to this rule, the lower priority conditional formatting rules that apply to this cell are evaluated. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0 | Evaluate lower priority conditional formatting rules that apply to this cell |
| 0x1 | If the cell fulfills the condition corresponding to this rule, do not evaluate lower priority conditional formatting rules that apply to this cell |

MUST be zero when **ct** is equal to 0x03, 0x04 or 0x06.

**C - reserved1 (2 bits):** MUST be zero and MUST be ignored.

**D - unused2 (1 bit):** Undefined and MUST be ignored.

**E - reserved2 (3 bits):** MUST be zero and MUST be ignored.

**ipriority (2 bytes):** An unsigned integer that specifies the priority of the rule. Rules that apply to the same cell are evaluated in increasing order of **ipriority**. MUST be unique across all CF12 records and [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3) structures in the [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream.

**icfTemplate (2 bytes):** An unsigned integer that specifies the [**template**](#gt_159ca22f-c24d-4c6d-b08a-3d4c4c923953) from which the rule was created. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Cell value |
| 0x0001 | Formula |
| 0x0002 | Color scale formatting |
| 0x0003 | Data bar formatting |
| 0x0004 | Icon set formatting |
| 0x0005 | Filter |
| 0x0007 | Unique values |
| 0x0008 | Contains text |
| 0x0009 | Contains blanks |
| 0x000A | Contains no blanks |
| 0x000B | Contains errors |
| 0x000C | Contains no errors |
| 0x000F | Today |
| 0x0010 | Tomorrow |
| 0x0011 | Yesterday |
| 0x0012 | Last 7 days |
| 0x0013 | Last month |
| 0x0014 | Next month |
| 0x0015 | This week |
| 0x0016 | Next week |
| 0x0017 | Last week |
| 0x0018 | This month |
| 0x0019 | Above average |
| 0x001A | Below Average |
| 0x001B | Duplicate values |
| 0x001D | Above or equal to average |
| 0x001E | Below or equal to average |

**cbTemplateParm (1 byte):** An unsigned integer that specifies the size of the **rgbTemplateParms** field in bytes. MUST be 16.

**rgbTemplateParms (16 bytes):** A [CFExTemplateParams](#Section_af18a141c08e453e9c42aa2697d55c06) that specifies the parameters for the rule.

**rgbCT (variable):** A field that specifies the parameters of this rule. The type of **rgbCT** depends on the value of **ct**.

### 2.4.44 CFEx

The **CFEx** record extends a [CondFmt](#Section_03ae6098bdc2475bba2cb8aef7882174).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fIsCF12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| nID | | | | | | | | | | | | | | | | rgbContent (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeaderU (12 bytes):** An [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297) structure. The **frtRefHeaderU.rt** field MUST be 0x087B. The **frtRefHeaderU.grbitFrt.fFrtRef** MUST be 1. The**frtRefHeaderU.ref8** MUST be equal to the **sqref** field of the associated CondFmt record specified by **nID**.

**fIsCF12 (4 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies what type of rule this record extends. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x00000000 | This record extends a rule specified by a [CF](#Section_d6dcadf27e074f7da60a0f643780225d) record and MUST NOT be followed by a [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record. |
| 0x00000001 | This record extends a rule specified by a CF12 record and MUST be followed by the CF12 record it extends. |

**nID (2 bytes):** An unsigned integer that specifies which CondFmt record is being extended. It MUST be equal to the **nID** field of one of the CondFmt records in the [Worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream.

**rgbContent (variable):** A [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3) structure that specifies the extensions to an existing CF record. MUST be omitted when **fIsCF12** is not equal to 0x00.

### 2.4.45 Chart

The **Chart** record specifies the position and size of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)) and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). The position information MUST be ignored if the chart is embedded in a sheet.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dx | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**x (4 bytes):** A FixedPoint as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.2.1.6 that specifies the horizontal position of the upper-left corner of the chart in [**points**](#gt_d072e4da-7898-4227-8f25-9fe77db43571). SHOULD[<48>](#Appendix_A_48" \o "Product behavior note 48) be greater than or equal to zero.

**y (4 bytes):** A FixedPoint as specified in [MS-OSHARED] section 2.2.1.6 that specifies the vertical position of the upper-left corner of the chart in points. SHOULD[<49>](#Appendix_A_49" \o "Product behavior note 49) be greater than or equal to zero.

**dx (4 bytes):** A FixedPoint as specified in [MS-OSHARED] section 2.2.1.6 that specifies the width in points. SHOULD[<50>](#Appendix_A_50" \o "Product behavior note 50) be greater than or equal to zero.

**dy (4 bytes):** A FixedPoint as specified in [MS-OSHARED] section 2.2.1.6 that specifies the height in points. SHOULD[<51>](#Appendix_A_51" \o "Product behavior note 51) be greater than or equal to zero.

### 2.4.46 Chart3d

The **Chart3d** record specifies that the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) of the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is rendered in a 3-D scene and also specifies the attributes of the 3-D plot area. The preceding chart group type MUST be of type bar, pie, line, area, or surface.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| anRot | | | | | | | | | | | | | | | | anElev | | | | | | | | | | | | | | | |
| pcDist | | | | | | | | | | | | | | | | pcHeight | | | | | | | | | | | | | | | |
| pcDepth | | | | | | | | | | | | | | | | pcGap | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | reserved2 | | | | | | | | | |

**anRot (2 bytes):** A signed integer that specifies the clockwise rotation, in degrees, of the 3-D plot area around a vertical line through the center of the 3-D plot area. MUST be greater than or equal to 0 and MUST be less than or equal to 360. If chart group type is bar and the value of field **fTranspose** in the record [Bar](#Section_5c1879733f114207b9f440e583715357) is 1, then MUST be less than or equal to 44.

**anElev (2 bytes):** A signed integer that specifies the rotation, in degrees, of the 3-D plot area around a horizontal line through the center of the 3-D plot area. MUST be greater than or equal to -90 and MUST be less than or equal to 90. If the chart group type is bar and the value of field **fTranspose** in the record Bar is 1, or the chart group type is pie then MUST be greater than or equal to 0. If the chart group type is bar and the value of field **fTranspose** in the record Bar is 1, then the value MUST be less than or equal to 44.

**pcDist (2 bytes):** A signed integer that specifies the field of view angle for the 3-D plot area. MUST be greater than or equal to zero and less than 200. SHOULD[<52>](#Appendix_A_52" \o "Product behavior note 52) be less than or equal to 100.

**pcHeight (2 bytes):** If **fNotPieChart** is 0, then this is an unsigned integer that specifies the thickness of the pie for a pie chart group. If **fNotPieChart** is 1, then this is a signed integer that specifies the height of the 3-D plot area as a percentage of its width. SHOULD[<53>](#Appendix_A_53" \o "Product behavior note 53) be greater than or equal to 5, MUST be less than 65535 and SHOULD[<54>](#Appendix_A_54" \o "Product behavior note 54) be less than or equal to 500.

**pcDepth (2 bytes):** A signed integer that specifies the depth of the 3-D plot area as a percentage of its width. MUST be greater than or equal to 1 and less than or equal to 2000.

**pcGap (2 bytes):** An unsigned integer that specifies the width of the gap between the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) and the front and back edges of the 3-D plot area as a percentage of the [data point](#Section_9c986ad250d44fa1a157063ac5c971a0) depth divided by 2. If **fCluster** is not 1 and chart group type is not a bar then **pcGap** also specifies distance between adjacent series as a percentage of the data point depth. MUST be less than or equal to 500.

**A - fPerspective (1 bit):** A bit that specifies whether the 3-D plot area is rendered with a vanishing point. If **fNotPieChart** is 0 the value MUST be 0. If **fNotPieChart** is 1 then the value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | No vanishing point applied. |
| 1 | Perspective vanishing point applied based on value of **pcDist.** |

**B - fCluster (1 bit):** A bit that specifies whether data points are clustered together in a bar chart group. If chart group type is not bar or pie, value MUST be ignored. If chart group type is pie, value MUST be 0. If chart group type is bar, then the value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Data points are not clustered. |
| 1 | Data points are clustered. |

**C - f3DScaling (1 bit):** A bit that specifies whether the height of the 3-D plot area is automatically determined. If **fNotPieChart** is 0 then this MUST be 0. If **fNotPieChart** is 1 then the value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value of **pcHeight** is used to determine the height of the 3-D plot area |
| 1 | The height of the 3-D plot area is automatically determined |

**D - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**E - fNotPieChart (1 bit):** A bit that specifies whether the chart group type is pie. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Chart group type MUST be pie. |
| 1 | Chart group type MUST NOT be pie. |

**F - fWalls2D (1 bit):** A bit that specifies whether the [**walls**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c) are rendered in 2-D[<55>](#Appendix_A_55" \o "Product behavior note 55). If **fPerspective** is 1 then this MUST be ignored. If the chart group type is not bar, area or pie this MUST be ignored. If the chart group is of type bar and **fCluster** is 0, then this MUST be ignored. If the chart group type is pie this MUST be 0 and MUST be ignored. If the chart group type is bar or area, then the value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Chart walls and [**floor**](#gt_dc38c098-e0d3-4701-9656-5f2cf4d80f29) are rendered in 3D. |
| 1 | Chart walls are rendered in 2D and the chart floor is not rendered. |

**reserved2 (10 bits):** MUST be zero, and MUST be ignored.

### 2.4.47 Chart3DBarShape

The **Chart3DBarShape** record specifies the shape of the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) in a bar or column [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). This record is only used for a bar or column chart group and MUST be ignored for all other chart groups. This record MUST be ignored if the current substream does not contain a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| riser | | | | | | | | taper | | | | | | | |

**riser (1 byte):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the shape of the base of the data points in a bar or column chart group. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | The base of the data point is a rectangle. |
| 0x01 | The base of the data point is an ellipse. |

**taper (1 byte):** An unsigned integer that specifies how the data points in a bar or column chart group taper from base to tip. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | The data points of the bar or column chart group do not taper. The shape at the maximum value of the data point is the same as the shape at the base. |
| 0x01 | The data points of the bar or column chart group taper to a point at the maximum value of each data point. |
| 0x02 | The data points of the bar or column chart group taper towards a projected point at the position of the maximum value of all of the data points in the chart group, but are clipped at the value of each data point. |

### 2.4.48 ChartFormat

The **ChartFormat** record specifies properties of a [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a chart group.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | reserved5 | | | | | | | | | | | | | | | icrt | | | | | | | | | | | | | | | |

**reserved1 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved3 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved4 (4 bytes):** MUST be zero, and MUST be ignored.

**A - fVaried (1 bit):** A bit that specifies whether the color for each [data point](#Section_9c986ad250d44fa1a157063ac5c971a0) and the color and type for each [**data marker**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) varies. If the chart group has multiple [series](#Section_527ce4dfc9f84e50a314d4b07519593c), or the chart group has one series and the type is either a surface, stock, or area chart group, then this field MUST be ignored, and the data points do not vary. For all other chart group types, if the chart group has one series, then a value of 0x1 specifies that the data points vary. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The color for each data point and the color and type for each data marker does not vary. |
| 0x1 | The color for data points or the color or type for data markers varies. |

**reserved5 (15 bits):** MUST be zero, and MUST be ignored.

**icrt (2 bytes):** An unsigned integer that specifies the drawing order of the chart group relative to the other chart groups, where 0x0000 is the bottom of the [**z-order**](#gt_5d059b23-337a-4ab8-82f5-e3789b2e7ae9). This value MUST be unique for each instance of this record and MUST be less than or equal to 0x0009.

### 2.4.49 ChartFrtInfo

The **ChartFrtInfo** record specifies the versions of the application that originally created and last saved the file, and the [Future Record](#Section_b660b67822684414839ed1ae9a4e4e85) identifiers that are used in the file. This property was introduced by a version of the application[<56>](#Appendix_A_56" \o "Product behavior note 56) as a Future Record for a [chart](#Section_0d96d51a09bd44ddbb691541de053776).

In a file written by some versions of the application [<57>](#Appendix_A_57" \o "Product behavior note 57), this record appears before the end of the [Chart](#Section_8f56b001f57445e0932f84cf30408323) record block and before any other Future Record in the record stream. This record does not exist in a file created by certain versions of the application[<58>](#Appendix_A_58" \o "Product behavior note 58), but appears after the [End](#Section_abe8fd1db6a847b8864052ba75a76f5c) record of the Chart record block in a file updated by other versions of the application[<59>](#Appendix_A_59" \o "Product behavior note 59), in which case the **verWriter** field MUST be a certain version of the application[<60>](#Appendix_A_60" \o "Product behavior note 60) regardless of the actual value in the record.

If a [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) record exists in a sequence of records that conforms to the [CRTMLFRT](#section_732ff614d939416bb7c76d983471ff11) rule of the chart sheet substream, then this record MUST immediately precede the sequence of records that conforms to the [PAGESETUP](#section_a1b3d8b4744241fd9c57bbd2a6394082) rule for the chart sheet substream. Otherwise, it MUST immediately precede the first chart-specific future record, which is a [record](#Section_170e90ce87d747589331dcf14cd72388) that has a record number greater than or equal to 2048 and less than or equal to 2303 according to [Record Enumeration](#Section_7c84e174e96f45e0b23fa5e81f8b5def).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| verOriginator | | | | | | | | verWriter | | | | | | | | cCFRTID | | | | | | | | | | | | | | | |
| rgCFRTID (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0850.

**verOriginator (1 byte):** An unsigned integer that specifies the application version that originally created the file. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x9 | Specifies the application version[<61>](#Appendix_A_61" \o "Product behavior note 61) |
| 0xA | Specifies the application version[<62>](#Appendix_A_62" \o "Product behavior note 62) |
| 0xC | Specifies the application version[<63>](#Appendix_A_63" \o "Product behavior note 63) |
| 0xE | Specifies the application version[<64>](#Appendix_A_64" \o "Product behavior note 64) |
| 0xF | Specifies the application version[<65>](#Appendix_A_65" \o "Product behavior note 65) |

**verWriter (1 byte):** An unsigned integer that specifies the application version that last saved the file. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x9 | Specifies the application version[<66>](#Appendix_A_66" \o "Product behavior note 66) |
| 0xA | Specifies the application version[<67>](#Appendix_A_67" \o "Product behavior note 67) |
| 0xC | Specifies the application version[<68>](#Appendix_A_68" \o "Product behavior note 68) |
| 0xE | Specifies the application version[<69>](#Appendix_A_69" \o "Product behavior note 69) |
| 0xF | Specifies the application version[<70>](#Appendix_A_70" \o "Product behavior note 70) |

**cCFRTID (2 bytes):** An unsigned integer that specifies the number of elements in **rgCFRTID**. The value depends on the value in **verWriter**. It MUST be 0x1 if **verWriter** is 0x9; 0x3 if **verWriter** is 0xA; 0x4 if **verWriter** is 0xC or 0xE.

**rgCFRTID (variable):** An array of [CFrtId](#Section_b7b7b7b608bb4084a4eaf119fadaef01) structures. This field specifies the range of Future Record Type identifiers used in the chart. The range of values is determined by the value of **verWriter** as specified in the following table:

| verWriter value | Value range(first,last) |
| --- | --- |
| 0x9 | 0x0850, 0x085A |
| 0xA | 0x0850, 0x085A  0x0861, 0x0861  0x086A, 0x086B |
| 0xC or 0xE | 0x0850, 0x085A  0x0861, 0x0861  0x086A, 0x086B  0x089D, 0x08A6 |

### 2.4.50 ClrtClient

The **ClrtClient** record specifies a [**custom color palette**](#gt_c24c2bf1-b41b-4eae-92a5-fe10cca57e2e) for a chart.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ccv | | | | | | | | | | | | | | | | rgColor (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ccv (2 bytes):** A signed integer that specifies the number of colors in the **rgColor** array. The value MUST be 3.

**rgColor (variable):** An array of [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) structures. The array specifies the colors of the [**color palette**](#gt_05879d13-b9e0-4333-b96d-63cc3433997e). The elements MUST contain the following values:

| Index | Element | Value |
| --- | --- | --- |
| 0 | [**Foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a) | This value MUST be equal to the system window text color. |
| 1 | [**Background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c) | This value MUST be equal to the system window color. |
| 2 | Neutral color | This value MUST be black. |

### 2.4.51 CodeName

The **CodeName** record specifies the name of a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) object, a sheet object in the [**VBA project**](#gt_980e3334-2874-4425-a73a-f2235cec1e1e) located in this file. If this record is in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1), the name is for the workbook object. If this record is in a [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11), the name is for the [**chart sheet**](#gt_da561b7b-c629-4cd8-bfaa-6e62471d9e83) object representing the sheet. If this record is in a [Macro Sheet Substream](#section_0dddd943f77a4fc2bf92868acb4587f7), the name is for the [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491) object representing the sheet. If this record is in a [Dialog Sheet Substream](#section_da37feb48b9a462d87772a5fddd4866e), the name is for the [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8) object representing the sheet. If this record is in a [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56), the name is for the [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615) object representing the sheet.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| codeName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**codeName (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name used to identify the workbook object or sheet object in the VBA project embedded in this file. The value of **codename.cch** MUST be less than or equal to 31.

If this string is not empty, it MUST contain only the characters that can be mapped from [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) to a multiple-byte [**ANSI character set**](#gt_100cd8a6-5cb1-4895-9de6-e4a3c224a583) specified by the system [**locale**](#gt_7b78ebef-e35d-45ab-abfd-4121b60995de). If the system locale is Chinese, Japanese, or Korean, then the full-width characters in the resulting ANSI string are further mapped to corresponding half-width characters where applicable.

In the resulting ANSI string, the first character MUST be a letter, a single-byte character with a code greater than 0x7F, or multiple-byte character. The subsequent characters in the resulting ANSI string MUST be a digit, an underscore, a single-byte character with a code greater that 0x7F, or a multiple-byte character.

If the system locale is Japanese, the original Unicode string MUST NOT contain a character with a code equal to 0xFFE3.

### 2.4.52 CodePage

The **CodePage** record specifies [**code page**](#gt_210637d9-9634-4652-a935-ded3cd434f38) information for the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cv | | | | | | | | | | | | | | | |

**cv (2 bytes):** An unsigned integer that specifies the workbook’s code page. The value MUST be one of the code page values specified in [[CODEPG]](https://go.microsoft.com/fwlink/?LinkId=89840) or the special value 1200, which means that the workbook is [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8).

### 2.4.53 ColInfo

The **ColInfo** record specifies the column formatting for a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of columns.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| colFirst | | | | | | | | | | | | | | | | colLast | | | | | | | | | | | | | | | |
| coldx | | | | | | | | | | | | | | | | ixfe | | | | | | | | | | | | | | | |
| A | B | C | D | E | | | | F | | | G | H | I | | | unused2 | | | | | | | | | | | | | | | |

**colFirst (2 bytes):**  A [Col256U](#Section_5574907b97e64e79845d0ecef9d56038) structure that specifies the first formatted column.

**colLast (2 bytes):**  A Col256U structure that specifies the last formatted column. The value MUST be greater than or equal to **colFirst**.

**coldx (2 bytes):**  An unsigned integer that specifies the column width in units of 1/256th of a character width. Character width is defined as the maximum digit width of the numbers 0, 1, 2, … 9 as rendered in the [Normal style](#Section_d039c65186dc4d9da6ee1cb8c1088f20)’s [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2).

**ixfe (2 bytes):**  An [IXFCell](#Section_f9bc476745704f609a8e6fd3f32ddf3b) structure that specifies the default format for the column cells.

**A - fHidden (1 bit):**  A bit that specifies whether the column range defined by **colFirst** and **colLast** is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd).

**B - fUserSet (1 bit):**  A bit that specifies that the column width was either manually set by the user or is different from the default column width as specified by [DefColWidth](#Section_30dc2bcb4f9943a3a745fbc54b5b8161). If the value is 1, the column width was manually set or is different from DefColWidth.

**C - fBestFit (1 bit):**  A bit that specifies whether the column range defined by **colFirst** and **colLast** is set to "best fit." "Best fit" implies that the column width resizes based on the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) contents, and that the column width does not equal the default column width as specified by DefColWidth.

**D - fPhonetic (1 bit):**  A bit that specifies whether [**phonetic information**](#gt_b60c7bf3-21f1-481f-806f-812461e98742) is displayed by default for the column range defined by **colFirst** and **colLast**.

**E - reserved1 (4 bits):**  MUST be zero, and MUST be ignored.

**F - iOutLevel (3 bits):**  An unsigned integer that specifies the [**outline level**](#gt_a5cd5eff-ddeb-490b-bc71-f6256774e3c3) of the column range defined by **colFirst** and **colLast**.

**G - unused1 (1 bit):**  Undefined and MUST be ignored.

**H - fCollapsed (1 bit):**  A bit that specifies whether the column range defined by **colFirst** and **colLast** is in a [**collapsed outline state**](#gt_37d20510-d4a0-4fa6-9ff1-83d99d8f9262).

**I - reserved2 (3 bits):**  MUST be zero, and MUST be ignored.

**unused2 (2 bytes):**  Undefined and MUST be ignored.

### 2.4.54 Compat12

The **Compat12** record specifies whether to check for compatibility with earlier application versions when saving the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) from a version of the application[<71>](#Appendix_A_71" \o "Product behavior note 71) to the binary formats of other versions of the application[<72>](#Appendix_A_72" \o "Product behavior note 72).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fNoCompatChk | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x088C.

**fNoCompatChk (4 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether to check compatibility with earlier versions when saving the workbook. The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x0000 | When saving the workbook to a binary format of a version of the application[<73>](#Appendix_A_73" \o "Product behavior note 73), the user is given the message that some newer features could be lost during the save and prompted to continue or cancel the save. |
| 0x0001 | When saving the workbook to a binary format of a version of the application[<74>](#Appendix_A_74" \o "Product behavior note 74), the user is given no message or prompt before the workbook is saved. |

### 2.4.55 CompressPictures

The **CompressPictures** record specifies a recommendation for picture compression when saving.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fAutoCompressPictures | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x89B.

**fAutoCompressPictures (4 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether picture compression is recommended. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | Compression is not recommended. |
| 0x00000001 | Compression is recommended. |

### 2.4.56 CondFmt

The **CondFmt** record specifies [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules that are associated with a set of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

This record specifies the beginning of a collection of [CF](#Section_d6dcadf27e074f7da60a0f643780225d) records as defined in the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of CF records specifies conditional formatting rules.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ccf | | | | | | | | | | | | | | | | A | nID | | | | | | | | | | | | | | |
| refBound | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sqref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ccf (2 bytes):**  An unsigned integer that specifies the count of CF records that follow this record. MUST be greater than or equal to 0x0001, and less than or equal to 0x0003.

**A - fToughRecalc (1 bit):**  A bit that specifies that the appearance of the cell requires significant processing. This information can be used to optimize the redraw of conditional formatting when data values change.

For example, an application could determine that a conditional formatting rule that contains certain functions or a conditional formatting rule that takes more than a predetermined amount of time to calculate designates that the conditional formatting requires significant processing, and could set this bit to 1.

**nID (15 bits):** An unsigned integer that identifies this record. The [CFEx](#Section_60d13d2f8eb741bf975c8a1a51ad58b6) record uses this identifier to specify which CondFmt it extends.

**refBound (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the bounds of the set of cells to which the conditional formatting rules apply. The set of cells that this field represents MUST include all of the cells represented by the **sqref** field.

**sqref (variable):**  A [SqRefU](#Section_867dcebec0624c4699b11b2a479e6f32) structure that specifies the cells to which the conditional formatting rules apply. **sqref.cref** MUST be greater than zero and less than or equal to 1026.

### 2.4.57 CondFmt12

The **CondFmt12** record specifies [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules that are associated with a set of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461), when all the rules are specified using [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) records.

This record specifies the beginning of a collection of CF12 records as defined in the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf).

This record MUST be followed by the number of CF12 records specified by **mainCF.ccf**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mainCF (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeaderU (12 bytes):**  An [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297) structure. The **frtRefHeaderU.rt** field MUST be 0x0879. The **frtRefHeaderU.grbitFrt.fFrtRef** field MUST be 1. Each field of the **frtRefHeaderU.ref8** structure MUST be equal to the corresponding field of the **mainCF.refBound** structure.

**mainCF (variable):**  A [CondFmtStructure](#Section_1f4b7576b5e040f0b2c6b447d0954b17) structure that specifies properties of a set of conditional formatting rules.

### 2.4.58 Continue

The **Continue** record specifies a continuation of the data in a preceding record. Records with data longer than 8,224 bytes MUST be split into several records. The first section of the data appears in the base record and subsequent sections appear in one or more **Continue** records that appear after the base record. Records with data shorter than 8,225 bytes can also store data in the base record and following **Continue** records. For example, the size of [TxO](#Section_638c08e629424783b71b144ccf758fc7) record is less than 8,225 bytes, but it is always followed by **Continue** records that store the string data and [**formatting runs**](#gt_10031ac8-2a26-4200-beee-cd8d9420ca96).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| continue (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**continue (variable):**  A binary stream that specifies the structure data. The number of bytes in this stream MUST be less than 8225.

### 2.4.59 ContinueBigName

The **ContinueBigName** record specifies a continuation of the data in a preceding [BigName](#Section_e12c7360022f49e0a3d0dd342073bce0) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| continue (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**continue (variable):** A binary stream that specifies the structure data. The number of bytes in this stream MUST be less than 8225.

### 2.4.60 ContinueFrt

The **ContinueFrt** record specifies a continuation of the data in a preceding [Future Record Type](#Section_b660b67822684414839ed1ae9a4e4e85) record that has data longer than 8,224 bytes. Such records are split into several records. The first section of the data appears in the base record and subsequent sections appear in one or more **ContinueFrt** records that appear after the base record. How the data is split varies for different types of records. The base record can have data size shorter than 8,224 bytes after splitting. [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f) is such an example. The preceding base record MUST contain an [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) or an [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An FrtHeaderOld structure. The **frtHeaderOld**.**rt** field MUST be 0x0812.

**rgb (variable):**  A binary stream that specifies the record data. The number of bytes in this stream MUST be less than 8,221.

### 2.4.61 ContinueFrt11

The **ContinueFrt11** record specifies a continuation of the data in a preceding [Future Record Type](#Section_b660b67822684414839ed1ae9a4e4e85) record that has data longer than 8,224 bytes. Such records are split into several records. The first section of the data appears in the base record and subsequent sections appear in one or more **ContinueFrt11** records that appear after the base record. The preceding base record MUST contain a [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297) field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0875.

**rgb (variable):**  A binary stream that specifies the record data. The number of bytes in this stream MUST be less than 8,213.

### 2.4.62 ContinueFrt12

The **ContinueFrt12** record specifies a continuation of the data in a preceding [Future Record Type](#Section_b660b67822684414839ed1ae9a4e4e85) record that has data longer than 8,224 bytes. Such records are split into several records. The first section of the data appears in the base record and subsequent sections appear in one or more **ContinueFrt12** records that appear after the base record. The preceding base record MUST contain a [FrtRefHeader](#Section_21d54bbb614e414a91805fffda407d4f) or a [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeader (12 bytes):**  An FrtRefHeader structure. The **frtRefHeader.rt** field MUST be 0x087F. If **frtRefHeader.grbitFrt.fFrtRef** is 1 then the **frtRefHeader.ref8** MUST refer to the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells associated with this record. If **frtRefHeader.grbitFrt.fFrtRef** is 0 then all of the fields of the **frtRefHeader.ref8** structure MUST be zero and MUST be ignored.

**rgb (variable):**  A binary stream that specifies the record data. The number of bytes in this stream MUST be less than 8,213.

### 2.4.63 Country

The **Country** record specifies [**locale**](#gt_7b78ebef-e35d-45ab-abfd-4121b60995de) information for a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iCountryDef | | | | | | | | | | | | | | | | iCountryWinIni | | | | | | | | | | | | | | | |

**iCountryDef (2 bytes):**  An unsigned integer that specifies the country/region code determined by the locale in effect when the workbook was saved. MUST be greater than or equal to 1 and less than or equal to 981 and MUST be a value from the table in **iCountryWinIni**.

**iCountryWinIni (2 bytes):**  An unsigned integer that specifies the system [**regional settings**](#gt_ede60f7f-1131-4845-800b-b6848215e015) country/region code in effect when the workbook was saved. MUST greater than or equal to 1 and less than or equal to 981 and MUST be a value from the table of Country/Region codes in this section.

Country/Region codes are defined as follows:

| Code | Country/Region |
| --- | --- |
| 1 | United States |
| 2 | Canada |
| 3 | Latin America, except Brazil |
| 7 | Russia |
| 20 | Egypt |
| 30 | Greece |
| 31 | Netherlands |
| 32 | Belgium |
| 33 | France |
| 34 | Spain |
| 36 | Hungary |
| 39 | Italy |
| 41 | Switzerland |
| 43 | Austria |
| 44 | United Kingdom |
| 45 | Denmark |
| 46 | Sweden |
| 47 | Norway |
| 48 | Poland |
| 49 | Germany |
| 52 | Mexico |
| 55 | Brazil |
| 61 | Australia |
| 64 | New Zealand |
| 66 | Thailand |
| 81 | Japan |
| 82 | Korea |
| 84 | Viet Nam |
| 86 | People’s Republic of China |
| 90 | Turkey |
| 213 | Algeria |
| 216 | Morocco |
| 218 | Libya |
| 351 | Portugal |
| 354 | Iceland |
| 358 | Finland |
| 420 | Czech Republic |
| 886 | Taiwan |
| 961 | Lebanon |
| 962 | Jordan |
| 963 | Syria |
| 964 | Iraq |
| 965 | Kuwait |
| 966 | Saudi Arabia |
| 971 | United Arab Emirates |
| 972 | Israel |
| 974 | Qatar |
| 981 | Iran |

### 2.4.64 CrErr

The **CrErr** record specifies the errors detected during crash recovery of a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cch | | | | | | | | | | | | | | | | rgch (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0865.

**cb (4 bytes):**  An unsigned integer that specifies the fixed size of this record. MUST be set to 0x0013.

**cch (2 bytes):** An unsigned integer that specifies the number of characters in the crash recovery error message stored in the **rgch** field. MUST be greater than zero.

**rgch (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the localized text of a crash recovery error message. If the **cch** field is greater than 8211 this record MUST be followed by one or more [Continue](#Section_999fae21d3d942e88290639782460c67) records, which specify the continuation of the crash recovery error message. If the text is extended with Continue records a value from the table for **rgch.fHighByte** MUST be specified in the first byte of the **continue** field of the Continue record followed by the remaining portions of the text.

### 2.4.65 CRN

The **CRN** record specifies the values of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in a sheet in an [external cell cache](#Section_b985d1a223f3483ebebdbd0e882d4c89).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| colLast | | | | | | | | colFirst | | | | | | | | row | | | | | | | | | | | | | | | |
| crnOper (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**colLast (1 byte):**  A [ColByteU](#Section_3eb5ecb1fbba49c3b8e3ede2096ff5a0) structure that specifies the zero-based column index of the last cell whose value is contained within this record. MUST be greater than or equal to the value of **colFirst**.

**colFirst (1 byte):**  A ColByteU structure that specifies the zero-based column index of the first cell whose value is contained within this record. MUST be less than or equal to the value of **colLast**.

**row (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the zero-based row index of the cells whose values are contained within this record.

**crnOper (variable):**  An array of [SerAr](#Section_69ff31ac671b4aafa3b5a01e9e283a03) structures that specifies the cell values for the cells in the row starting at **colFirst**. The number of elements in this array MUST equal the following formula:

**colLast** - **colFirst** + 1

### 2.4.66 CrtLayout12

The **CrtLayout12** record specifies the layout information for [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a), when contained in the sequence of records that conforms to the [ATTACHEDLABEL](#section_732ff614d939416bb7c76d983471ff11) rule, or [legend](#Section_1832229b7d1945f488d455e9c07466f0), when contained in the sequence of records that conforms to the LD rule.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwCheckSum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | | | | reserved1 | | | | | | | | | | | wXMode | | | | | | | | | | | | | | | |
| wYMode | | | | | | | | | | | | | | | | wWidthMode | | | | | | | | | | | | | | | |
| wHeightMode | | | | | | | | | | | | | | | | x | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | y | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dx | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dy | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x089D.

**dwCheckSum (4 bytes):** An unsigned integer that specifies the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the values in the order as follows, if the checksum is incorrect, the layout information specified in this record MUST be ignored.

| Checksum for type | Values |
| --- | --- |
| [AttachedLabel](#Section_5ffc1bdab83b4d53a8604cf54f24cd75) | 1. **x1** field of the [Pos](#Section_b2311d215bad4525b759cacc13d394cf) record in the sequence of records that contains this CrtLayout12 record and conforms to the ATTACHEDLABEL rule.  2. **y1** field of the Pos record in the in the sequence of records that contains this CrtLayout12 record and conforms to the ATTACHEDLABEL rule.  3. An unsigned integer that specifies whether the attached label is at its default position. MUST be 1 if the **dlp** field of the [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record in the in the sequence of records that contains this CrtLayout12 record and conforms to the ATTACHEDLABEL rule is equal to 0xA. Otherwise, MUST be zero. |
| [Legend](#Section_03d359d915f94e7a8ad1d7b741ed2e21) | 1. **x1** field of the Pos record in the in the sequence of records that contains this CrtLayout12 record and conforms to the LD rule.  2. **y1** field of the Pos record in the in the sequence of records that contains this CrtLayout12 record and conforms to the LD rule.  3. Width of the legend in pixels.  4. Height of the legend in pixels.  5. The **fAutoPosX** field of Legend record.  6. The **fAutoPosY** field of Legend record.  7. The **fAutoSize** of the [Frame](#Section_0cb3e202342740b4b93b277c0bd977ff) record in the in the sequence of records that contains this CrtLayout12 record and conforms to the LD rule. |

The checksum is calculated using the following algorithm:

FUNCTION SimpleCheckSum values

SET dwChecksum to 0x0000

FOR each value in values

SET dwChecksum TO (dwChecksum XOR value)

RETURN dwChecksum

The width and height of legend in pixels are calculated with the following steps:

1. Get [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) width in pixels as indicated by section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d) "Chart Area"

2. Get chart area height in pixels as indicated by section 2.2.3.17 "Chart Area"

3. Compute legend size in pixels

legend width in pixels = **dx** field of Legend / 4000 \* chart area width in pixels

legend height in pixels = **dy** field of Legend / 4000 \* chart area height in pixels

**A - unused (1 bit):** Undefined and MUST be ignored.

**B - autolayouttype (4 bits):** An unsigned integer that specifies the automatic layout type of the legend. MUST be ignored when this record is in the sequence of records that conforms to the ATTACHEDLABEL rule. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Align to the bottom |
| 0x1 | Align to top right corner |
| 0x2 | Align to the top |
| 0x3 | Align to the right |
| 0x4 | Align to the left |

**reserved1 (11 bits):** MUST be zero, and MUST be ignored.

**wXMode (2 bytes):** A [CrtLayout12Mode](#Section_ff789f3474524ebf8fa196c1cf7f4f9e) structure that specifies the meaning of **x**.

**wYMode (2 bytes):** A CrtLayout12Mode structure that specifies the meaning of **y**.

**wWidthMode (2 bytes):** A CrtLayout12Mode structure that specifies the meaning of **dx**.

**wHeightMode (2 bytes):** A CrtLayout12Mode structure that specifies the meaning of **dy**.

**x (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies a horizontal offset. The meaning is determined by **wXMode**.

**y (8 bytes):** An Xnum value that specifies a vertical offset. The meaning is determined by **wYMode**.

**dx (8 bytes):** An Xnum value that specifies a width or an horizontal offset. The meaning is determined by **wWidthMode**.

**dy (8 bytes):** An Xnum value that specifies a height or an vertical offset. The meaning is determined by **wHeightMode**.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

### 2.4.67 CrtLayout12A

The **CrtLayout12A** record specifies layout information for a [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwCheckSum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | reserved1 | | | | | | | | | | | | | | | xTL | | | | | | | | | | | | | | | |
| yTL | | | | | | | | | | | | | | | | xBR | | | | | | | | | | | | | | | |
| yBR | | | | | | | | | | | | | | | | wXMode | | | | | | | | | | | | | | | |
| wYMode | | | | | | | | | | | | | | | | wWidthMode | | | | | | | | | | | | | | | |
| wHeightMode | | | | | | | | | | | | | | | | x | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | y | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dx | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dy | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtheader.rt** field MUST be 0x08A7.

**dwCheckSum (4 bytes):** An unsigned integer that specifies the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c). MUST be a value from the following table:

| **fManPlotArea** field **of ShtProps** | **fAlwaysAutoPlotArea** field **of ShtProps** | **dwCheckSum** |
| --- | --- | --- |
| 0x0 | 0x0 | 0x00000001 |
| 0x0 | 0x1 | 0x00000000 |
| 0x1 | 0x0 | 0x00000000 |
| 0x1 | 0x1 | 0x00000001 |

**A - fLayoutTargetInner (1 bit):**  A bit that specifies the type of plot area for the layout target.

| Value | Meaning |
| --- | --- |
| 0x0 | Outer plot area - The bounding rectangle that includes the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) labels, axis titles, [**data table (2)**](#gt_9e13d7ee-50d6-40ae-8789-29ecafe24bd4) and plot area of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). |
| 0x1 | Inner plot area – The rectangle bounded by the chart axes. |

**reserved1 (15 bits):** MUST be zero, and MUST be ignored.

**xTL (2 bytes):** A signed integer that specifies the horizontal offset of the plot area's upper-left corner, relative to the upper-left corner of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)), in [SPRC](#Section_d5fc728e68de4972905a975bcef8c82d).

**yTL (2 bytes):** A signed integer that specifies the vertical offset of the plot area's upper-left corner, relative to the upper-left corner of the chart area (section 2.2.3.17), in SPRC.

**xBR (2 bytes):** A signed integer that specifies the width of the plot area, in SPRC.

**yBR (2 bytes):** A signed integer that specifies the height of the plot area, in SPRC.

**wXMode (2 bytes):** A [CrtLayout12Mode](#Section_ff789f3474524ebf8fa196c1cf7f4f9e) structure that specifies the meaning of **x**.

**wYMode (2 bytes):** A CrtLayout12Mode structure that specifies the meaning of **y**.

**wWidthMode (2 bytes):** A CrtLayout12Mode structure that specifies the meaning of **dx**.

**wHeightMode (2 bytes):** A CrtLayout12Mode structure that specifies the meaning of **dy**.

**x (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c))value that specifies a horizontal offset. The meaning is determined by **wXMode**.

**y (8 bytes):** An Xnum value that specifies a vertical offset. The meaning is determined by **wYMode**.

**dx (8 bytes):** An Xnum value that specifies a width or a horizontal offset. The meaning is determined by **wWidthMode**.

**dy (8 bytes):** An Xnum value that specifies a height or a vertical offset. The meaning is determined by **wHeightMode**.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

### 2.4.68 CrtLine

The **CrtLine** record specifies the presence of [**drop lines**](#gt_e8c745bf-646c-4acd-8b5e-5314fa4965fa), [**high-low lines**](#gt_56aec928-ddcc-4415-9d08-5d1dd3982bbc), [**series lines**](#gt_bda50b03-68fa-49f9-bd9e-d0dc289ac88a) or [**leader lines**](#gt_8b7c448e-82e3-4d22-a8ba-52e0a10b14fa) on the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). This record is followed by a [LineFormat](#Section_1bff256238664b958a6bf3fea1659f6d) record which specifies the format of the lines.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| id | | | | | | | | | | | | | | | |

**id (2 bytes):**  An unsigned integer that specifies the type of line that is present on the chart group. This field value MUST be unique among the other **id** field values in CrtLine records in the current chart group. This field MUST be greater than the **id** field values in preceding CrtLine records in the current chart group. MUST be a value from the following table:

| Value | Type of Line |
| --- | --- |
| 0x0000 | Drop lines below the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) of line, area, and stock chart groups. |
| 0x0001 | High-low lines around the data points of line and stock chart groups. |
| 0x0002 | Series lines connecting data points of stacked column and bar chart groups, and the [**primary pie**](#gt_e2300016-b59d-4384-9b70-c000523747e0) to the [**secondary bar/pie**](#gt_e452a278-4e13-44c6-9f1b-db3c93841bc6) of bar of pie and pie of pie chart groups. |
| 0x0003 | Leader lines with non-default formatting connecting [data labels](#Section_cac7f43a3af142f58ff2814c2870427f) to the data point of pie and pie of pie chart groups. |

### 2.4.69 CrtLink

The **CrtLink** record is written but unused.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**unused (10 bytes):**  Undefined and MUST be ignored.

### 2.4.70 CrtMlFrt

The **CrtMlFrt** record specifies additional properties for [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) elements, as specified by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). These properties complement the record to which they correspond, and are stored as a structure chain defined in [XmlTkChain](#Section_99d89656c8ab4ce0b80f1cd3452a2095). An application can ignore this record without loss of functionality, except for the additional properties. If this record is longer than 8224 bytes, it MUST be split into several records. The first section of the data appears in this record and subsequent sections appear in one or more [CrtMlFrtContinue](#Section_5c6756e59b7840c4a6cdaf05aa79af69)records that follow this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xmltkChain (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x089E.

**cb (4 bytes):** An unsigned integer that specifies the size, in bytes, of the XmlTkChain structure starting in the **xmltkChain** field, including the data contained in the optional CrtMlFrtContinue records. MUST be less than or equal to 0x7FFFFFEB.

**xmltkChain (variable):** An XmlTkChain structure that specifies a chain of structures. The size of the XmlTkChain is specified by the **cb** field.

**unused (4 bytes):** Undefined, and MUST be ignored.

### 2.4.71 CrtMlFrtContinue

The **CrtMlFrtContinue** record specifies additional data for a [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) record, as specified in the CrtMlFrt record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xmltkChain (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x089F.

**xmltkChain (variable):** An array of bytes that contains the continuation of the **xmltkChain** field of the CrtMlFrt record associated with this record. If the length of this record is greater than 8224 bytes, additional CrtMlFrtContinue records follow.

### 2.4.72 CUsr

The **CUsr** record specifies the number of unique users that have this [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc) open.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iCount | | | | | | | | | | | | | | | |

**iCount (2 bytes):**  An unsigned integer that specifies the number of unique users that have this shared workbook open. MUST be greater than or equal to 0 and less than or equal to 255.

### 2.4.73 Dat

The **Dat** record specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies the options of the [data table](#Section_69938f61d2e94da3af87e154edcb0d98) which can be displayed within a [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | reserved | | | | | | | | | | | |

**A - fHasBordHorz (1 bit):**  A bit that specifies whether horizontal [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) [**borders**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) are displayed within the data table.

**B - fHasBordVert (1 bit):**  A bit that specifies whether vertical cell borders are displayed within the data table.

**C - fHasBordOutline (1 bit):**  A bit that specifies whether an outside [**outline**](#gt_d20b50ce-6124-4bda-ba32-5d132016d639) is displayed around the data table.

**D - fShowSeriesKey (1 bit):**  A bit that specifies whether the [**legend key**](#gt_6981bc96-6d51-425c-9550-63c5b8b08e54) is displayed next to the name of the [series](#Section_527ce4dfc9f84e50a314d4b07519593c). If the value is 1, the legend key symbols are displayed next to the name of the series.

**reserved (12 bits):**  MUST be zero, and MUST be ignored.

### 2.4.74 DataFormat

The **DataFormat** record specifies the [data point](#Section_9c986ad250d44fa1a157063ac5c971a0) or [series](#Section_527ce4dfc9f84e50a314d4b07519593c) that the formatting information that follows applies to and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). This collection of records specifies formatting properties for the data point or series.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| xi | | | | | | | | | | | | | | | | yi | | | | | | | | | | | | | | | |
| iss | | | | | | | | | | | | | | | | A | reserved | | | | | | | | | | | | | | |

**xi (2 bytes):**  An unsigned integer that specifies the zero-based index of the data point within the series specified by **yi**. If this value is 0xFFFF, the formatting information that follows applies to the series. Otherwise, the formatting information that follows applies to a data point. This value MUST be less than or equal to 31999. This value MUST be less than or equal to 3999 for a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) that contains a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record. This value MUST be 0xFFFF if the formatting information in this record is applied to a [trendline](#Section_61d74ebc36714d6dbdc0626db604530d) or [error bar](#Section_762a461d0a45474ebd7d5994bb294af2).

**yi (2 bytes):**  An unsigned integer that specifies the zero-based index of a [Series](#Section_d6eec0192d634c1e8080442af941b462) record in the collection of Series records in this chart sheet substream. MUST[<75>](#Appendix_A_75" \o "Product behavior note 75) be less than or equal to 254.

**iss (2 bytes):**  An unsigned integer that specifies properties of the data series, trendline or error bar, depending on the type of records in sequence of records that conforms to the SERIESFORMAT rule that contains the sequence of records that conforms to the SS rule that contains this record.

 If the SERIESFORMAT rule does not contain a [SerAuxTrend](#Section_c3ee0bb15a2145178ddda6c06c20e927) or [SerAuxErrBar](#Section_13a7411278424d6fab97de3123ff4199) record, then this field specifies the plot order of the data series. If the series order was changed, this field can be different from **yi**. MUST[<76>](#Appendix_A_76" \o "Product behavior note 76) be less than or equal to the number of series in the chart. MUST be unique among **iss** values for all instances of this record contained in the SERIESFORMAT rule that does not contain a SerAuxTrend or SerAuxErrBar record.

 If the SERIESFORMAT rule contains a SerAuxTrend record on the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), then this field specifies the trendline number for the series.

 If the SERIESFORMAT rule contains a SerAuxErrBar record on the chart group, then this field specifies a zero-based index into a Series record in the collection of Series records in the current chart sheet substream for which the error bar applies to.

**A - fXL4iss (1 bit):** MUST be zero, and MUST be ignored.

**reserved (15 bits):**  MUST be zero, and MUST be ignored.

### 2.4.75 DataLabExt

The **DataLabExt** record specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection specifies an extended [data label](#Section_cac7f43a3af142f58ff2814c2870427f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x086A.

### 2.4.76 DataLabExtContents

The **DataLabExtContents** record specifies the contents of an extended [data label](#Section_cac7f43a3af142f58ff2814c2870427f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | reserved | | | | | | | | | | | rgchSep (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x086B.

**A - fSerName (1 bit):**  A bit that specifies whether the name of the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) is displayed in the extended data label.

**B - fCatName (1 bit):**  A bit that specifies whether the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) name, or the horizontal value on bubble or scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5), is displayed in the extended data label. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Neither of the data values are displayed in the extended data label. |
| 1 | If bubble or scatter chart group, the horizontal value is displayed in the extended data label. Otherwise, the category (2) name is displayed in the extended data label. |

**C - fValue (1 bit):**  A bit that specifies whether the data value, or the vertical value on bubble or scatter chart groups, is displayed in the extended data label. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Neither of the data values are displayed in the data label. |
| 1 | If bubble or scatter chart group, the vertical value is displayed in the extended data label. Otherwise, the data value is displayed in the extended data label. |

**D - fPercent (1 bit):**  A bit that specifies whether the value of the corresponding [data point](#Section_9c986ad250d44fa1a157063ac5c971a0), represented as a percentage of the sum of the values of the series the data label is associated with, is displayed in the extended data label.

MUST equal 0 if the chart group type of the corresponding chart group, series, or data point is not a bar of pie, doughnut, pie, or pie of pie chart group.

**E - fBubSizes (1 bit):**  A bit that specifies whether the [**bubble size**](#gt_3a0cf938-5b61-4460-bdbb-3540d84d4180) is displayed in the data label.

MUST equal 0 if the chart group type of the corresponding chart group, series, or data point is not a bubble chart group.

**reserved (11 bits):**  MUST be zero, and MUST be ignored.

**rgchSep (variable):**  A case-sensitive [XLUnicodeStringMin2](#Section_55986248f55f4010b5ccd79d4efbcba0) structure that specifies the string that is inserted between every data value to form the extended data label. For example, if **fCatName** and **fValue** are set to 1, the labels will look like "*Category Name*<*value of* **rgchSep**>*Data Value*". The length of the string is contained in the **cch** field of the XLUnicodeStringMin2 structure.

### 2.4.77 Date1904

The **Date1904** record specifies the [**date system**](#gt_cfc29c5e-eb23-4077-b6eb-492f20f5c87f) that the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) uses.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| f1904DateSystem | | | | | | | | | | | | | | | |

**f1904DateSystem (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the date system used in this workbook. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The workbook uses the 1900 date system. The first date of the 1900 date system is 00:00:00 on January 1, 1900, specified by a serial value of 1. |
| 0x0001 | The workbook uses the 1904 date system. The first date of the 1904 date system is 00:00:00 on January 1, 1904, specified by a serial value of 0. |

### 2.4.78 DBCell

The **DBCell** record specifies a row block, which is a series of up to 32 consecutive rows.

**DBCell**, combined with the [Index](#Section_67c2092204274c2d96cc2267d3f09e8c) record, is used to optimize the [lookup of cells](#Section_24bbaffdab88489e983f3c400c8a8559) in a [cell table](#Section_d690007dd25c4822a650b24c13288bb7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dbRtrw | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgdb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dbRtrw (4 bytes):** An unsigned integer that specifies the offset in bytes from the starting file position of this record to the file position of the first [Row](#Section_4aab09eb49ed4d01a3b11d726247d3c2) record. If the value is 0, the referenced row block does not contain any rows that contain cells that have data.

**rgdb (variable):** An array of 2-byte unsigned integers that specify the file offset in bytes to the first record that specifies a [CELL](#section_a1b3d8b4744241fd9c57bbd2a6394082) in each row that is a part of this row block. For the first array element, the starting position of the file offset is specified relative to the file position of the end of the first Row record in the row block. For all other elements, the file offset is specified relative to the file position of the CELL record specified by the previous element in this array. The number of elements in the array MUST be less than or equal to 32.

### 2.4.79 DbOrParamQry

The **DbOrParamQry** record specifies a [DbQuery](#Section_6d819178e06142acae5a7cced9ee3653) or [ParamQry](#Section_749a479c2f2a4359960fa8bb35312323) record depending on the record that precedes this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgb (variable):** A variable type field that specifies a DbQuery or ParamQry record depending on the record that precedes this record as specified by the following table:

| Preceding Record | Record Type |
| --- | --- |
| [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) | ParamQry |
| DbOrParamQry of type ParamQry | ParamQry |
| Any other record | DbQuery |

### 2.4.80 DbQuery

The **DbQuery** record specifies information about an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9). This record is followed by [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) and [ParamQry](#Section_749a479c2f2a4359960fa8bb35312323) records that specify the strings and parameters. The records MUST be in the following order:

 If and only if **fSql** equals 1, zero or more SXString records as specified by **cstQuery**.

 If and only if **fOdbcConn** equals 1, zero or more SXString records as specified by **cstOdbcConn**.

 If and only if **fWeb** equals 1, zero or more SXString records as specified by **cstQuery**.

 If and only if **fWeb** equals 1, zero or more SXString records as specified by **cstWebPost**.

 Zero or more SXString and ParamQry pairs as specified by **cparams**.

 If and only if **fSqlSav** equals 1, zero or more SXString records as specified by **cstSQLSav**.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dbt | | | A | B | C | D | E | F | unused | | | | | | | cparams | | | | | | | | | | | | | | | |
| cstQuery | | | | | | | | | | | | | | | | cstWebPost | | | | | | | | | | | | | | | |
| cstSQLSav | | | | | | | | | | | | | | | | cstOdbcConn | | | | | | | | | | | | | | | |

**dbt (3 bits):** An unsigned integer that specifies the [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) type. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x1 | [ODBC data source](#Section_a8c9314e9f904738a482e97aa5ec2383) |
| 0x2 | [DAO record set](#Section_fee470a1ff184493a4dab8168e34dd58) |
| 0x4 | [Web query](#Section_f9e7fd044675413a949b2ffdb6c30324) |
| 0x5 | [OLE DB database](#Section_78e87a5485b44714ba6b90d19c098138) |
| 0x6 | [Text query](#Section_d6c94f8620c84fefac836217c00b307b) |
| 0x7 | [ADO query](#Section_d6796128906c4687a63d985bff2364d1) |

**A - fOdbcConn (1 bit):** A bit that specifies whether the data source type is [**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e). MUST be 1 if **dbt** is equal to 0x1.

**B - fSql (1 bit):** A bit that specifies whether there is a database command string. MUST be 0 if **fWeb** is 1. If the value of **dbt** is 5 see the **grbitDbt** field of the [DBQueryExt](#Section_1b04b35c1f20475aadac424a664509dd) record for details on what the database command string specifies. Otherwise the database command string specifies an [**Structured Query Language (SQL)**](#gt_37416b0f-ca5b-4fac-96e5-082eb80a3d84) [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) string. The database command string is contained by zero or more SXString records following this record, as specified by **cstQuery**.

**C - fSqlSav (1 bit):** A bit that specifies whether there is a SQL query string for server-based fields. For more information about server-based fields see the [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) section. If and only if **fSqlSav** equals 1, the SQL query string for server-based fields is contained by zero or more SXString records following this record, as specified by **cstSQLSav**.

**D - fWeb (1 bit):** A bit that specifies whether there is a [**Uniform Resource Locator (URL)**](#gt_433a4fb7-ef84-46b0-ab65-905f5e3a80b1) for a [**Web query**](#gt_7f21a511-63e5-43a2-ad46-235ce53af5f2). MUST be 1 if **dbt** is equal to 0x4. The URL is the command string contained in zero or more SXString records following this record, as specified by **cstQuery**.

**E - fSavePwd (1 bit):** A bit that specifies whether the password is saved with the ODBC [**connection string**](#gt_03a9d0ca-2f10-4f3d-b910-052714a96f7d) specified by SXString records following this record. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Password is removed from the ODBC connection string. |
| 1 | Password is not removed from the ODBC connection string. |

MUST be ignored if **dbt** is not equal to 0x1.

**F - fTablesOnlyHTML (1 bit):**  A bit that specifies whether Web queries only works on HTML tables.

**unused (7 bits):**  Undefined and MUST be ignored.

**cparams (2 bytes):** A signed integer that specifies the number of SQL parameters. Each parameter consists of an SXString record followed by a ParamQry record. The SXString record specifies the name of the parameter and the ParamQry record specifies the query parameters. MUST be greater than or equal to zero.

**cstQuery (2 bytes):** A signed integer that specifies the number of SXString records that contain the command string, see **fWeb** and **fSql** for more details. Each SXString record specifies up to 255 characters of the complete command string. MUST be greater than or equal to zero.

**cstWebPost (2 bytes):** A signed integer that specifies the number of SXString records that contain the Web query statement. Each SXString record specifies up to 255 characters of the complete query statement. MUST be greater than or equal to zero. MUST be 0 if **fWeb** is equal to 0.

**cstSQLSav (2 bytes):**  A signed integer that specifies the number of SXString records that contain the SQL statement for server-based fields. For more information about server-based fields see the source data section. Each SXString record specifies up to 255 characters of the complete SQL statement. MUST be greater than or equal to zero. MUST be 0 if **fSqlSav** is equal to 0.

**cstOdbcConn (2 bytes):** A signed integer that specifies the number of SXString records that contain the ODBC connection string. Each SXString record specifies up to 255 characters of the complete connection string. MUST be greater than or equal to zero. MUST be 0 if **fOdbcConn** is equal to 0.

### 2.4.81 DBQueryExt

The **DBQueryExt** record specifies information about an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9). This record specifies the beginning of a collection of records as specified by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection specifies more information about the external connection. See the [QsiSXTag](#Section_3bb6727096504455944daa8e21dbb19f) record for details about how the [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289) or [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) for the external connection is determined. The records of the collection MUST be in the following order:

 The first record MUST be an [ExtString](#Section_48ec5507dc4c49049590a32423145f0e) record that specifies the comma-delimited list of [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) names to import, if and only if **fTableNames** is equal to 1.

 The next record MUST be a [TxtQry](#Section_a61f99d2b81b4105a6b8a12d9e7dc45b) record, if and only if **fTxtWiz** is equal to 1.

 The next record or records MUST be zero or more [OleDbConn](#Section_b234c71728dc41f39016786cd68321e4) records as specified by **coledb**.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dbt | | | | | | | | | | | | | | | | A | B | C | D | E | F | | G | reserved1 | | | | | | | |
| grbitDbt (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | I | J | reserved3 | | | | | | | | | | | | | bVerDbqueryEdit | | | | | | | | bVerDbqueryRefreshed | | | | | | | |
| bVerDbqueryRefreshableMin | | | | | | | | reserved4 | | | | | | | | reserved5 | | | | | | | | | | | | | | | |
| coledb | | | | | | | | | | | | | | | | cstFuture | | | | | | | | | | | | | | | |
| wRefreshInterval | | | | | | | | | | | | | | | | wHtmlFmt | | | | | | | | | | | | | | | |
| cwParamFlags | | | | | | | | | | | | | | | | rgPbt (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbFutureBytes (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0803.

**dbt (2 bytes):** A [DataSourceType](#Section_0f3cdf2ce91645f7899cbbbe2180126a) enumeration that specifies the database source.

**A - fMaintain (1 bit):**  A bit that specifies whether the connection with the database remains open once established.

**B - fNewQuery (1 bit):**  A bit that specifies whether the connection was not refreshed. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Connection was refreshed one or more times |
| 1 | Connection was not refreshed |

**C - fImportXmlSource (1 bit):**  A bit that specifies whether the underlying [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) source or the Web page table is imported. MUST be ignored if **dbt** is not equal to 0x0004. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Web page table is imported |
| 1 | XML source is imported |

**D - fSPListSrc (1 bit):**  A bit that specifies if the external connection is using the Web based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e).

**E - fSPListReinitCache (1 bit):**  A bit that specifies whether the Web based data is reinitialized rather than refreshed. MUST be ignored if **fSPListSrc** is equal to 0. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Web based data is refreshed. |
| 1 | Web based data is reinitialized by reconnecting to the Web based data provider. |

**F - unused (2 bits):** Undefined and MUST be ignored.

**G - fSrcIsXml (1 bit):**  A bit that specifies whether the external connection source is XML.

**reserved1 (8 bits):** MUST be zero, and MUST be ignored.

**grbitDbt (variable):** A [ConnGrbitDbt](#Section_261cca1c65704c9e9880b7b0b39e378f) structure that specifies external connection properties specific to **dbt.**

**H - fTxtWiz (1 bit):** A bit that specifies whether this is a [**text query**](#gt_c636d3ce-a120-4acf-91ac-40b3ec79593a). If the value is equal to 1, this record MUST be followed by a TxtQry record.

**I - fTableNames (1 bit):** A bit that specifies whether the tables to import are specified in the ExtString record that follows this record.

**J - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**reserved3 (13 bits):** MUST be zero, and MUST be ignored.

**bVerDbqueryEdit (1 byte):**  A [DataFunctionalityLevel](#Section_e2661c5bd55247a697ee7c72ad88be4b) value that specifies the [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) the external connection was last edited with.

**bVerDbqueryRefreshed (1 byte):**  A DataFunctionalityLevel value that specifies the data functionality level the external connection was last refreshed with. MUST be ignored if **fNewQuery** is equal to 1.

**bVerDbqueryRefreshableMin (1 byte):**  A DataFunctionalityLevel value that specifies the minimum data functionality level that the application is required to support refreshing the external connection. MUST be ignored if **fNewQuery** is equal to 1.

**reserved4 (1 byte):** MUST be zero, and MUST be ignored.

**reserved5 (2 bytes):** MUST be zero, and MUST be ignored.

**coledb (2 bytes):** An unsigned integer that specifies the count of OleDbConn records that follow this record. MUST be zero if **dbt** is not equal to DBT\_OLEDB.

**cstFuture (2 bytes):** An unsigned integer that specifies the count of bytes in **rgbFutureBytes**.

**wRefreshInterval (2 bytes):**  An unsigned integer that specifies the number of minutes to wait between automatic refreshes of the external connection. The value MUST be greater than or equal to 0. A value of 0 specifies that the timed [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) is off.

**wHtmlFmt (2 bytes):**  An unsigned integer that specifies the HTML formatting to apply to the imported data for a [**Web query**](#gt_7f21a511-63e5-43a2-ad46-235ce53af5f2). MUST be ignored if **dbt** is not equal to 0x0004. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | No formatting is applied |
| 0x0002 | Rich text formatting only |
| 0x0003 | Full HTML formatting, including [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) formatting |

**cwParamFlags (2 bytes):** An unsigned integer that specifies the count of [PBT](#Section_1261d068f34e4e7c8442154d8c07e51c) items in **rgPbt.**

**rgPbt (variable):** An array of PBT items, each of which specifies information about the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) parameters. The PBT items in the array specify information about same query parameters as the collection of [ParamQry](#Section_749a479c2f2a4359960fa8bb35312323) records of the external connection. The nth PBT item in this array corresponds to the nth ParamQry record within the collection.

**rgbFutureBytes (variable):** Information from future versions. The byte count MUST be equal to **cstFuture**.

### 2.4.82 DCon

The **DCon** record specifies the [**data consolidation**](#gt_ede978bb-cef1-4f8c-b56a-7129cb228738) settings of the associated [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and specifies the beginning of a collection of records as defined by the [Macro Sheet Substream](#Section_0dddd943f77a4fc2bf92868acb4587f7) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) and [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF. The collection of records specifies the [**source data**](#gt_ac56a86c-7f2f-4d8b-a4c0-d6c7df3e72e0) [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). Data consolidation settings can exist in a sheet that does not have a data consolidation range.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iiftab | | | | | | | | | | | | | | | | fLeftCat | | | | | | | | | | | | | | | |
| fTopCat | | | | | | | | | | | | | | | | fLinkConsole | | | | | | | | | | | | | | | |

**iiftab (2 bytes):** An unsigned integer that specifies the [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) used to aggregate the source data. MUST be a value from the following table:

| Value | Function Name | Meaning |
| --- | --- | --- |
| 0x0000 | Average | The average (arithmetic mean). |
| 0x0001 | Count Numbers | The count of the numeric values. |
| 0x0002 | Count | The count of data values. |
| 0x0003 | Maximum | The largest value. |
| 0x0004 | Minimum | The smallest value. |
| 0x0005 | Product | The product of the values. |
| 0x0006 | Standard Deviation | An estimate of the standard deviation of a population, where the sample is a subset of the entire population. |
| 0x0007 | Standard Deviation Population | The standard deviation based on the entire population. |
| 0x0008 | Sum | The summation of the numeric values. |
| 0x0009 | Variance | An estimate of the variance of a population, where the sample is a subset of the entire population. |
| 0x000A | Variance Population | The variance of a population, where the population is all of the data to be summarized. |

**fLeftCat (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies how to identify rows for data consolidation. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Data consolidation is based on the position of the row in the source data ranges. |
| 0x0001 | Data consolidation is based on row labels from the leftmost column of the source data ranges. String comparison is case independent and the consolidated data contains a row for each unique row label. The unique row labels appear in the first column in the [**consolidation range**](#gt_0b4c0b1d-2421-4ac6-aa61-ffb82e6a3bc1), if it exists. |

**fTopCat (2 bytes):**  A Boolean that specifies how to identify columns for data consolidation. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Data consolidation is based on the position of the column in the source data ranges. |
| 0x0001 | Data consolidation is based on column labels from the top row of the source data ranges. String comparison is case independent and the consolidated data contains a column for each unique column label. The unique column labels appear in the top row of the consolidation range, if it exists. |

**fLinkConsole (2 bytes):**  A Boolean that specifies whether data consolidation will create references to the source data. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | References are not created to the source data. |
| 0x0001 | References are created to the source data. |

### 2.4.83 DConBin

The **DConBin** record specifies a built-in [**named range**](#gt_042582ea-4050-4e5c-a2df-ae39706a19b6) that is a [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) for a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) or a data source for the [**data consolidation**](#gt_ede978bb-cef1-4f8c-b56a-7129cb228738) settings of the associated [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| nBuiltin | | | | | | | | reserved1 | | | | | | | | | | | | | | | | reserved2 | | | | | | | |
| cchFile | | | | | | | | | | | | | | | | stFile (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**nBuiltin (1 byte):** An unsigned integer that specifies the built-in [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) for the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). MUST be a value from the following table:

| **Value** | **Meaning** |
| --- | --- |
| 0x00 | "Consolidate\_Area" |
| 0x01 | "Auto\_Open" |
| 0x02 | "Auto\_Close" |
| 0x03 | "Extract" |
| 0x04 | "Database" |
| 0x05 | "Criteria" |
| 0x06 | "Print\_Area" |
| 0x07 | "Print\_Titles" |
| 0x08 | "Recorder" |
| 0x09 | "Data\_Form" |
| 0x0A | "Auto\_Activate" |
| 0x0B | "Auto\_Deactivate" |
| 0x0C | "Sheet\_Title" |
| 0x0D | "\_FilterDatabase" |

**reserved1 (2 bytes):** MUST be zero and MUST be ignored.

**reserved2 (1 byte):** MUST be zero and MUST be ignored.

**cchFile (2 bytes):** An unsigned integer that specifies the character count of **stFile.** MUST be 0x0000, or greater than or equal to 0x0002. A value of 0x0000 specifies that the built-in defined name specified in **nBuiltin** has a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) scope and is contained in this file.

**stFile (variable):** An [DConFile](#Section_a558d2a65afc4bc7ac8307ced5230b0d) structure that specifies the workbook or workbook and sheet that contains the range specified in **nBuiltin.** This field MUST exist if and only if the value of **cchFile** is greater than zero. If the built-in defined name has workbook scope this field specifies the workbook file that contains the built-in defined name and its associated range. If the built-in defined name has a sheet–level scope this field specifies both the sheet name and the workbook file that contains the built-in defined name and its associated range.

**unused (variable):** An array of bytes that is unused and MUST be ignored. MUST exist if and only if **cchFile** is greater than 0 and **stFile** specifies a self-reference (the value of **stFile.stFile.rgb**[0] is 2). If the value **stFile.stFile.fHighByte** is 0 the size of this array is 1. If the value of **stFile.stFile.fHighByte** is 1 the size of this array is 2.

### 2.4.84 DConn

The **DConn** record specifies information for a single data connection.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dbt | | | | | | | | | | | | | | | | A | B | C | D | E | F | G | H | I | unused1 | | | | | | |
| cParams | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| J | K | L | M | N | O | | P | reserved2 | | | | | | | | grbitDbt (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bVerDbqueryEdit | | | | | | | | bVerDbqueryRefreshed | | | | | | | | bVerDbqueryRefreshableMin | | | | | | | | wRefreshInterval | | | | | | | |
| ... | | | | | | | | wHtmlFmt | | | | | | | | | | | | | | | | rcc | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | credMethod | | | | | | | |
| reserved3 | | | | | | | | rgchSourceDataFile (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchSourceConnectionFile (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchConnectionName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchConnectionDesc (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchSSOApplicationID (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tableNames (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| params (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| connection (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbSQL (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbSQLSav (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbEditWebPage (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| id (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b). The **frtHeaderOld.rt** field MUST be 0x0876.

**dbt (2 bytes):** A [DataSourceType](#Section_0f3cdf2ce91645f7899cbbbe2180126a) that specifies the type of this data connection.

**A - fSavePwd (1 bit):** A bit that specifies whether a password is saved for this data connection. This field MUST be ignored if **dbt** is not equal to 0x0001 or 0x0005.

**B - fTablesOnlyHtml (1 bit):**  A bit that specifies whether web queries retrieve data from HTML tables only. MUST be ignored if **dbt** is not equal to 0x0004. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Web queries retrieve data from the entire page. |
| 0x1 | Web queries retrieve data from HTML tables only. |

**C - fTableNames (1 bit):**  A bit that specifies whether there are any HTML tables saved for this data connection. MUST be ignored if **dbt** is not equal to 0x0004. Value MUST equal 1 if **fTablesOnlyHtml** is equal to 1.

**D - fDeleted (1 bit):**  A bit that specifies whether the data connection associated with the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) has been deleted.

**E - fStandAlone (1 bit):**  A bit that specifies whether the data connection is used by the workbook.

**F - fAlwaysUseConnectionFile (1 bit):**  A bit that specifies whether the data connection information in the connection file is used when the data is refreshed. This field MUST be ignored if **dbt** is not equal to 0x0001 or 0x0005.

**G - fBackgroundQuery (1 bit):**  A bit that specifies whether the data connection is refreshed asynchronously.

**H - fRefreshOnLoad (1 bit):**  A bit that specifies whether the data connection is refreshed after the file is loaded.

**I - fSaveData (1 bit):**  A bit that specifies if the data for the data connection is persisted in the workbook.

**unused1 (7 bits):** Undefined and MUST be ignored.

**cParams (2 bytes):**  An unsigned integer that specifies the number of parameters for a [**parameterized query**](#gt_c68a3a26-317d-4a1d-9eff-c2630b53067c). The value MUST equal 0 if **fStandAlone** equals 0.

**reserved1 (2 bytes):** MUST be zero and MUST be ignored.

**J - fMaintain (1 bit):**  A bit that specifies whether the data connection remains open once it is established.

**K - fNewQuery (1 bit):**  A bit that specifies whether the data connection has been refreshed. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Connection has been refreshed one or more times |
| 1 | Connection has not yet been refreshed |

**L - fImportXmlSource (1 bit):**  A bit that specifies whether the underlying [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) source or the Web page table has been imported. MUST be ignored if **dbt** is not equal to 0x0004. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Web page table has been imported |
| 1 | XML source has been imported |

**M - fSPListSrc (1 bit):** A bit that specifies whether the query is using a Web-based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e). MUST be ignored if **dbt** is not equal to 0x0005.

**N - fSPListReinitCache (1 bit):**  A bit that specifies whether the Web based data is reinitialized rather than refreshed. MUST be ignored if **dbt** is not equal to 0x0005. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | List is refreshed |
| 1 | List is reinitialized by reconnecting to the data provider |

**O - unused2 (2 bits):** Undefined and MUST be ignored.

**P - fSrcIsXml (1 bit):**  A bit that specifies whether the query source is XML. MUST be ignored if **dbt** is not equal to 0x0004.

**reserved2 (8 bits):** MUST be zero and MUST be ignored.

**grbitDbt (variable):** A [ConnGrbitDbt](#Section_261cca1c65704c9e9880b7b0b39e378f) that specifies the query flags.

**bVerDbqueryEdit (1 byte):**  A [DataFunctionalityLevel](#Section_e2661c5bd55247a697ee7c72ad88be4b) that specifies the [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) was last edited with.

**bVerDbqueryRefreshed (1 byte):**  A DataFunctionalityLevel that specifies the data functionality level the query was last refreshed with.

**bVerDbqueryRefreshableMin (1 byte):**  A DataFunctionalityLevel that specifies the minimum data functionality level that the application is required to support to [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) the query.

**wRefreshInterval (2 bytes):** An unsigned integer that specifies the number of minutes to wait between automatic refreshes of the query. The value MUST be greater than or equal 0.

**wHtmlFmt (2 bytes):** An unsigned integer that specifies the HTML formatting to apply to the imported data for a [**Web query**](#gt_7f21a511-63e5-43a2-ad46-235ce53af5f2). MUST be ignored if **dbt** is not equal to 0x0004. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | None |
| 0x0002 | Rich text formatting only |
| 0x0003 | Full HTML formatting |

**rcc (4 bytes):** An unsigned integer that specifies the reconnection method. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | Reconnection method is determined by the application. |
| 0x00000001 | Reconnect. When the data connection is refreshed, the updated connection information is retrieved if it is available. This information is used instead of the persisted connection information. |
| 0x00000002 | Never reconnect. Updated connection information is never used even if the information is available and the existing connection information is invalid. |

**credMethod (1 byte):** An unsigned integer that specifies the credentials used during reconnection. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Integrated authentication |
| 0x01 | Use no credentials |
| 0x02 | Use stored credentials |
| 0x03 | Prompt for credentials |

**reserved3 (1 byte):** MUST be zero and MUST be ignored.

**rgchSourceDataFile (variable):** A [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31) that specifies the database file to use if the existing [**OLE DB**](#gt_333f4fb1-4882-48df-bce6-f9961b408f31) connection fails. MUST be ignored if **dbt** does not equal 0x0005.

**rgchSourceConnectionFile (variable):**  A DConnUnicodeStringSegmented that specifies the [**Office data connection (ODC) file**](#gt_e6fb952a-b6b6-40af-ad1b-ea6cf97da509) to use if the existing connection fails.

**rgchConnectionName (variable):**  A DConnUnicodeStringSegmented that specifies the name of the data connection associated with the workbook.

**rgchConnectionDesc (variable):**  A DConnUnicodeStringSegmented that specifies the description of the data connection associated with the workbook.

**rgchSSOApplicationID (variable):**  A DConnUnicodeStringSegmented that specifies the [**single sign-on (SSO) identifier**](#gt_aef76345-0a1f-4bcd-8700-ef5022a57cd1) string. MUST be ignored if **dbt** does not equal 0x0001 or 0x0005.

**tableNames (variable):**  A DConnUnicodeStringSegmented that specifies the list of [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) names as a comma-separated list. This field only exists when **fTableNames** is equal to 1. The total number of characters MUST be less than or equal to 255.

**params (variable):**  An array of [DConnParameter](#Section_8bcedc2700644f8187f86b74f67342da) that specifies the parameters of a parameterized query. The size of the array is determined by **cParams**. MUST NOT exist if **fStandAlone** is equal to 0.

**connection (variable):** A variable type field. The data type and meaning vary depending on the value of **dbt**.

| Value of dbt | Meaning |
| --- | --- |
| 1 | **connection** is a DConnUnicodeStringSegmented that specifies the [**connection string**](#gt_03a9d0ca-2f10-4f3d-b910-052714a96f7d). If field **fStandAlone** is 0, then connection.**st.cch** MUST be 0. |
| 4 | **connection** is a [DConnConnectionWeb](#Section_26f38d6e2d3c4094b3284141de6fd0e5) that specifies the connection information for a Web query. |
| 5 | **connection** is a [DConnConnectionOleDb](#Section_f80a92289cd64fd79be298c0953866fa) that specifies the connection information for an OLE DB connection string. |
| 6 | **connection** is a [TxtQry](#Section_a61f99d2b81b4105a6b8a12d9e7dc45b) that specifies information for a [**text query**](#gt_c636d3ce-a120-4acf-91ac-40b3ec79593a). |
| Any other value | **connection** does not exist. |

**rgbSQL (variable):**  A [DConnStringSequence](#Section_4447e71a659340f69fb3df6853439600) that specifies the database command. For an OLE DB [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075), the meaning of the **dbost** field of [ConnGrbitDbtOledb](#Section_b6e55e1249014c8f827e3110cfee247c) determines the meaning of this field. For an [**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e) data source, this string specifies the [**SQL**](#gt_37416b0f-ca5b-4fac-96e5-082eb80a3d84) statement. MUST be ignored if **dbt** does not equal 0x0001 or 0x0005.

**rgbSQLSav (variable):**  A DConnStringSequence that specifies the original, non-parameterized SQL statement for an ODBC data source. MUST be ignored if **dbt** does not equal 0x0001.

**rgbEditWebPage (variable):**  A DConnStringSequence that specifies the [**URL**](#gt_433a4fb7-ef84-46b0-ab65-905f5e3a80b1) for the Web query edit query dialog. MUST be ignored if **dbt** does not equal 0x0004.

**id (variable):** A [DConnId](#Section_516a5835e7f3402f9f5d24ebf2cddacd) that specifies the object that this connection is associated with.

### 2.4.85 DConName

The **DConName** record specifies a [**named range**](#gt_042582ea-4050-4e5c-a2df-ae39706a19b6) that is a [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) for a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) or a data source for the [**data consolidation**](#gt_ede978bb-cef1-4f8c-b56a-7129cb228738) settings of the associated [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). The [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) is specified as a reference to an [external workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc) or a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) in this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). If the named range is in an external workbook, this record specifies the path to the external workbook. If the named range has a defined name that has a sheet-level scope, this record also specifies the name of the sheet that contains the range.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| stName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchFile | | | | | | | | | | | | | | | | stFile (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**stName (variable):** An [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) structure that specifies a defined name for the source range.

**cchFile (2 bytes):** An unsigned integer that specifies the character count of **stFile**. MUST be 0x0000, or greater than or equal to 0x0002. A value of 0x0000 specifies that the defined name in **stName** has a workbook scope and is contained in this file.

**stFile (variable):** A [DConFile](#Section_a558d2a65afc4bc7ac8307ced5230b0d) structure that specifies the workbook, or workbook and sheet, that contains the range specified in **stName.** This field exists only if the value of **cchFile** is greater than zero. If the defined name in **stName** has workbook scope, this field specifies the workbook file that contains the defined name and its associated range. If the defined name in **stName** has a sheet-level scope, this field specifies both the sheet name and the workbook that contains the defined name and its associated range.

**unused (variable):** An array of bytes that is unused and MUST be ignored. MUST exist if and only if **cchFile** is greater than 0 and **stFile** specifies a self-reference (the value of **stFile.stFile.rgb**[0] is 2). If the value **stFile.stFile.fHighByte** is 0, the size of this array is 1. If the value of **stFile.stFile.fHighByte** is 1, the size of this array is 2.

### 2.4.86 DConRef

The **DConRef** record specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) in this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) or in an [external workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc) that is a [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) for a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) or a data source for the [**data consolidation**](#gt_ede978bb-cef1-4f8c-b56a-7129cb228738) settings of the associated [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). If the range specified is in an external workbook this record also specifies the path to the external workbook.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cchFile | | | | | | | | | | | | | | | |
| stFile (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ref (6 bytes):** A [RefU](#Section_0bb7dda629a3440db2bea793540b3f16) structure that specifies the range. If this record is part of an [SXTBL](#section_ca4c174887294a93abb94602b3a01fb1) production as specified in the Globals Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) and this field has a **rwFirst** equal to 0 and a **rwLast** equal to 16383, this reference specifies all rows within the columns specified by **colFirst** and **colLast**.

**cchFile (2 bytes):** An unsigned integer that specifies the count of characters in **stFile**. MUST be greater than or equal to 0x0002.

**stFile (variable):** A [DConFile](#Section_a558d2a65afc4bc7ac8307ced5230b0d) structure that specifies the workbook and sheet that contains the range specified in the **ref** field.

**unused (variable):** An array of bytes that is unused and MUST be ignored. MUST exist if and only if **stFile** specifies a self reference (the value of **stFile.stFile.rgb**[0] is 2). If the value **stFile.stFile.fHighByte** is 0 the size of this array is 1. If the value of **stFile.stFile.fHighByte** is 1 the size of this array is 2.

### 2.4.87 DefaultRowHeight

The **DefaultRowHeight** record specifies the height of all empty rows in the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). An empty row is a row that only contains [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) without data or formatting.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | reserved | | | | | | | | | | | | miyRw (optional) | | | | | | | | | | | | | | | |
| miyRwHidden (optional) | | | | | | | | | | | | | | | |

**A - fUnsynced (1 bit):** A bit that specifies whether the default settings for the row height have been changed.

**B - fDyZero (1 bit):** A bit that specifies whether empty rows have a height of zero.

**C - fExAsc (1 bit):** A bit that specifies whether all empty rows have a thick [**border style**](#gt_2baf659e-8e18-4f60-b3d0-ce0b8e1f2eab) applied to the top [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) (as specified in field **fExAsc** of record [Row](#Section_4aab09eb49ed4d01a3b11d726247d3c2)).

**D - fExDsc (1 bit):** A bit that specifies whether all empty rows have a thick border style applied to the bottom border (as specified in field **fExDes** of record Row).

**reserved (12 bits):**  MUST be zero, and MUST be ignored.

**miyRw (2 bytes):**  A signed integer that specifies the default row height, in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382), for empty rows. MUST exist if and only if **fDyZero** is 0. MUST be greater than or equal to 1 and less than or equal to 8179.

**miyRwHidden (2 bytes):**  A signed integer that specifies the default row height, in twips, to apply to a [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) row when unhidden. MUST exist if and only if **fDyZero** is 1. MUST be greater than or equal to 0 and less than or equal to 8179.

### 2.4.88 DefaultText

The **DefaultText** record specifies the text elements that are formatted using the information specified by the [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record immediately following this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| id | | | | | | | | | | | | | | | |

**id (2 bytes):**  An unsigned integer that specifies the text elements that are formatted using the position and appearance information specified by the Text record immediately following this record. MUST be a value from the following table.

If this record is in a sequence of records that conforms to the [CRT](#section_732ff614d939416bb7c76d983471ff11) rule as specified by the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), then this field MUST be 0x0000 or 0x0001. If this record is not in a sequence of records that conforms to the CRT rule as specified by the Chart Sheet Substream ABNF, then this field MUST be 0x0002 or 0x0003.

| Value | Meaning |
| --- | --- |
| 0x0000 | Format all Text records in the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) where **fShowPercent** is equal to 0 or **fShowValue** is equal to 0. |
| 0x0001 | Format all Text records in the chart group where **fShowPercent** is equal to 1 or **fShowValue** is equal to 1. |
| 0x0002 | Format all Text records in the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) where the value of **fScaled** of the associated [FontInfo](#Section_d4ab96a535a943789b00c11fabc7ea00) structure is equal to 0. |
| 0x0003 | Format all Text records in the chart where the value of **fScaled** of the associated FontInfo structure is equal to 1. |

### 2.4.89 DefColWidth

The **DefColWidth** record specifies the default column width of a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and specifies the beginning of a collection of [ColInfo](#Section_2c339a18081942219c5d3e9cf304224b) records as defined by the [Macro Sheet Substream](#Section_0dddd943f77a4fc2bf92868acb4587f7) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) and [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF. The collection of ColInfo records specifies the column formatting for a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of columns.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cchdefColWidth | | | | | | | | | | | | | | | |

**cchdefColWidth (2 bytes):**  An unsigned integer that specifies the default width, in number of characters, of the columns in the sheet. MUST be less than or equal to 255.

### 2.4.90 Dimensions

The **Dimensions** record specifies the used [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). It specifies the row and column bounds of used [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the sheet. Used cells include all cells with formulas (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) or data. Used cells also include all cells with formatting applied directly to the cell. Cells can also be formatted by default row or column formatting. If a row has default formatting then the used range includes that row in its row bounds, but does not affect the used range column bounds, unless the used range would otherwise be empty, in which case the column bounds are set to include the first column. If a column has default formatting then the used range includes that column in its column bounds, but does not affect the used range row bounds, unless the used range would otherwise be empty, in which case the row bounds are set to include the first row.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rwMic | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rwMac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colMic | | | | | | | | | | | | | | | | colMac | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | |

**rwMic (4 bytes):**  A [RwLongU](#Section_a6fff2b4470a463da6e99dad9676cd44) structure that specifies the first row in the sheet that contains a used cell.

**rwMac (4 bytes):**  An unsigned integer that specifies the zero-based index of the row after the last row in the sheet that contains a used cell. MUST be less than or equal to 0x00010000. If this value is 0x00000000, no cells on the sheet are used cells.

**colMic (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the first column in the sheet that contains a used cell.

**colMac (2 bytes):**  An unsigned integer that specifies the zero-based index of the column after the last column in the sheet that contains a used cell. MUST be less than or equal to 0x0100. If this value is 0x0000, no cells on the sheet are used cells.

**reserved (2 bytes):**  MUST be zero, and MUST be ignored.

### 2.4.91 DocRoute

The **DocRoute** record specifies the document routing information for a [**routing slip**](#gt_8cedfe36-260c-416e-aeab-7fee4bdef9c3)[<77>](#Appendix_A_77" \o "Product behavior note 77) that is used to send a document in an e-mail message and specifies the beginning of a collection of [RecipName](#Section_1cfb77dec1804022b2d01af99fc129fe) records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of RecipName records specifies the recipients of the routing slip.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iStage | | | | | | | | | | | | | | | | cRecip | | | | | | | | | | | | | | | |
| delOption | | | | | | | | | | | | | | | | A | B | C | D | E | | | F | unused2 | | | | | | | |
| cchSubject | | | | | | | | | | | | | | | | cchMessage | | | | | | | | | | | | | | | |
| cchRouteID | | | | | | | | | | | | | | | | cchCustType | | | | | | | | | | | | | | | |
| cchBookTitle | | | | | | | | | | | | | | | | cchOrg | | | | | | | | | | | | | | | |
| ulEIDSize | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| szSubject (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| szMessage (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| szRouteID (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| szCustType (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| szBookTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| szOrg (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchSSAddr (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iStage (2 bytes):**  An unsigned integer that specifies the [**routing stage**](#gt_8a637321-ad73-45ee-bfdb-9de9c12fc505) of the slip. This value MUST be less than or equal to the **cRecip** field +1.

**cRecip (2 bytes):**  An unsigned integer that specifies the number of recipients. MUST equal the actual number of RecipName records that follow this record.

**delOption (2 bytes):**  An unsigned integer that specifies the delivery option. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Deliver to one recipient at a time |
| 0x01 | Deliver to all recipients at once |

**A - fRouted (1 bit):**  A bit that specifies whether the document has been routed.

**B - fReturnOrig (1 bit):**  A bit that specifies whether the document is returned to the originator after being routed to the last recipient.

**C - fTrackStatus (1 bit):**  A bit that specifies whether a status message is sent to the originator after the document is routed.

**D - fCustomType (1 bit):**  A bit that specifies whether there is a custom message type defined by **szCustType**.

**E - unused1 (3 bits):**  Undefined and MUST be ignored.

**F - fSaveRouteInfo (1 bit):**  A bit that specifies whether the routing information is saved with the document. MUST equal 1.

**unused2 (8 bits):**  Undefined and MUST be ignored.

**cchSubject (2 bytes):**  An unsigned integer that specifies the count of characters in the **szSubject** field string. MUST be less than or equal to 256.

**cchMessage (2 bytes):**  An unsigned integer that specifies the count of characters in the **szMessage** field string. MUST be less than or equal to 256.

**cchRouteID (2 bytes):**  An unsigned integer that specifies the count of characters in the **szRouteID** field string. MUST be less than or equal to 256.

**cchCustType (2 bytes):**  An unsigned integer that specifies the count of characters in the **szCustType** field string. MUST be less than or equal to 256. MUST equal 0 if the **fCustomType** field equals 0.

**cchBookTitle (2 bytes):**  An unsigned integer that specifies the count of characters in the **szBookTitle** field string. MUST be less than or equal to 256.

**cchOrg (2 bytes):**  An unsigned integer that specifies the count of characters in the **szOrg** field string. MUST be less than or equal to 256.

**ulEIDSize (4 bytes):**  An unsigned integer that specifies the count of characters in the **rgchSSAddr** field string. When combined with the values of **cchSubject**, **cchMessage**, **cchRouteID**, **cchCustType**, **cchBookTitle**, and **cchOrg** fields, the value MUST be less than or equal to 8202.

**szSubject (variable):**  A NULL terminated array of ANSI characters that specifies the subject of the routed document. The length of the string MUST be specified by the **cchSubject** field. The field MUST NOT exist if the **cchSubject** field is 0.

**szMessage (variable):**  A NULL terminated array of ANSI characters that specifies the message of the routed document. The length of the string MUST be specified by the **cchMessage** field. The field MUST NOT exist if the **cchMessage** field is 0.

**szRouteID (variable):**  A NULL terminated array of ANSI characters that specifies the name of the routing identifier. The length of the string MUST be specified by the **cchRouteID** field. The field MUST NOT exist if the **cchRouteID** field is 0.

**szCustType (variable):**  A NULL terminated array of ANSI characters that specifies a custom message. The length of the string MUST be specified by the **cchCustType** field. The field MUST NOT exist if the field **cchCustType** is 0.

For more information about the MapiMessage structure, see [[MSDN-MapiMessage]](https://go.microsoft.com/fwlink/?LinkId=121694).

**szBookTitle (variable):**  A NULL terminated array of ANSI characters that specifies the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) title. The length of the string MUST be specified by the **cchBookTitle** field. The field MUST NOT exist if the **cchBookTitle** field is 0.

**szOrg (variable):**  A NULL terminated array of ANSI characters that specifies the originator’s [**friendly name**](#gt_3dafc161-8c9d-406a-8cbd-c61e7f925eea). The length of the string MUST be specified by the **cchOrg** field. The field MUST NOT exist if the **cchOrg** field is 0.

**rgchSSAddr (variable):**  A NULL terminated array of ANSI characters that specifies the identifier used by the [**messaging system service provider**](#gt_ff288e35-3b60-4a5e-99d6-faa6afa8009a) to identify the originator’s e-mail address. The length of the string MUST be specified by the **ulEIDSize** field. The field MUST NOT exist if the **ulEIDSize** field is 0.

### 2.4.92 DropBar

The **DropBar** record specifies the attributes of the [**up bars**](#gt_24acb31a-39aa-4a44-829b-c18e1767a4ac) or the [**down bars**](#gt_d8bcbdc9-46a4-44e5-b184-40c565e4dd07) between multiple [series](#Section_527ce4dfc9f84e50a314d4b07519593c) of a line [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The first of these collections in the line chart group specifies the attributes of the up bars.  The second specifies the attributes of the down bars.  If this record exists, then the chart group type MUST be line and the field **cSer** in the record [SeriesList](#Section_da970b89b0bd4060af1cd9b6fd33a5f7) MUST be greater than 1.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| pcGap | | | | | | | | | | | | | | | |

**pcGap (2 bytes):**  A signed integer that specifies the width of the gap between the up bars or the down bars. MUST be a value between 0 and 500. The width of the gap in [SPRCs](#Section_d5fc728e68de4972905a975bcef8c82d) can be calculated by the following formula:

Width of the gap in SPRCs = 1 + **pcGap**

### 2.4.93 DropDownObjIds

The **DropDownObjIds** record specifies the object identifiers that can be reused by the application when creating the dropdown objects for the [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) at runtime in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cidObj | | | | | | | | | | | | | | | | rgidObj (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0874.

**cidObj (2 bytes):** An unsigned integer that specifies the count of the object identifiers in **rgidObj**.

**rgidObj (variable):** An array of 2-byte unsigned integers that specifies the object identifiers that can be reused by the application when creating the dropdown objects for the AutoFilter at runtime in a sheet. These object identifiers MUST NOT equal an existing [ObjId](#Section_16a9e44a84a34b1dbb5f36c1966d2ce1) structure in the [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream.

### 2.4.94 DSF

The **DSF** record is reserved and MUST be ignored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | |

**reserved (2 bytes):**  MUST be zero, and MUST be ignored.

### 2.4.95 Dv

The **Dv** record specifies a single set of [**data validation**](#gt_1db94de4-1b5d-40aa-a7d9-617078ebb237) criteria defined for a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) on this [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| valType | | | | A | | | B | C | D | mdImeMode | | | | | | | | E | F | G | | | | reserved | | | | | | | |
| PromptTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ErrorTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prompt (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Error (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| formula1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| formula2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sqref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**valType (4 bits):** An unsigned integer that specifies the type of data validation.  MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the data validation allows any type of value and does not check for a type or range of values. |
| 0x1 | Specifies that the data validation checks for and allows whole number values satisfying the given condition. |
| 0x2 | Specifies that the data validation checks for and allows decimal values satisfying the given condition. |
| 0x3 | Specifies that the data validation checks for and allows a value that matches one in a list of values. |
| 0x4 | Specifies that the data validation checks for and allows date values satisfying the given condition. |
| 0x5 | Specifies that the data validation checks for and allows time values satisfying the given condition. |
| 0x6 | Specifies that the data validation checks for and allows text values whose length satisfies the given condition. |
| 0x7 | Specifies that the data validation uses a custom formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) to check the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) value. |

**A - errStyle (3 bits):** An unsigned integer that specifies the style of error alert to be used in the error message which is shown if the **fShowErrorMsg** bit is set to 1.  MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the data validation error style uses a stop [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) in the error alert. |
| 0x1 | Specifies that the data validation error style uses a warning icon in the error alert. |
| 0x2 | Specifies that the data validation error style uses an information icon in the error alert |

**B - fStrLookup (1 bit):** A bit that specifies whether a list of valid inputs was specified for data validation. MUST be ignored if **valType** is not equal to 3.

**C - fAllowBlank (1 bit):** A bit that specifies whether the data validation treats empty or blank entries as valid.

**D - fSuppressCombo (1 bit):** A bit that specifies whether to suppress the display of the in-cell drop-down when the cell is [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595). MUST be ignored if **valType** is not equal to 3.

**mdImeMode (8 bits):** An unsigned integer that specifies the [**Input Method Editor (IME)**](#gt_19d3dd70-8d6a-4847-9827-ebbde6b1a9b7) mode enforced by this data validation. This value is only used when the [**input language**](#gt_223b5207-0d94-4cc1-891d-3c74349d606a) is one of the following languages:

 Chinese Simplified (Locale identifier = 2052)

 Chinese Traditional (Locale identifier = 1028)

 Japanese (Locale identifier = 1041)

 Korean  (Locale identifier = 1042)

The input for the cell can be restricted to specific sets of characters, as specified by the value of **mdImeMode**. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | No Control |
| 0x01 | On |
| 0x02 | Off (English) |
| 0x04 | Hiragana |
| 0x05 | [**wide katakana**](#gt_49e3662b-e146-4c32-a815-eaac74a92000) |
| 0x06 | [**narrow katakana**](#gt_514e674e-2e44-41d8-9c31-ee11c825b669) |
| 0x07 | Full-width alphanumeric |
| 0x08 | Half-width alphanumeric |
| 0x09 | Full-width hangul |
| 0x0A | Half-width hangul |

**E - fShowInputMsg (1 bit):** A bit that specifies whether to show an input prompt when the cell is selected.

**F - fShowErrorMsg (1 bit):** A bit that specifies whether to display an error message when the data validation fails.

**G - typOperator (4 bits):** An unsigned integer that specifies the relational operator used with this data validation.  If **valType** is equal to 0, 3 or 7, the value of the **typOperator** field is undefined and MUST be ignored.  MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Between |
| 0x1 | Not Between |
| 0x2 | Equals |
| 0x3 | Not Equals |
| 0x4 | Greater Than |
| 0x5 | Less Than |
| 0x6 | Greater Than or Equal To |
| 0x7 | Less Than or Equal To |

**reserved (8 bits):** MUST be zero, and MUST be ignored.

**PromptTitle (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the title of the input prompt that is displayed when the cell is selected. The number of characters in this string MUST be less than or equal to 32.

**ErrorTitle (variable):**  An XLUnicodeString structure that specifies the title of the error that is displayed when the cell value entered fails the data validation criteria. The number of characters in this string MUST be less than or equal to 32.

**Prompt (variable):**  An XLUnicodeString structure that specifies the message shown in the input prompt that is displayed when the cell is selected. The number of characters in this string MUST be less than or equal to 255.

**Error (variable):**  An XLUnicodeString structure that specifies the error message that is displayed when the cell value entered fails the data validation criteria. The number of characters in this string MUST be less than or equal to 225.

**formula1 (variable):** A [DVParsedFormula](#Section_f30fbda8d3824d5a901f4691743f83e2) structure that specifies the first formula (section 2.2.2) used in data validation.

If **valType** is equal to 0, this formula MUST be ignored and **formula1.cce** MUST be zero.

If **valType** is not one of 0, 3, or 7 and **typOperator** is equal to 0 or 1, this formula is used as the lesser of two bounding values and **formula1.cce** MUST be greater than or equal to 1.

Otherwise, this formula is the only formula for those cases, and **formula1.cce** MUST be greater than or equal to 1.

**formula2 (variable):** A DVParsedFormula structure that specifies the second formula used in data validation.

If **typOperator** is greater than or equal to 2 or **valType** is equal to 0, 3 or 7, this formula MUST be ignored and **formula2.cce** MUST be zero.

Otherwise, this formula is used as the greater of two bounding values and **formula2.cce** MUST be greater than or equal to 1.

**sqref (variable):**  A [SqRefU](#Section_867dcebec0624c4699b11b2a479e6f32) structure that specifies all the ranges over which data validation is applied. The value of **sqref.cref** MUST be greater than 0 and less than or equal to 432.

### 2.4.96 DVal

The **DVal** record specifies [**data validation**](#gt_1db94de4-1b5d-40aa-a7d9-617078ebb237) information that is common to all cells in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) that have data validation applied and specifies the beginning of a collection of [Dv](#Section_862bbc7c009a4fd6a93e3e32e591c2f8) records as defined by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of Dv records specifies data validation criteria for individual [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) in the sheet.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | reserved2 | | | | | | | | | | | | | xLeft | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | yTop | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | idObj | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | idvMac | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**A - fWnClosed (1 bit):** A bit that specifies whether the window used for input is closed.

**B - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**C - unused (1 bit):** Undefined and MUST be ignored.

**reserved2 (13 bits):** MUST be zero, and MUST be ignored.

**xLeft (4 bytes):**  An unsigned integer that specifies the X-coordinate of the top left corner of the window used for input relative to the window used to display the sheet, in pixels. MUST be less than or equal to 65535.

**yTop (4 bytes):**  An unsigned integer that specifies the Y-coordinate of the top left corner of the window used for input relative to the window used to display the sheet, in pixels. MUST be less than or equal to 65535.

**idObj (4 bytes):**  A signed integer that specifies a reference to an [Obj](#Section_dd34df60825040a983a3911476a31ea7) that represents the drop-down button displayed if a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) with a drop-down button is the [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) cell at the time the file is saved. The value of this field specifies the value of the **cmo.id** field of the associated Obj record. MUST be greater than 0 and less than or equal to 32767 if the drop-down button is displayed. MUST be -1 if there is no drop-down button being displayed in the selected cell at the time the file is saved.

**idvMac (4 bytes):**  An unsigned integer that specifies the number of Dv records that follow this record. MUST be greater than or equal to 0 and less than or equal to 65534. There MUST be exactly that many Dv records following this record.

### 2.4.97 DXF

The **DXF** record specifies a [differential format](#Section_f0b6070c31f54d3dbcb719612da8b8f6).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | reserved | | | | | | | | | | | | | xfprops (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 2189.

**A - unused1 (1 bit):**  Undefined and MUST be ignored.[<78>](#Appendix_A_78" \o "Product behavior note 78)

**B - fNewBorder (1 bit):**  A bit that specifies whether it is possible to specify internal [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad) in **xfprops**. Internal border formatting is formatting that applies to borders that lie between a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that internal border formatting cannot be used in **xfprops**. |
| 0x1 | Specifies that internal border formatting can be used in **xfprops**. |

**C - unused2 (1 bit):**  Undefined and MUST be ignored.

**reserved (13 bits):**  MUST be zero, and MUST be ignored.

**xfprops (variable):**  An [XFProps](#Section_bf4f3634ed2d4207b18ba23dd6b3d565) structure that specifies the formatting properties.

### 2.4.98 DxGCol

The **DxGCol** record specifies the default column width for all [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) columns that do not have a column width explicitly specified. If an explicit column width was specified for a column, it is stored in a [ColInfo](#Section_2c339a18081942219c5d3e9cf304224b) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dxgCol | | | | | | | | | | | | | | | |

**dxgCol (2 bytes):**  An unsigned integer that specifies the default column width. For the purposes of this field specification, a standard digit is defined to be the widest digit in the [Normal style](#Section_d039c65186dc4d9da6ee1cb8c1088f20) [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2). The default column width is measured in the number of standard digits that fit in the column multiplied by 256 and rounded down. The value MUST be less than or equal to 65535 or be equal to 0xFFFFFFFF. If the value is 0xFFFFFFFF, this value MUST be ignored.

### 2.4.99 End

The **End** record specifies the end of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies properties of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c).

### 2.4.100 EndBlock

The **EndBlock** record specifies the end of a collection of records. [Future records](#Section_b660b67822684414839ed1ae9a4e4e85) contained in this collection specify saved features to allow applications that do not support the feature to preserve the information. This record MUST have an associated [StartBlock](#Section_79f4d08551a0473c8b0f8d920026f889) record. StartBlock and EndBlock pairs can be nested. Up to 100 levels of blocks can be nested.

EndBlock records MUST be written according to the following rules:

 If there exists a StartBlock record with **iObjectKind** equal to 0x0000 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the [End](#Section_abe8fd1db6a847b8864052ba75a76f5c) record of the current [Axis Group](#Section_578b739742624944b5a67ee6d4d3bb55).

 If there exists a StartBlock record with **iObjectKind** equal to 0x0002 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [AttachedLabel](#Section_9ac44e58af9940f4a99ace470eff0f5a).

 If there exists a StartBlock record with **iObjectKind** equal to 0x0004 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [Axis](#Section_4117f73aa0f348d89c0f65864918ffb3).

 If there exists a StartBlock record with **iObjectKind** equal to 0x0005 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5).

 If there exists a StartBlock record with **iObjectKind** equal to 0x0006 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the sequence of records containing the StartBlock and conforming to the [DAT](#section_732ff614d939416bb7c76d983471ff11) rule.

 If there exists a StartBlock record with **iObjectKind** equal to 0x0007 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the sequence of records containing the StartBlock and conforming to the FRAME rule.

 If there exists a StartBlock record with **iObjectKind** equal to 0x0009 without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [Legend](#Section_1832229b7d1945f488d455e9c07466f0).

 If there exists a StartBlock record with **iObjectKind** equal to 0x000A without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [Begin](#Section_52d0d2c76cc540c4adf3aea158411ef3) and End collection that exists immediately after [LegendException](#Section_8c4e0829c6ee4b34b8affb95f9d70c86) in the sequence of records conforming to the SERIESFORMAT rule.

 If there exists a StartBlock record with **iObjectKind** equal to 0x000C without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [Series](#Section_527ce4dfc9f84e50a314d4b07519593c).

 If there exists a StartBlock record with **iObjectKind** equal to 0x000D without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current [Sheet](#Section_2c90d75bc92645aa8ff29d4483f51831).

 If there exists a StartBlock record with **iObjectKind** equal to 0x000E without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the current SS production.

 If there exists a StartBlock record with **iObjectKind** equal to 0x000F without a matching EndBlock, then a matching EndBlock record MUST exist immediately before the End record of the sequence of records containing the StartBlock and conforming to the DROPBAR rule.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iObjectKind | | | | | | | | | | | | | | | | unused1 (optional) | | | | | | | | | | | | | | | |
| unused2 (optional) | | | | | | | | | | | | | | | | unused3 (optional) | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0853.

**iObjectKind (2 bytes):**  An unsigned integer that specifies the type of object that is encompassed by the block. MUST equal the **iObjectKind** field of the associated StartBlock record. MUST be a value from the following table:

| Value | Object Type |
| --- | --- |
| 0x0000 | Axis Group |
| 0x0002 | AttachedLabel |
| 0x0004 | Axis |
| 0x0005 | chart group |
| 0x0006 | [Dat](#Section_9405c76f5e904146a7894910a5f58534) |
| 0x0007 | Frame |
| 0x0009 | Legend |
| 0x000A | LegendException |
| 0x000C | Series |
| 0x000D | Sheet |
| 0x000E | [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e) |
| 0x000F | DropBar |

**unused1 (2 bytes):** Undefined and MUST be ignored.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**unused3 (2 bytes):** Undefined and MUST be ignored.

### 2.4.101 EndObject

The **EndObject** record specifies properties of an [Future Record Type (FRT)](#Section_b660b67822684414839ed1ae9a4e4e85) as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a feature saved as an FRT such that an application not supporting the feature can preserve it. This record MUST have an associated [StartObject](#Section_2f7fb73d86f64f3d8f1c3b757ea8c0f6) record. StartObject and EndObject pairs can be nested. Up to 100 levels of blocks can be nested.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iObjectKind | | | | | | | | | | | | | | | | unused1 (optional) | | | | | | | | | | | | | | | |
| unused2 (optional) | | | | | | | | | | | | | | | | unused3 (optional) | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0855.

**iObjectKind (2 bytes):**  An unsigned integer that specifies the type of object that is encompassed by the block. MUST equal the **iObjectKind** field of the associated StartObject record. MUST be a value from the following table:

| Value | Object Type |
| --- | --- |
| 0x0010 | [YMult](#Section_6d0a1b34ab5a450fb4a5f06d9d54ec55) |
| 0x0011 | [FrtFontList](#Section_417cb30701994f86baf86daa77359f28) |
| 0x0012 | [DataLabExt](#Section_5c03a5117d77474cac73ee797c1ff9b3) |

**unused1 (2 bytes):** Undefined and MUST be ignored.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**unused3 (2 bytes):** Undefined and MUST be ignored.

### 2.4.102 EntExU2

The **EntExU2** record specifies an application-specific cache of information. SHOULD NOT[<79>](#Appendix_A_79" \o "Product behavior note 79) be written, and SHOULD[<80>](#Appendix_A_80" \o "Product behavior note 80) be ignored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgb (variable):** An array of bytes that specifies an application-specific cache of information. This cache exists for performance reasons only, and can be rebuilt based on information stored elsewhere in the file without affecting calculation results.

### 2.4.103 EOF

The **EOF** record specifies the end of a collection of records as defined by [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF, [Dialog Sheet Substream](#Section_da37feb48b9a462d87772a5fddd4866e) ABNF, [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) ABNF, [macro sheet](#Section_0dddd943f77a4fc2bf92868acb4587f7) substream ABNF, [revision](#section_d120a1ffd2e6488381a507236f1994b0) stream ABNF, and [pivot cache](#Section_c5fb3f663ef64308ae3de59244159687) storage ABNF.

### 2.4.104 Excel9File

The **Excel9File** record is optional and is unused. It doesn’t exist on files that were last saved in a specific version of the application[<81>](#Appendix_A_81" \o "Product behavior note 81).

### 2.4.105 ExternName

The **ExternName** record specifies an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2), a User Defined Function ([**UDF**](#gt_5068e37f-372c-41df-9357-1072e12ed970)) reference on a [**XLL**](#gt_3d6e3f45-91e7-46d5-871c-0b2fde20b5f5) or [**COM**](#gt_ef2ebebc-1760-407a-9ace-af48f9050e02) [**add-in**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6), a [DDE data item](#Section_2492b742489e489f945187a703134708) or an [OLE data item](#Section_11cff7c06cf34f8694bede7a72497e21), depending on the value of the **virtPath** field in the preceding [SupBook](#Section_31ed3738e4ff4b60804cac49ac1ee6c0) record. If the **cch** field in the preceding SupBook record is 0x3A01, then this record specifies a UDF reference. Otherwise if the **virtPath** field in the preceding SupBook record conforms to the ole-link rule specified in the [VirtualPath](#Section_480c3d2a19d24396964cc16cbe9d1270) ABNF, then this record specifies a DDE data item or an OLE data item. Otherwise, this record specifies an external defined name.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | cf | | | | | | | | | | F | body (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fBuiltIn (1 bit):** A bit that specifies whether this record specifies a user-defined or built-in external defined name. The value MUST be 0 if this record specifies a DDE data item, an OLE data item or a UDF reference on a XLL or COM add-in. Otherwise, MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | The external defined name is user-defined. |
| 1 | The external defined name is built-in. |

**B - fWantAdvise (1 bit):** A bit that specifies whether this record is an automatic DDE data item or OLE data item. MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | The record is an external defined name, a manual DDE data item, a manual OLE data item or a UDF reference on a XLL or COM add-in. |
| 1 | The record is either an automatic DDE data item or an automatic OLE data item. |

**C - fWantPict (1 bit):** A bit that specifies whether this record's linked data uses a picture format. The value MUST be 0 if this record specifies an external defined name or a UDF reference on a XLL or COM add-in.

**D - fOle (1 bit):** A bit that, together with the value of **fOleLink**, specifies the structure of **body**. The value MUST be 0 if this record is an external defined name, an OLE data item or a UDF reference on a XLL or COM add-in. If this value is 1, **fOleLink** MUST be 0.

**E - fOleLink (1 bit):**  A bit that, together with the value of **fOle**, specifies the structure of **body**. The value MUST be 0 if this record is an external defined name or a UDF reference on a XLL or COM add-in. If this value is 1, **fOle** MUST be 0 and this record specifies an OLE data item.

**cf (10 bits):** A signed integer that specifies the type of the cached clipboard format for a DDE data item or an OLE data item. The value MUST be 0 if this record is an external defined name or a UDF reference on a XLL or COM add-in. The value MUST be one of the values in the following table:

| Value | Meaning |
| --- | --- |
| -1 | There is no cached clipboard format. |
| 0 | This record is an external defined name or the cached clipboard format is text. For the text format, each line ends with a carriage return/linefeed (CR-LF) combination. A null character signals the end of the data. |
| 2 | Cached clipboard format is Enhanced Metafile. |
| 5 | Cached clipboard format is CSV (comma-delimited). |
| 6 | Cached clipboard format is Microsoft Symbolic Link (SYLK). SYLK is a format used to exchange data between applications. |
| 7 | Cached clipboard format is rich text (RTF). |
| 8 | Cached clipboard format is [**BIFF8**](#gt_e60b71bb-c66c-4a44-ab07-0f9f20ee3dd5). |
| 9 | Cached clipboard format is Bitmap. |
| 16 | Cached clipboard format is a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) created using a specific application[<82>](#Appendix_A_82" \o "Product behavior note 82). |
| 20 | Cached clipboard format is [**BIFF3**](#gt_3b9d80df-ea32-495e-b43b-fa8a6d942ab9). |
| 30 | Cached clipboard format is [**BIFF4**](#gt_d99263f5-d806-4c42-9923-00c72054162a). |
| 36 | Cached clipboard format is Metafile Picture Format. |
| 44 | Cached clipboard format is [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) text. Each line ends with a carriage return/linefeed (CR-LF) combination. A null character signals the end of the data. |
| 63 | Cached clipboard format is [**BIFF12**](#gt_3da41ba7-d5ae-4b62-b410-e36e20650d0d). |

**F - fIcon (1 bit):** A bit that specifies whether linked data is displayed as an [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870). The value MUST be 0 if this record is an external defined name, a DDE data item or a UDF reference on a XLL or COM add-in.

**body (variable):**  A variable type field whose type and meaning is dictated by the values of **fOle** and **fOleLink**, as specified in the following table:

| cch in the preceding SupBook | DDE data item or OLE data item | fOle | fOleLink | Meaning |
| --- | --- | --- | --- | --- |
| != 0x3A01 | no | 0 | 0 | **body** is an [ExternDocName](#Section_069d1437826e409c83cca662a297b62d) that specifies an external defined name. |
| != 0x3A01 | yes | 0 | 0 | **body** is an [ExternOleDdeLink](#Section_9a6cd7f4944040248c31f8c239fedd9d) that specifies an OLE data item or DDE data item. |
| != 0x3A01 | yes | 0 | 1 |
| != 0x3A01 | yes | 1 | 0 | **body** is an [ExternDdeLinkNoOper](#Section_ec58abc168af483c98b2824016abed1f) that specifies a DDE data item. |
| 0x3A01 | no | 0 | 0 | **Body** is an [AddinUdf](#Section_3adbcd79092241cd9778ee8f8ce031a4) that specifies a UDF reference on a XLL or COM add-in. |

### 2.4.106 ExternSheet

The **ExternSheet** record specifies a collection of [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) structures.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cXTI | | | | | | | | | | | | | | | | rgXTI (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cXTI (2 bytes):**  An unsigned integer that specifies the number of elements in the **rgXTI** array.

**rgXTI (variable):**  An array of XTI structures. The number of elements in this array MUST be **cXTI**.

### 2.4.107 ExtSST

The **ExtSST** record specifies the location of sets of strings within the shared string table, specified in the [SST](#Section_b6231b92d32e4626baddc3310a672bab) record. This record is used to perform a quick lookup of a string within the shared string table, given the string’s index into the table (as specified in [LabelSst](#Section_3f52609d816f44a7aad1e0fe2abccebd)). To do that, first use the string’s index and the value of **dsst** to find the set the string is in, then use the corresponding element in **rgISSTInf** to find the beginning of that set, and finally search incrementally forward in that set to locate the string.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dsst | | | | | | | | | | | | | | | | rgISSTInf (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dsst (2 bytes):** An unsigned integer that specifies the number of strings in each set specified by [ISSTInf](#Section_deefa525886441549201777ff7f2bb8f). Number of strings in each set except the last set MUST be equal to the value specified by the following formula:

max(((SST.**cstUnique** / 128) + 1),8)

Number of strings in the last set MUST be less than or equal to the value specified by the following formula:

max(((SST.**cstUnique** / 128) + 1),8)

**rgISSTInf (variable):** An array of ISSTInf structures. Each array element specifies the location of a set of strings within the SST record. The number of elements is determined by first evaluating the following formula[<83>](#Appendix_A_83" \o "Product behavior note 83):

(SST.**cstUnique** mod **ExtSST**.**dsst**)

If the result of the previous formula is equal to 0, then the number of elements MUST be equal to the value as specified by the following formula:

(SST.**cstUnique** / **ExtSST**.**dsst**)

Otherwise, the number of elements MUST be equal to the value as specified by the following formula:

(SST.**cstUnique** / **ExtSST**.**dsst**) + 1

### 2.4.108 ExtString

The **ExtString** record specifies the [**connection string**](#gt_03a9d0ca-2f10-4f3d-b910-052714a96f7d) for a [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) that retrieves [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| string (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 2052.

**string (variable):**  A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the connection string.

**unused1 (variable):** Undefined and MUST be ignored. MUST exist if and only if the value of the following formula is less than 12 bytes:

size of **string** + size of **frtHeaderOld**

The size of this field, in bytes, is calculated using the following formula:

12 – (size of **string** + size of **frtHeaderOld**)

### 2.4.109 Fbi

The **Fbi** record specifies the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) information at the time the scalable font is added to the chart.[<84>](#Appendix_A_84" \o "Product behavior note 84)

If the scaled font size matches the font size of the [Font](#Section_291a910ccb694799875ea201845d4fd1) record (as specified by **ifnt** and Font.**dyHeight**), then that Font record is used to render the scaled fonts. If the scaled font size doesn't match the size of the Font record (as specified by **ifnt**), then a new Font record is added to the font table and the following [**font scaling**](#gt_47254269-4165-4a8c-92a0-c920f732d0bd) algorithm is used to determine the scaled font size:

1. Start with the current [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)) in dots or pixels at 96 DPI. Convert this size to Twips by multiplying width and height by 1440 Twips per inch / 96 dots per inch. Call this dmix and dmiy respectively.

2. If the scale basis **scab** is plot area (1), then apply the plot area scaling factors PlotGrowth.**dxPlotGrowth**/65536 and PlotGrowth.**dyPlotGrowth**/65536 to dmix and dmiy respectively.

3. Determine the scaled height basis by multiplying **twpHeightBasis** by dmix / **dmixBasis**; name this twpX.

4. Multiply **twpHeightBasis** by dmiy / **dmiyBasis**; call this twpY.

5. Take the smaller of twpX and twpY and name this twpNew. If this value is less than 10, set it equal to 10.

6. Round this value to the nearest quarter [**point**](#gt_d072e4da-7898-4227-8f25-9fe77db43571).

7. If the value of **twpHeightBasis** is between 160 (inclusive) and 240 (inclusive), and the value of twpNew is between 120 (inclusive) and 160, make twpNew equal to 160. If the value of Fbi.**twpHeightBasis** is between 160 (inclusive) and 240 (inclusive), and value of twpNew is between 240 and 280 (inclusive), make twpNew equal to 240.

8. twpNew is the new scaled font size. If the **dyHeight** field of the Font record (as specified by Fbi.**ifnt**) is the same as the value of twpNew, then load that Font record for the scaled font. If it isn't the same, twpNew is the new scaled font size and a new Font record is added to the font table.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dmixBasis | | | | | | | | | | | | | | | | dmiyBasis | | | | | | | | | | | | | | | |
| twpHeightBasis | | | | | | | | | | | | | | | | scab | | | | | | | | | | | | | | | |
| ifnt | | | | | | | | | | | | | | | |

**dmixBasis (2 bytes):** An unsigned integer that specifies the font width, in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382), when the font was first applied. MUST be greater than or equal to 0 and less than or equal to 0x7FFF.

**dmiyBasis (2 bytes):** An unsigned integer that specifies the font height, in twips, when the font was first applied. MUST be greater than or equal to 0 and less than or equal to 0x7FFF.

**twpHeightBasis (2 bytes):**  An unsigned integer that specifies the default font height in twips. MUST be greater than or equal to 20 and less than or equal to 8180.

**scab (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the scale to use. The value MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0000 | Scale by chart area (section 2.2.3.17) |
| 0x0001 | Scale by [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) |

**ifnt (2 bytes):** A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) structure that specifies the font. MUST be used when **ifnt** is less than or equal to 255.

### 2.4.110 Fbi2

The **Fbi2** record specifies the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) information at the time the scalable font is added to the chart.[<85>](#Appendix_A_85" \o "Product behavior note 85)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dmixBasis | | | | | | | | | | | | | | | | dmiyBasis | | | | | | | | | | | | | | | |
| twpHeightBasis | | | | | | | | | | | | | | | | scab | | | | | | | | | | | | | | | |
| ifnt | | | | | | | | | | | | | | | |

**dmixBasis (2 bytes):**  An unsigned integer that specifies the font width, in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382), when the font was first applied. MUST be greater than or equal to 0 and less than or equal to 0x7FFF.

**dmiyBasis (2 bytes):**  An unsigned integer that specifies the font height, in twips, when the font was first applied. MUST be greater than or equal to 0 and less than or equal to 0x7FFF

**twpHeightBasis (2 bytes):**  An unsigned integer that specifies the default font height in twips. MUST be greater than or equal to 20 and less than or equal to 8180.

**scab (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the scale to use. The value MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0000 | Scale by [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)) |
| 0x0001 | Scale by [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) |

**ifnt (2 bytes):**  A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) structure that specifies the font. MUST be used when **ifnt** is greater than 255.

### 2.4.111 Feat

The **Feat** record specifies [Shared Feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) data.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isf | | | | | | | | | | | | | | | | reserved1 | | | | | | | | reserved2 | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | cref | | | | | | | |
| ... | | | | | | | | cbFeatData | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | reserved3 | | | | | | | | | | | | | | | | refs (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbFeat (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. **frtHeader.rt** MUST be 0x0868.

**isf (2 bytes):**  A [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8) enumeration that specifies the type ofShared Feature data stored in the **rgbFeat** field. MUST NOT be ISFLIST.

**reserved1 (1 byte):** Reserved and MUST be zero.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

**cref (2 bytes):** An unsigned integer that specifies the number of elements in the **refs** field.

**cbFeatData (4 bytes):** An unsigned integer whose meaning is determined by the value of **isf**. If **isf** is ISFFEC2, this field specifies the size in bytes of Shared Feature data that is stored in the **rgbFeat** field. Otherwise, this field MUST be zero and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**refs (variable):** An array of [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structures. Specifies the [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) referenced by the Shared Feature. The number of elements in the array is specified by **cref**.

**rgbFeat (variable):** A variable type field that specifies Shared Feature data. The type is dictated by the value of **isf**, as specified in the following table:

| Value of isf | Meaning |
| --- | --- |
| ISFPROTECTION | Value is a [FeatProtection](#Section_6a97383237384ea0b435f876766cf8ad) structure. |
| ISFFEC2 | Value is a [FeatFormulaErr2](#Section_a4756c8e1ccf43ff9afbffda477e2756) structure. |
| ISFFACTOID | Value is a [FeatSmartTag](#Section_7ddb02faa44e44d9ae954537f0ff2fe7) structure. |

### 2.4.112 FeatHdr

The **FeatHdr** record specifies common information for [Shared Features](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) and specifies the beginning of a collection of records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), [macro sheet](#Section_0dddd943f77a4fc2bf92868acb4587f7) substream ABNF and [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream ABNF. The collection of records specifies Shared Feature data.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isf | | | | | | | | | | | | | | | | reserved | | | | | | | | cbHdrData | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | rgbHdrData (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** MUST be 0x0867.

**isf (2 bytes):** A [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8) enumeration that specifies the type of Shared Feature. MUST be ISFPROTECTION, ISFFEC2 or ISFFACTOID.

**reserved (1 byte):**  Reserved and MUST be 1.

**cbHdrData (4 bytes):** An unsigned integer that specifies whether **rgbHdrData** exists. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | **rgbHdrData** MUST NOT exist. |
| 0xFFFFFFFF | **rgbHdrData** MUST exist. |

**rgbHdrData (variable):** A variable type field containing data whose type and meaning is dictated by the value of the **isf** field of this record and the value of the **dt** field of the [BOF](#Section_4d6a3d1ed7c5405fbbaed01e9cb79366) record preceding this record, as specified in the following table:

| Value of isf | Containing substream | Meaning of rgbHdrData |
| --- | --- | --- |
| ISFPROTECTION | Globals | An [EnhancedProtection](#Section_f6b5a32d75624124882fbadecdc512eb) structure that specifies common protection rule settings. |
| ISFFEC2 | Globals | **rgbHdrData** MUST NOT exist. |
| ISFFACTOID | Globals | A PropertyBagStore as defined in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.3.4.1 that specifies [**smart tag**](#gt_2f57a49a-d503-4605-8798-0e53bd637609) header data. |
| Worksheet or Macro Sheet | **rgbHdrData** MUST NOT exist. |

### 2.4.113 FeatHdr11

The **FeatHdr11** record specifies common information for all [**tables**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) on a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and specifies the beginning of a collection as specified by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies table information, [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) information and data used for sorting a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isf | | | | | | | | | | | | | | | | reserved1 | | | | | | | | reserved2 | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | reserved3 | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | idListNext | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | reserved4 | | | | | | | |
| ... | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37). The **frtHeader.rt** field MUST be 0x0871.

**isf (2 bytes):**  A [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8) enumeration that specifies the type of [Shared Feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2). MUST be ISFLIST.

**reserved1 (1 byte):**  Reserved and MUST be 1.

**reserved2 (4 bytes):** MUST be 0xFFFFFFFF and MUST be ignored.

**reserved3 (4 bytes):** MUST be 0xFFFFFFFF and MUST be ignored.

**idListNext (4 bytes):** An unsigned integer that specifies the next identifier to try when assigning a unique identifier to a new table.

**reserved4 (2 bytes):** MUST be zero, and MUST be ignored.

### 2.4.114 Feature11

The **Feature11** record specifies specific [shared feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) data. The only shared feature type stored in this record is a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) in a [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56).

**feature (variable):** A [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure.

If this record is not a [Feature12](#Section_4c95f0ddd35745758b77792dbe2c0d5e) record, then these rules apply:

 The **feature.frtRefHeaderU**.**rt** field MUST be 0x0872.

 **lt** of the embedded TableFeatureType MUST NOT be LTEXTERNALDATA.

 If **crwHeader** of the embedded TableFeatureType is zero then and **fSingleCell** of the embedded TableFeatureType MUST be zero.

 **fLoadTotalFmla** and **fLoadTotalStr** of all embedded [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) MUST be zero.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isf | | | | | | | | | | | | | | | | reserved1 | | | | | | | | reserved2 | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | cref2 | | | | | | | |
| ... | | | | | | | | cbFeatData | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | reserved3 | | | | | | | | | | | | | | | | refs2 (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbFeat (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeaderU (12 bytes):** An [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297). The **frtRefHeaderU.rt** field MUST be 0x0872. The**frtRefHeaderU.ref8** MUST refer to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells associated with this record.

**isf (2 bytes):** A [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8) enumeration that specifies the type ofShared Feature data stored in the **rgbFeat** field. MUST be ISFLIST.

**reserved1 (1 byte):** Reserved and MUST be zero.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

**cref2 (2 bytes):** An unsigned integer that specifies the count of [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) records within the **refs2** field.

**cbFeatData (4 bytes):** An unsigned integer that specifies the size in bytes of the **rgbFeat** variable-size field. If the value is 0x0000, the size of the **rgbFeat** field is calculated by the following formula:

size of **rgbFeat** = total size of record in bytes – size of **refs2** in bytes – 27 bytes

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**refs2 (variable):**  An array of Ref8U structures that specifies references to ranges of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) within the worksheet associated with the feature. The count of records within this field is specified by the **cref2** field.

**rgbFeat (variable):** A variable-size structure that contains feature specific data. The size of the structure is specified by the **cbFeatData** field. This field MUST contain a TableFeatureType structure.

### 2.4.115 Feature12

The **Feature12** record specifies [shared feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) data that is used to describe a table in a [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56). This record is used to encapsulate a table that has properties not supported by the [Feature11](#Section_4c78a7d3a3ff48e28e2cc89785519322) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| feature (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**feature (variable):** A Feature11 record with additional properties enabled. The **feature.frtRefHeaderU**.**rt** field MUST be 0x0878.

On or more of these additional properties MUST be present in a Feature12 record:

 **lt** of the embedded [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure is LTEXTERNALDATA.

 **crwHeader** and **fSingleCell** of the embedded TableFeatureType structure are zero.

 An embedded [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) structure has **fLoadTotalFmla** or **fLoadTotalStr** equal to 1.

### 2.4.116 FileLock

The **FileLock** record specifies that the [**shared workbook**](#gt_241c4cae-c49a-438a-87dc-c8fb2c871921) was [**locked**](#gt_7795ac77-550e-4531-9ce5-327bbde6fa81) by a particular user.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| lPurpose | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stUsrName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**lPurpose (4 bytes):**  An unsigned integer that specifies the purpose of the file lock. MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x00000000 | The shared workbook is not locked. |
| 0x00010001 | The shared workbook is locked for writing or releasing user information. |
| 0x00010002 | The shared workbook is locked for merging two revisions. |
| 0x00010004 | The shared workbook is locked to make it exclusive. |
| 0x00010008 | The shared workbook is locked to be deleted or renamed. |

**stUsrName (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the [**user name**](#gt_c298446e-09d2-470d-a70f-5249dafa15c6). The string length MUST be less than or equal to 52.

**unused (variable):** Undefined and MUST be ignored. This size of this field in bytes is specified by the following formula:

size = 158 - (byte count of **stUsrName**)

### 2.4.117 FilePass

The **FilePass** record specifies the encryption algorithm used to encrypt the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) and the structure that is used to verify the password provided when attempting to open the workbook. If this record exists, the workbook MUST be encrypted. Refer to the [Encryption (Password to Open)](#Section_0f2ea0a19fc8468d97aa9d333b72d106) overview to understand the details of workbook files that have been encrypted.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wEncryptionType | | | | | | | | | | | | | | | | encryptionInfo (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**wEncryptionType (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the encryption type. MUST be a value from the following table:[<86>](#Appendix_A_86" \o "Product behavior note 86)

| Value of wEncryptionType | Meaning |
| --- | --- |
| 0x0000 | [**XOR obfuscation**](#gt_cbfd1a35-e8c9-4c5a-bc26-e618633d2f50) |
| 0x0001 | RC4 encryption. For more information about RC4 encryption, see [[SCHNEIER]](https://go.microsoft.com/fwlink/?LinkId=817338) section 17.1 |

**encryptionInfo (variable):**  A variable type field. The type and meaning of this field is dictated by the value of **wEncryptionType.**  If **wEncryptionType** is equal to 0x0000, this field is an [XORObfuscation](#Section_77bb2ec27a5941bda926411bc5586841) structure. If **wEncryptionType** is equal to 0x0001, this fieldis an RC4 encryption header structure as specified in [[MS-OFFCRYPTO]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OFFCRYPTO%5d.pdf#Section_3c34d72a1a614b52a893196f9157f083), 2.3.5.1 or [MS-OFFCRYPTO], 2.3.6.1 depending on the value of the first two bytes. The first two bytes of the RC4 encryption header structure MUST be a value from the following table:

| Value of the first two bytes of encryptionInfo | Type of encryptionInfo |
| --- | --- |
| 0x0001 | RC4 encryption header structure [MS-OFFCRYPTO], 2.3.6.1 |
| 0x0002, 0x0003, or 0x0004 | RC4 CryptoAPI encryption header structure [MS-OFFCRYPTO], 2.3.5.1 |

### 2.4.118 FileSharing

The **FileSharing** record specifies file sharing options.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fReadOnlyRec | | | | | | | | | | | | | | | | wResPass | | | | | | | | | | | | | | | |
| iNoResPass (optional) | | | | | | | | | | | | | | | | stUNUsername (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**fReadOnlyRec (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the [**read-only recommended**](#gt_720d1791-fa2b-4ee8-a1ef-11139a085dc2) option is selected for this file. If the value is 1, the read-only recommended is selected for this file.

**wResPass (2 bytes):**  An unsigned integer that specifies the password verifier for [**write reservation**](#gt_7bfb4760-386d-41b0-8c74-6faa53221628). If the value is 0, there is no write reservation password. The algorithm is specified in [Password Verifier Algorithm](#Section_e8a5fbec6cdc40d89fef9ad80e4172f4).

**iNoResPass (2 bytes):** An unsigned integer that specifies that there is no write reservation password. This field exists if and only if **wResPass** is 0. The value MUST be 0.

**stUNUsername (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the [**user name**](#gt_c298446e-09d2-470d-a70f-5249dafa15c6) that added the write reservation password. This field exists if and only if **wResPass** is not 0. The value of **stUNUsername.cch** MUST be less than or equal to 54.

### 2.4.119 FilterMode

The **FilterMode** record specifies that the containing [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) data was filtered. If this record exists one or more [AutoFilter](#Section_665bd56446774ea7bf6b89f27edb0788) or [AutoFilter12](#Section_8238f9cb97974cff9b8a180d2b025c31) records MUST exist within the containing sheet.

### 2.4.120 FnGroupName

The **FnGroupName** record specifies a user-defined [**function category**](#gt_026a49a8-c3e8-49eb-a97f-58bd2c79c540) in the current [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgch (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgch (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the function category name. MUST be less than or equal to 32 characters in length. The value of this field MUST NOT equal any of the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) names specified by FnGroupName and [FnGrp12](#Section_a2c6b3b4267c4f858b5d21ebfb9e1cdd).

### 2.4.121 FnGrp12

The **FnGrp12** record specifies the name of a user-defined [**function category**](#gt_026a49a8-c3e8-49eb-a97f-58bd2c79c540) in the current [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). The user-defined function categories include the function categories defined in both [FnGroupName](#Section_3b945c1f208a481e91cc333111fce594) records and FnGrp12 records. The sum of the built-in function categories as specified by [BuiltInFnGroupCount](#Section_970af5a7a51d4a62925501456033ebd6) and the user defined function categories in the current workbook MUST be less than or equal to 256. This record specifies the name of a function category after the 32nd function category.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| astFnGrp (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0898.

**astFnGrp (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the function category. The length of this string MUST be less than or equal to 32 characters. The value of this field MUST NOT equal any of the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) names specified by FnGrp12 and FnGroupName.

### 2.4.122 Font

The **Font** record specifies a [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) and font formatting information.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dyHeight | | | | | | | | | | | | | | | | A | B | C | D | E | F | G | H | reserved | | | | | | | |
| icv | | | | | | | | | | | | | | | | bls | | | | | | | | | | | | | | | |
| sss | | | | | | | | | | | | | | | | uls | | | | | | | | bFamily | | | | | | | |
| bCharSet | | | | | | | | unused3 | | | | | | | | fontName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dyHeight (2 bytes):**  An unsigned integer that specifies the height of the font in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382). SHOULD[<87>](#Appendix_A_87" \o "Product behavior note 87) be greater than or equal to 20 and less than or equal to 8191. MUST be greater than or equal to 20 and less than or equal to 8191, or 0.

**A - unused1 (1 bit):** Undefined and MUST be ignored.

**B - fItalic (1 bit):**  A bit that specifies whether the font is italic.

**C - unused2 (1 bit):** Undefined and MUST be ignored. MUST be 1 when **uls** is greater than 0x00.

**D - fStrikeOut (1 bit):**  A bit that specifies whether the font has [**strikethrough formatting**](#gt_b16d9600-aebb-4a4f-bf14-c38e13c11c14) applied.

**E - fOutline (1 bit):**  A bit that specifies whether the font has an [**outline effect**](#gt_4e818802-fdc1-4227-b32f-1a3cb0943de7) applied.

**F - fShadow (1 bit):**  A bit that specifies whether the font has a [**shadow effect**](#gt_83056968-00f2-463b-abc6-607dbb242cbf) applied.

**G - fCondense (1 bit):**  A bit that specifies whether the font is condensed.

**H - fExtend (1 bit):**  A bit that specifies whether the font is extended.

**reserved (8 bits):** MUST be zero, and MUST be ignored.

**icv (2 bytes):**  An unsigned integer that specifies the color of the font. The value SHOULD[<88>](#Appendix_A_88" \o "Product behavior note 88) be an [IcvFont](#Section_968607efe9644d65b4c964caa31d648a) value. The value MUST be an IcvFont value, or 0.

**bls (2 bytes):**  An unsigned integer that specifies the font weight. The value SHOULD[<89>](#Appendix_A_89" \o "Product behavior note 89) be a value from the following table. This value MUST be 0, or greater than or equal to 100 and less than or equal to 1000.

| Value | Meaning |
| --- | --- |
| 400 | Normal font weight |
| 700 | Bold font weight |

**sss (2 bytes):**  An unsigned integer that specifies whether superscript, subscript, or normal script is used. The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x0000 | Normal script |
| 0x0001 | Superscript |
| 0x0002 | Subscript |

**uls (1 byte):**  An unsigned integer that specifies the underline [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633). The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x00 | No underline |
| 0x01 | Single underline |
| 0x02 | Double underline |
| 0x21 | [**Single accounting**](#gt_7ad49c0f-e183-47b5-bdbd-c23a5a8315fc) |
| 0x22 | [**Double accounting**](#gt_89f4f531-9a8b-419c-8f51-98ef409b7bdf) |

**bFamily (1 byte):**  An unsigned integer that specifies the [**font family**](#gt_bca5490d-d27e-4097-b05d-9efb09083dd2) this font belongs to. MUST be a value from the following table:[<90>](#Appendix_A_90" \o "Product behavior note 90)

| Value | Meaning |
| --- | --- |
| 0x00 | Not applicable |
| 0x01 | Roman |
| 0x02 | Swiss |
| 0x03 | Modern |
| 0x04 | Script |
| 0x05 | Decorative |

For more information about font family, see the Windows API LOGFONT structure in [[MSDN-FONTS]](https://go.microsoft.com/fwlink/?LinkId=90008).

**bCharSet (1 byte):**  An unsigned integer that specifies the [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | ANSI\_CHARSET |
| 0x01 | DEFAULT\_CHARSET |
| 0x02 | SYMBOL\_CHARSET |
| 0x4D | MAC\_CHARSET |
| 0x80 | SHIFTJIS\_CHARSET |
| 0x81 | HANGEUL\_CHARSET |
| 0x81 | HANGUL\_CHARSET |
| 0x82 | JOHAB\_CHARSET |
| 0x86 | GB2312\_CHARSET |
| 0x88 | CHINESEBIG5\_CHARSET |
| 0xA1 | GREEK\_CHARSET |
| 0xA2 | TURKISH\_CHARSET |
| 0xA3 | VIETNAMESE\_CHARSET |
| 0xB1 | HEBREW\_CHARSET |
| 0xB2 | ARABIC\_CHARSET |
| 0xBA | BALTIC\_CHARSET |
| 0xCC | RUSSIAN\_CHARSET |
| 0xDD | THAI\_CHARSET |
| 0xEE | EASTEUROPE\_CHARSET |
| 0xFF | OEM\_CHARSET |

For more information about character set, see the Windows API LOGFONT structure in [MSDN-FONTS].

**unused3 (1 byte):**  Undefined and MUST be ignored.

**fontName (variable):**  A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) structure that specifies the name of this font. String length MUST be greater than or equal to 1 and less than or equal to 31. The **fontName.fHighByte** field MUST equal 1. MUST NOT contain any null characters.

### 2.4.123 FontX

The **FontX** record specifies the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) for a given text element. The [Font](#Section_291a910ccb694799875ea201845d4fd1) record referenced by **iFont** can exist in this [chart sheet](#Section_732ff614d939416bb7c76d983471ff11) substream or the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iFont | | | | | | | | | | | | | | | |

**iFont (2 bytes):**  An unsigned integer that specifies the font to use for subsequent records. This font can either be the default font of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), part of the collection of Font records following the [FrtFontList](#Section_417cb30701994f86baf86daa77359f28) record, or part of the collection of Font records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). If **iFont** is 0x0000, this record specifies the default font of the chart. If **iFont** is less than or equal to the number of Font records in the Globals Substream, **iFont** is a one-based index to a Font record in the Globals Substream. Otherwise **iFont** is a one-based index into the collection of Font records in this chart sheet substream where the index is equal to **iFont** – n, where n is the number of Font records in the Globals Substream.

### 2.4.124 Footer

The **Footer** record specifies the footer text of the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) when printed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ast (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ast (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the footer text for the current sheet. It is optional and exists only if the record size is not zero. The footer text appears at the bottom of every page when printed. The length of the text MUST be less than or equal to 255. The footer text can contain special commands, for example a placeholder for the page number, current date or text formatting attributes, as specified in the [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) grammar for special commands as specified in [Header](#Section_b64cf6b894724f979a69d839f0fa1089).

### 2.4.125 ForceFullCalculation

The **ForceFullCalculation** record specifies the value of the forced [**calculation mode**](#gt_f02f81e1-8eda-4ec3-88e9-c2c483ff47ee) for this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fNoDeps | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37). The **frtHeader.rt** field MUST be 0x08A3.

**fNoDeps (4 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether all cells in the workbook are calculated or not. MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | Dependencies are respected and only formulas (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that depend on cells that changed in the workbook are calculated. |
| 1 | Dependencies are ignored and all [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) formulas in this workbook fully calculate every time a calculation is triggered. |

### 2.4.126 Format

The **Format** record specifies a [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ifmt | | | | | | | | | | | | | | | | stFormat (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ifmt (2 bytes):**  An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) structure that specifies the identifier of the [**format string**](#gt_07085e26-506a-4b35-81ad-972464e277ff) specified by **stFormat**. The value of **ifmt.ifmt** SHOULD[<91>](#Appendix_A_91" \o "Product behavior note 91) be a value within one of the following ranges. The value of **ifmt.ifmt** MUST be a value within one of the following ranges or within 383 to 392.

 5 to 8

 23 to 26

 41 to 44

 63 to 66

 164 to 382

**stFormat (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the format string for this number format. The format string indicates how to format the numeric value of the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). The length of this field MUST be greater than or equal to 1 character and less than or equal to 255 characters. For more information about how format strings are interpreted, see [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4: Markup Language Reference, section 3.8.31.

For a string to be considered a valid format string, it MUST be well-formed according to the following [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) specification.

**ABNF Grammar for number** format strings

These definitions are for en-US [**locale**](#gt_7b78ebef-e35d-45ab-abfd-4121b60995de). International consideration as specified in [ECMA-376] Part 4: Markup Language Reference, section 3.8.31 MUST be accounted for and the ABNF MUST be modified accordingly for specific international number formats.

The following rules are not expressed in the ABNF grammar, but apply to the grammar:

1. In the following ABNF specification, the following tokens in the first table that follows can occur 0 or more times anywhere in the grammar, as long as they do not break apart the elements in the second table that follows:

| Token |
| --- |
| LITERAL-STRING |
| LITERAL-CHAR-REPEAT |
| LITERAL-CHAR-SPACE |

| Elements |
| --- |
| INTL\* |
| LITERAL\* |
| NFDateTimeToken |
| NFPartExponential |
| NFPartCond |
| NFPartLocaleID |
| NFPartColor |
| NFPartIntNum |
| NFPartStrColor |

| Elements |
| --- |
| INTL\* |
| LITERAL\* |
| NFDateTimeToken |
| NFPartExponential |
| NFPartCond |
| NFPartLocaleID |
| NFPartColor |
| NFPartIntNum |
| NFPartStrColor |

2. The following token MUST occur 0 or 1 times in each section as defined in [ECMA-376] Part 4: Markup Language Reference, section 3.8.31.

NFPartLocaleID

NFAbsTimeToken MUST occur 0 or 1 times in NFDateTime.

An absolute time token, such as NFPartAbsHour, MUST NOT coexist with a non-absolute equivalent token, such as NFPartHour, in NFDateTime.

Following is the ABNF grammar for number format strings.

All = ([NFPartColor] NFPartCond NFGeneral) / NFAnyNoCond / (NFAnyNoText ASCII-SEMICOLON NFAny) / (NFAnyNoText ASCII-SEMICOLON NFAnyNoText ASCII-SEMICOLON NFAnyNoCond) / (NFAnyNoText ASCII-SEMICOLON NFAnyNoText ASCII-SEMICOLON NFAnyNoTextNoCond ASCII-SEMICOLON [NFText / NFGeneral])

NFAny = [NFPartColor] (([NFPartCond] NFNumber) / NFText / ([NFPartCond] NFFraction) / ([NFPartCond] [NFDateTime] [NFGeneral] [NFDateTime]))

NFAnyNoText = [NFPartColor] [NFPartCond] (NFNumber / NFFraction / ([NFDateTime] [NFGeneral] [NFDateTime]))

NFAnyNoCond = [NFPartColor] (NFNumber / NFText / NFFraction / ([NFDateTime] [NFGeneral] [NFDateTime]))

NFAnyNoTextNoCond = [NFPartColor] (NFNumber / NFFraction / ([NFDateTime] [NFGeneral] [NFDateTime]))

NFGeneral = INTL-NUMFMT-GENERAL

NFNumber = NFPartNum [NFPartExponential NFPartNum] \*INTL-CHAR-NUMGRP-SEP \*INTL-AMPM

NFDateTimeToken = NFPartYear / NFPartMonth / NFPartDay / NFPartHour / NFPartMinute / NFPartSecond / NFAbsTimeToken

NFAbsTimeToken = NFPartAbsHour / NFPartAbsSecond / NFPartAbsMinute

NFDateTime = \*INTL-AMPM (1\*(NFDateTimeToken) \*(NFDateTimeToken / NFPartSubSecond / INTL-CHAR-DATE-SEP / INTL-CHAR-TIME-SEP / INTL-AMPM))

NFText = (1\*ASCII-COMMERCIAL-AT \*(ASCII-COMMERCIAL-AT / INTL-AMPM)) / (\*(ASCII-COMMERCIAL-AT / INTL-AMPM) 1\*ASCII-COMMERCIAL-AT)

NFFraction = NFPartFraction ASCII-SOLIDUS NFPartFraction [NFPartNum] \*INTL-AMPM

NFPartNum = 1\*NFPartNumToken2 \*(NFPartNumToken2 / ASCII-PERCENT-SIGN)) / (\*(NFPartNumToken2 / ASCII-PERCENT-SIGN) 1\*NFPartNumToken2)

NFPartExponential = ASCII-CAPITAL-LETTER-E NFPartSign

NFPartYear = 2(ASCII-SMALL-LETTER-Y) / 4(ASCII-SMALL-LETTER-Y)

NFPartMonth = 1\*5(ASCII-SMALL-LETTER-M)

NFPartDay = 1\*4(ASCII-SMALL-LETTER-D)

NFPartHour = 1\*2(ASCII-SMALL-LETTER-H)

NFPartAbsHour = ASCII-LEFT-SQUARE-BRACKET 1\*ASCII-SMALL-LETTER-H ASCII-RIGHT-SQUARE-BRACKET

NFPartMinute = 1\*2(ASCII-SMALL-LETTER-M)

NFPartAbsMinute = ASCII-LEFT-SQUARE-BRACKET 1\*ASCII-SMALL-LETTER-M ASCII-RIGHT-SQUARE-BRACKET

NFPartSecond = 1\*2(ASCII-SMALL-LETTER-S)

NFPartAbsSecond = ASCII-LEFT-SQUARE-BRACKET 1\*ASCII-SMALL-LETTER-S ASCII-RIGHT-SQUARE-BRACKET

NFPartSubSecond = INTL-CHAR-DECIMAL-SEP 1\*3ASCII-DIGIT-ZERO

NFPartCond = ASCII-LEFT-SQUARE-BRACKET NFPartCompOper NFPartCondNum ASCII-RIGHT-SQUARE-BRACKET

NFPartCompOper = (ASCII-LESS-THAN-SIGN [ASCII-EQUALS-SIGN / ASCII-GREATER-THAN-SIGN]) / ASCII-EQUALS-SIGN / (ASCII-GREATER-THAN-SIGN [ASCII-EQUALS-SIGN])

NFPartLocaleID = ASCII-LEFT-SQUARE-BRACKET ASCII-DOLLAR-SIGN 1\*UTF16-ANY [ASCII-HYPHEN-MINUS 3\*8ASCII-DIGIT-HEXADECIMAL] ASCII-RIGHT-SQUARE-BRACKET

NFPartCondNum = [ASCII-HYPHEN-MINUS] NFPartIntNum [INTL-CHAR-DECIMAL-SEP NFPartIntNum] [NFPartExponential NFPartIntNum]

NFPartSign = ASCII-PLUS-SIGN / ASCII-HYPHEN-MINUS

NFPartColor = ASCII-LEFT-SQUARE-BRACKET INTL-COLOR / (NFPartStrColor NFPart1To56) ASCII-RIGHT-SQUARE-BRACKET

NFPart1To56 = NFPartNumber1To9 / NFPartNumber1To4 ASCII-DIGIT / ASCII-DIGIT-FIVE (ASCII-DIGIT-ZERO / NFPartNumber1To6)

NFPartIntNum = 1\*ASCII-DIGIT

NFPartNumToken1 = ASCII-NUMBER-SIGN / ASCII-QUESTION-MARK / ASCII-DIGIT-ZERO

NFPartNumToken2 = NFPartNumToken1 / INTL-CHAR-DECIMAL-SEP / INTL-CHAR-NUMGRP-SEP

NFPartFraction = (1\*NFPartIntNum \*(NFPartIntNum / ASCII-PERCENT-SIGN)) / (\*(NFPartIntNum / ASCII-PERCENT-SIGN) 1\*NFPartIntNum) / (1\*NFPartNumToken1 \*(NFPartNumToken1 / ASCII-PERCENT-SIGN)) / (\*(NFPartNumToken1 / ASCII-PERCENT-SIGN) 1\*NFPartNumToken1)

NFPartNumber1To4 = ASCII-DIGIT-ONE / ASCII-DIGIT-TWO / ASCII-DIGIT-THREE / ASCII-DIGIT-FOUR

NFPartNumber1To6 = NFPartNumber1To4 / ASCII-DIGIT-FIVE / ASCII-DIGIT-SIX

NFPartNumber1To9 = NFPartNumber1To6 / ASCII-DIGIT-SEVEN / ASCII-DIGIT-EIGHT / ASCII-DIGIT-NINE

NFPartStrColor = ASCII-CAPITAL-LETTER-C ASCII-SMALL-LETTER-O ASCII-SMALL-LETTER-L ASCII-SMALL-LETTER-O ASCII-SMALL-LETTER-R

LITERAL-CHAR = ASCII-REVERSE-SOLIDUS UTF16-ANY

LITERAL-CHAR-REPEAT = ASCII-ASTERISK UTF16-ANY

LITERAL-STRING = (ASCII-QUOTATION-MARK 1\*UTF16-ANY-WITHOUT-QUOTE ASCII-QUOTATION-MARK) / 1\*LITERAL-CHAR

UTF16-ANY-WITHOUT-QUOTE = %x0000-0021 / %x0023-FFFF

LITERAL-CHAR-SPACE = ASCII-LOW-LINE UTF16-ANY

INTL-CHAR-DECIMAL-SEP = ASCII-FULL-STOP

INTL-CHAR-NUMGRP-SEP = ASCII-COMMA

INTL-CHAR-DATE-SEP = ASCII-SOLIDUS

INTL-CHAR-TIME-SEP = ASCII-COLON

INTL-COLOR = (ASCII-CAPITAL-LETTER-B ASCII-SMALL-LETTER-L ASCII-SMALL-LETTER-A ASCII-SMALL-LETTER-C ASCII-SMALL-LETTER-K) / (ASCII-CAPITAL-LETTER-B ASCII-SMALL-LETTER-L ASCII-SMALL-LETTER-U ASCII-SMALL-LETTER-E) / (ASCII-CAPITAL-LETTER-C ASCII-SMALL-LETTER-Y ASCII-SMALL-LETTER-A ASCII-SMALL-LETTER-N) / (ASCII-CAPITAL-LETTER-G ASCII-SMALL-LETTER-R ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-N) / (ASCII-CAPITAL-LETTER-M ASCII-SMALL-LETTER-A ASCII-SMALL-LETTER-G ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-N ASCII-SMALL-LETTER-T ASCII-SMALL-LETTER-A) / (ASCII-CAPITAL-LETTER-R ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-D ) / (ASCII-CAPITAL-LETTER-W ASCII-SMALL-LETTER-H ASCII-SMALL-LETTER-I ASCII-SMALL-LETTER-T ASCII-SMALL-LETTER-E) / (ASCII-CAPITAL-LETTER-Y ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-L ASCII-SMALL-LETTER-L ASCII-SMALL-LETTER-O ASCII-SMALL-LETTER-W)

INTL-NUMFMT-GENERAL = ASCII-CAPITAL-LETTER-G ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-N ASCII-SMALL-LETTER-E ASCII-SMALL-LETTER-R ASCII-SMALL-LETTER-A ASCII-SMALL-LETTER-L

INTL-AMPM = (ASCII-CAPITAL-LETTER-A ASCII-CAPITAL-LETTER-M ASCII-SOLIDUS ASCII-CAPITAL-LETTER-P ASCII-CAPITAL-LETTER-M) / "A/P"

UTF16-ANY = %x0000-FFFF

ASCII-SPACE = %x20

ASCII-EXCLAMATION-MARK = %x21

ASCII-QUOTATION-MARK = %x22

ASCII-NUMBER-SIGN = %x23

ASCII-DOLLAR-SIGN = %x24

ASCII-PERCENT-SIGN = %x25

ASCII-AMPERSAND = %x26

ASCII-APOSTROPHE = %x27

ASCII-LEFT-PARENTHESIS = %x28

ASCII-RIGHT-PARENTHESIS = %x29

ASCII-ASTERISK = %x2A

ASCII-PLUS-SIGN = %x2B

ASCII-COMMA = %x2C

ASCII-HYPHEN-MINUS = %x2D

ASCII-FULL-STOP = %x2E

ASCII-SOLIDUS = %x2F

ASCII-DIGIT-ZERO = %x30

ASCII-DIGIT-ONE = %x31

ASCII-DIGIT-TWO = %x32

ASCII-DIGIT-THREE = %x33

ASCII-DIGIT-FOUR = %x34

ASCII-DIGIT-FIVE = %x35

ASCII-DIGIT-SIX = %x36

ASCII-DIGIT-SEVEN = %x37

ASCII-DIGIT-EIGHT = %x38

ASCII-DIGIT-NINE = %x39

ASCII-COLON = %x3A

ASCII-SEMICOLON = %x3B

ASCII-LESS-THAN-SIGN = %x3C

ASCII-EQUALS-SIGN = %x3D

ASCII-GREATER-THAN-SIGN = %x3E

ASCII-QUESTION-MARK = %x3F

ASCII-COMMERCIAL-AT = %x40

ASCII-CAPITAL-LETTER-A = %x41

ASCII-CAPITAL-LETTER-B = %x42

ASCII-CAPITAL-LETTER-C = %x43

ASCII-CAPITAL-LETTER-D = %x44

ASCII-CAPITAL-LETTER-E = %x45

ASCII-CAPITAL-LETTER-F = %x46

ASCII-CAPITAL-LETTER-G = %x47

ASCII-CAPITAL-LETTER-H = %x48

ASCII-CAPITAL-LETTER-I = %x49

ASCII-CAPITAL-LETTER-J = %x4A

ASCII-CAPITAL-LETTER-K = %x4B

ASCII-CAPITAL-LETTER-L = %x4C

ASCII-CAPITAL-LETTER-M = %x4D

ASCII-CAPITAL-LETTER-N = %x4E

ASCII-CAPITAL-LETTER-O = %x4F

ASCII-CAPITAL-LETTER-P = %x50

ASCII-CAPITAL-LETTER-Q = %x51

ASCII-CAPITAL-LETTER-R = %x52

ASCII-CAPITAL-LETTER-S = %x53

ASCII-CAPITAL-LETTER-T = %x54

ASCII-CAPITAL-LETTER-U = %x55

ASCII-CAPITAL-LETTER-V = %x56

ASCII-CAPITAL-LETTER-W = %x57

ASCII-CAPITAL-LETTER-X = %x58

ASCII-CAPITAL-LETTER-Y = %x59

ASCII-CAPITAL-LETTER-Z = %x5A

ASCII-LEFT-SQUARE-BRACKET = %x5B

ASCII-REVERSE-SOLIDUS = %x5C

ASCII-RIGHT-SQUARE-BRACKET = %x5D

ASCII-CIRCUMFLEX-ACCENT = %x5E

ASCII-LOW-LINE = %x5F

ASCII-GRAVE-ACCENT = %x60

ASCII-SMALL-LETTER-A = %x61

ASCII-SMALL-LETTER-B = %x62

ASCII-SMALL-LETTER-C = %x63

ASCII-SMALL-LETTER-D = %x64

ASCII-SMALL-LETTER-E = %x65

ASCII-SMALL-LETTER-F = %x66

ASCII-SMALL-LETTER-G = %x67

ASCII-SMALL-LETTER-H = %x68

ASCII-SMALL-LETTER-I = %x69

ASCII-SMALL-LETTER-J = %x6A

ASCII-SMALL-LETTER-K = %x6B

ASCII-SMALL-LETTER-L = %x6C

ASCII-SMALL-LETTER-M = %x6D

ASCII-SMALL-LETTER-N = %x6E

ASCII-SMALL-LETTER-O = %x6F

ASCII-SMALL-LETTER-P = %x70

ASCII-SMALL-LETTER-Q = %x71

ASCII-SMALL-LETTER-R = %x72

ASCII-SMALL-LETTER-S = %x73

ASCII-SMALL-LETTER-T = %x74

ASCII-SMALL-LETTER-U = %x75

ASCII-SMALL-LETTER-V = %x76

ASCII-SMALL-LETTER-W = %x77

ASCII-SMALL-LETTER-X = %x78

ASCII-SMALL-LETTER-Y = %x79

ASCII-SMALL-LETTER-Z = %x7A

ASCII-LEFT-CURLY-BRACKET = %x7B

ASCII-VERTICAL-LINE = %x7C

ASCII-RIGHT-CURLY-BRACKET = %x7D

ASCII-TILDE = %x7E

ASCII-DELETE = %x7F

ASCII-CRLF = %x0d.0a

ASCII-DIGIT = ASCII-DIGIT-ZERO / ASCII-DIGIT-ONE / ASCII-DIGIT-TWO / ASCII-DIGIT-THREE / ASCII-DIGIT-FOUR / ASCII-DIGIT-FIVE / ASCII-DIGIT-SIX / ASCII-DIGIT-SEVEN / ASCII-DIGIT-EIGHT / ASCII-DIGIT-NINE

ASCII-DIGIT-HEXADECIMAL = ASCII-DIGIT / ASCII-SMALL-LETTER-A / ASCII-SMALL-LETTER-B / ASCII-SMALL-LETTER-C / ASCII-SMALL-LETTER-D / ASCII-SMALL-LETTER-E / ASCII-SMALL-LETTER-F / ASCII-CAPITAL-LETTER-A / ASCII-CAPITAL-LETTER-B / ASCII-CAPITAL-LETTER-C / ASCII-CAPITAL-LETTER-D / ASCII-CAPITAL-LETTER-E / ASCII-CAPITAL-LETTER-F

### 2.4.127 Formula

The **Formula** record specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) for a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | val | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | D | E | F | reserved3 | | | | | | | | | |
| chn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| formula (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cell (6 bytes):**  A [Cell](#Section_6bb50f66faf048f9b6a9f0f452a77598) structure that specifies a cell on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**val (8 bytes):**  A [FormulaValue](#Section_39a0757ac7bb4e85b1443e7837b059d7) structure that specifies the value of the formula.

**A - fAlwaysCalc (1 bit):**  A bit that specifies whether the formula needs to be calculated during the next recalculation.

**B - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**C - fFill (1 bit):** A bit that specifies whether the cell has a [**fill alignment**](#gt_cfc4e171-6104-470e-9ebb-812afea17078) or a [**center-across-selection alignment**](#gt_ef7324bd-dac8-46e2-8df5-db44d8b925a8).

| Value | Meaning |
| --- | --- |
| 0 | Cell does not have a fill alignment or a center-across-selection alignment. |
| 1 | Cell has either a fill alignment or a center-across-selection alignment. |

**D - fShrFmla (1 bit):**  A bit that specifies whether the formula is part of a shared formula as defined in [ShrFmla](#Section_984826cc8bb7412b99077bbb9b08b4ad). If this formula is part of a shared formula, **formula**.**rgce** MUST begin with a [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1) structure.

**E - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**F - fClearErrors (1 bit):**  A bit that specifies whether the formula is excluded from [**formula error checking**](#gt_c28d38d6-c6d1-4d06-89c2-29816f9c5b23).

**reserved3 (10 bits):** MUST be zero, and MUST be ignored.

**chn (4 bytes):** A field that specifies an application-specific cache of information. This cache exists for performance reasons only, and can be rebuilt based on information stored elsewhere in the file without affecting calculation results.

**formula (variable):** A [CellParsedFormula](#Section_7dd67f0a671d4905b87b4cc07295e442) structure that specifies the formula.

### 2.4.128 Frame

The **Frame** record specifies the type, size and position of the frame around a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) element as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). A chart element’s frame is specified by the Frame record following it.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frt | | | | | | | | | | | | | | | | A | B | reserved | | | | | | | | | | | | | |

**frt (2 bytes):**  An unsigned integer that specifies the type of frame to be drawn. MUST be a value from the following table:

| Value | Frame Type |
| --- | --- |
| 0x0000 | A frame surrounding the chart element. |
| 0x0004 | A frame with a shadow surrounding the chart element. |

**A - fAutoSize (1 bit):**  A bit that specifies if the size of the frame is automatically calculated. If the value is 1, the size of the frame is automatically calculated. In this case, the width and height specified by the chart element are ignored and the size of the frame is calculated automatically. If the value is 0, the width and height specified by the chart element are used as the size of the frame.

**B - fAutoPosition (1 bit):**  A bit that specifies if the position of the frame is automatically calculated. If the value is 1, the position of the frame is automatically calculated. In this case, the (x, y) specified by the chart element are ignored, and the position of the frame is automatically calculated. If the value is 0, the (x, y) location specified by the chart element are used as the position of the frame.

**reserved (14 bits):**  MUST be zero, and MUST be ignored.

### 2.4.129 FrtFontList

The **FrtFontList** record specifies [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) information used on the chart and specifies the beginning of a collection of [Font](#Section_291a910ccb694799875ea201845d4fd1) records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| verExcel | | | | | | | | reserved | | | | | | | | cFont | | | | | | | | | | | | | | | |
| rgFontInfo (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x085A.

**verExcel (1 byte):**  An unsigned integer that specifies the application version where new [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) elements were introduced that use the font information specified by **rgFontInfo**. MUST be a value from the following table and MUST be equal to iObjectInstance1 of the [StartObject](#Section_2f7fb73d86f64f3d8f1c3b757ea8c0f6) record that immediately follows this record as defined by the Chart Sheet Substream ABNF:

| Value | Meaning |
| --- | --- |
| 0x09 | This record pertains to new objects introduced in an application version[<92>](#Appendix_A_92" \o "Product behavior note 92). **rgFontInfo** specifies the font information that is used by [**display units**](#gt_7d807b62-cff1-4e03-a73f-840844345b83) labels specified by [YMult](#Section_6d0a1b34ab5a450fb4a5f06d9d54ec55). |
| 0x0A | This record pertains to new objects introduced in an application version[<93>](#Appendix_A_93" \o "Product behavior note 93). **rgFontInfo** specifies the font information that is used by extended [data label](#Section_cac7f43a3af142f58ff2814c2870427f) specified by [DataLabExt](#Section_5c03a5117d77474cac73ee797c1ff9b3). |

**reserved (1 byte):** MUST be zero, and MUST be ignored.

**cFont (2 bytes):**  An unsigned integer that specifies the number of items in **rgFontInfo**.

**rgFontInfo (variable):**  An array of [FontInfo](#Section_d4ab96a535a943789b00c11fabc7ea00) structures that specify the font information. The number of elements in this array MUST be equal to the value specified in **cFont**.

### 2.4.130 FrtWrapper

The **FrtWrapper** record wraps around a non-Future Record Type ([FRT](#Section_b660b67822684414839ed1ae9a4e4e85)) record and converts it into an FRT record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wrappedRecord (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| frtWrapperPadding (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** MUST be 0x0851.

**wrappedRecord (variable):**  A [Font](#Section_291a910ccb694799875ea201845d4fd1), [Continue](#Section_999fae21d3d942e88290639782460c67), [LineFormat](#Section_1bff256238664b958a6bf3fea1659f6d), [AreaFormat](#Section_affb9fe34721495a9e5351c7d3c65480), [SeriesText](#Section_e5d661c4bd7e4664a848495354b9fc3b), [DefaultText](#Section_cda28b8e07614f108b656c38368f791d), [Text](#Section_362cfe7d650949fb81402ad59c16b4c4), [FontX](#Section_8c065ab610d44029a20dac422620eed2), [ObjectLink](#Section_50f2d49d1e5f416b866f057e0ab23ba9), [Frame](#Section_0cb3e202342740b4b93b277c0bd977ff), [Begin](#Section_52d0d2c76cc540c4adf3aea158411ef3), [End](#Section_abe8fd1db6a847b8864052ba75a76f5c), [PicF](#Section_04c14ff7f31f4c5b9aa68dfd28844710), [Pos](#Section_b2311d215bad4525b759cacc13d394cf), [AlRuns](#Section_8ffd645fc00848d8aae1adbd10927e6d), [BRAI](#Section_c4e36e616c174a75b414f33803c7456b), [Fbi](#Section_f3d70b00be314223b3ec717dfab54ec1), or [GelFrame](#Section_fd655637a8e94d4e85880a02afc99fae) that specifies the record being wrapped. These records MUST be wrapped in this FrtWrapper if they are part of a collection defined by [StartObject](#Section_2f7fb73d86f64f3d8f1c3b757ea8c0f6) and [EndObject](#Section_bb3ce42b14974ce2b58d973549813772). These records appear according to their record name and not as FrtWrapper in the [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) specified in [chart sheet substream](#Section_732ff614d939416bb7c76d983471ff11).

**frtWrapperPadding (variable):**  An array of bytes that is used to pad **FrtWrapper**. Each element MUST be zero and MUST be ignored. This field MUST be present if and only if the size of the **wrappedRecord** is less than 8 bytes. If present, the size of **frtWrapperPadding** MUST be specified by the following formula:

8 bytes – (size of **wrappedRecord**)

The size of the padded **FrtWrapper** MUST be no less than the size of the [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure (12 bytes).

### 2.4.131 GelFrame

The **GelFrame** record specifies the properties of a [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e) for parts of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). The record consists of an OfficeArtFOPT, as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.2.9, and an OfficeArtTertiaryFOPT, as specified in [MS-ODRAW] section 2.2.11, that both contain properties for the fill pattern applied.[<94>](#Appendix_A_94" \o "Product behavior note 94)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| OPT1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OPT2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**OPT1 (variable):**  An OfficeArtFOPT, as specified in [MS-ODRAW] section 2.2.9, specifies the primary properties of the fill pattern. MUST only contain the subset of OfficeArtFOPT properties specified in the following list:

 fillType, as specified in [MS-ODRAW] section 2.3.7.1

 fillColor, as specified in [MS-ODRAW] section 2.3.7.2

 fillOpacity, as specified in [MS-ODRAW] section 2.3.7.3

 fillBackColor, as specified in [MS-ODRAW] section 2.3.7.4

 fillBackOpacity, as specified in [MS-ODRAW] section 2.3.7.5

 fillCrMod, as specified in [MS-ODRAW] section 2.3.7.6

 fillBlip\_complex, as specified in [MS-ODRAW] section 2.3.7.8

 fillBlipName\_complex, as specified in [MS-ODRAW] section 2.3.7.10

 fillBlipFlags, as specified in [MS-ODRAW] section 2.3.7.11

 fillWidth, as specified in [MS-ODRAW] section 2.3.7.12

 fillHeight, as specified in [MS-ODRAW] section 2.3.7.13

 fillAngle, as specified in [MS-ODRAW] section 2.3.7.14

 fillFocus, as specified in [MS-ODRAW] section 2.3.7.15

 fillToLeft, as specified in [MS-ODRAW] section 2.3.7.16

 fillToTop, as specified in [MS-ODRAW] section 2.3.7.17

 fillToRight, as specified in [MS-ODRAW] section 2.3.7.18

 fillToBottom, as specified in [MS-ODRAW] section 2.3.7.19

 fillRectLeft, as specified in [MS-ODRAW] section 2.3.7.20

 fillRectTop, as specified in [MS-ODRAW] section 2.3.7.21

 fillRectRight, as specified in [MS-ODRAW] section 2.3.7.22

 fillRectBottom, as specified in [MS-ODRAW] section 2.3.7.23

 fillDztype, as specified in [MS-ODRAW] section 2.3.7.24

 fillShadePreset, as specified in [MS-ODRAW] section 2.3.7.25

 fillShadeColors\_complex, as specified in [MS-ODRAW] section 2.3.7.27

 fillOriginX, as specified in [MS-ODRAW] section 2.3.7.28

 fillOriginY, as specified in [MS-ODRAW] section 2.3.7.29

 fillShapeOriginX, as specified in [MS-ODRAW] section 2.3.7.30

 fillShapeOriginY, as specified in [MS-ODRAW] section 2.3.7.31

 fillShadeType, as specified in [MS-ODRAW] section 2.3.7.32

 fFilled, as specified in [MS-ODRAW] section 2.3.7.43

 fHitTestFill, as specified in [MS-ODRAW] section 2.3.7.43

 fillShape, as specified in [MS-ODRAW] section 2.3.7.43

 fillUseRect, as specified in [MS-ODRAW] section 2.3.7.43

 fNoFillHitTest, as specified in [MS-ODRAW] section 2.3.7.43

**OPT2 (variable):**  An OfficeArtTertiaryFOPT, as specified in [MS-ODRAW] section 2.2.11 specifies the additional properties of the fill pattern. MUST only contain the subset of OfficeArtTertiaryFOPT properties specified in the following list[<95>](#Appendix_A_95" \o "Product behavior note 95):

 fillColorExt, as specified in [MS-ODRAW] section 2.3.7.33

 fillColorExtMod, as specified in [MS-ODRAW] section 2.3.7.35

 fillBackColorExt, as specified in [MS-ODRAW] section 2.3.7.37

 fillBackColorExtMod, as specified in [MS-ODRAW] section 2.3.7.39

 fRecolorFillAsPicture, as specified in [MS-ODRAW] section 2.3.7.43

 fUseShapeAnchor, as specified in [MS-ODRAW] section 2.3.7.43

### 2.4.132 GridSet

The **GridSet** record specifies a reserved value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| gridset | | | | | | | | | | | | | | | |

**gridset (2 bytes):** Reserved, and MUST be 1.

### 2.4.133 GUIDTypeLib

The **GUIDTypeLib** record specifies the [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that uniquely identifies the [**type library**](#gt_c7033bd7-d429-4131-8bc4-f5007b7ef3fa) of the application that wrote the [**Visual Basic for Applications (VBA)**](#gt_bc3968c6-4bd2-40a2-8619-5cd7695b3e4f) project in the file.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| guid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0897.

**guid (16 bytes):**  A GUID as specified by [MS-DTYP] that uniquely identifies the type library of the application that wrote the VBA project. The value SHOULD[<96>](#Appendix_A_96" \o "Product behavior note 96) be 0x0.

### 2.4.134 Guts

The **Guts** record specifies the maximum [**outline**](#gt_d20b50ce-6124-4bda-ba32-5d132016d639) levels for row and column [**gutters**](#gt_d38255f8-dca6-4e1c-be9d-71691a6ab4e5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| unused1 | | | | | | | | | | | | | | | | unused2 | | | | | | | | | | | | | | | |
| iLevelRwMac | | | | | | | | | | | | | | | | iLevelColMac | | | | | | | | | | | | | | | |

**unused1 (2 bytes):** Undefined and MUST be ignored.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**iLevelRwMac (2 bytes):**  An unsigned integer that specifies the maximum [**outline level**](#gt_a5cd5eff-ddeb-490b-bc71-f6256774e3c3) for the row gutter. The value MUST be one of the values specified in the following table.

**iLevelColMac (2 bytes):**  An unsigned integer that specifies the maximum outline level for the column gutter. The value MUST be one of the values specified in the following table.

| Value | Maximum outline level |
| --- | --- |
| 0x0000 | 0 |
| 0x0002 | 1 |
| 0x0003 | 2 |
| 0x0004 | 3 |
| 0x0005 | 4 |
| 0x0006 | 5 |
| 0x0007 | 6 |
| 0x0008 | 7 |

### 2.4.135 HCenter

The **HCenter** record specifies whether the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) is to be centered horizontally when printed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hcenter | | | | | | | | | | | | | | | |

**hcenter (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the sheet is to be centered between [LeftMargin](#Section_0c67a571c2c14596b119270c45a7037d) and [RightMargin](#Section_ef3b757016a54806a2956fee409fb59a) when printed.

### 2.4.136 Header

The **Header** record specifies the header text of the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) when printed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ast (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ast (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the header text for the current sheet. It is optional and exists only if the record size is not zero. The text appears at the top of every page when printed. The length of the text MUST be less than or equal to 255. The header text can contain special commands, for example a [**placeholder**](#gt_25caffec-4e4b-4192-a04d-edcd14f0ec5f) for the page number, current date or text formatting attributes. Special commands are represented by single letter with a leading ampersand ("&"). The following [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) lists the possible commands and how they are used:

**ABNF Grammar for Header and Footer Strings**

headerfooter = \*(left / pagenum / pagetotal / fontsize / strikethrough / superscript / subscript / center / date / time / filepath / picture / underline / doubleunderline / right / bookpath / sheetname / fontname / fonttype / font / bold / italic / ampersand / emptytoken / UNICHAR)

UNICHAR = %x0020-FFFF

This code specifies [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters, starting with the space character (%x0020).

DIGIT = %x0030-0039

This code specifies a digit between 0 and 9.

HEXALPHA = %x0041-0046 / %x0061-0066

This code specifies a character between A and F or between a and f.

DQUOTE = %x0022

This code specifies a double quotation mark.

left = "&L"

This code specifies the beginning of the left section. There are three header and footer sections: left, center, and right. When two or more of this section marker exist, the contents from all markers are concatenated, in the order of appearance, and placed into the left section.

pagenum = "&P"

This code specifies the current page number.

pagetotal = "&N" 0\*1(("-" / "+") \*DIGIT)

This code specifies the total number of pages.

fontsize = "&" 1\*3DIGIT

This code specifies the text [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) size, where font size is measured in points.

strikethrough = "&S"

This code specifies whether the strikethrough [**text style**](#gt_7df49f57-34f0-4063-9c66-8e32767d9562) is on or off. The first occurrence of this code MUST turn the strikethrough text style on, and the second occurrence MUST turn it off.

superscript = "&X"

This code specifies whether the superscript text style is on or off. The first occurrence of this code MUST turn the superscript text style on, and the second occurrence MUST turn it off. The superscript and subscript codes MUST NOT both be on at same time. If both codes occur in the string, the code that occurs first is applied and the other is ignored.

subscript = "&Y"

This code specifies whether the subscript text style is on or off. The first occurrence of this code MUST turn the subscript text style on, and the second occurrence MUST turn it off. The superscript and subscript codes MUST NOT both be on at same time. If both codes occur in the string, the code that occurs first is applied and the other is ignored.

center = "&C"

This code specifies the beginning of the center section. When two or more of this section marker exist, the contents from all markers are concatenated, in the order of appearance, and placed into the center section.

date = "&D"

This code specifies a date.

time = "&T"

This code specifies a time.

picture = "&G"

This code specifies a picture.

underline = "&U"

This code specifies whether the single underline text style is on or off. The first occurrence of this code MUST turn the underline text style on, and the second occurrence MUST turn it off.

doubleunderline = "&E"

This code specifies whether the double underline text style is on or off. The first occurrence of this code MUST turn the double underline text style on, and the second occurrence MUST turn it off.

right = "&R"

This code specifies the beginning of the right section. When two or more of this section marker exist, the contents from all markers are concatenated, in the order of appearance, and placed into the right section.

bookpath = "&Z"

This code specifies a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) file path.

bookname = "&F"

This code specifies a workbook file name.

sheetname = "&A"

This code specifies a sheet name.

fontname = (1\*UNICHAR / "-")

This code specifies the text font name. When the font name is a hyphen, no font is specified. This can be a localized string.

fonttype = ("italic" / "bold" / "regular" / "italic bold" / "bold italic")

This code specifies the text font type. This can be a localized string.

font = "&" DQUOTE fontname , fonttype DQUOTE

This code specifies the text font.

bold = "&B"

This code specifies whether the bold text style is on or off. The first occurrence of this code MUST turn the bold text style on, and the second occurrence MUST turn it off.

italic = "&I"

This code specifies whether the italic text style is on or off. The first occurrence of this code MUST turn the italic text style on, and the second occurrence MUST turn it off.

ampersand = "&&"

This code specifies an ampersand character.

emptytoken = "&" \*1UNICHAR

This code specifies an unidentified token. If just "&" appears, or if there is a UNICHAR specified after "&" and it is not one of the UNICHAR characters listed in the preceding rules, then the token is interpreted as empty and nothing is rendered in the header or footer text.

### 2.4.137 HeaderFooter

The **HeaderFooter** record specifies the even page header and footer text, and the first page header and footer text of the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| guidSView (16 bytes, optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | unused | | | | | | | | | | | | cchHeaderEven | | | | | | | | | | | | | | | |
| cchFooterEven | | | | | | | | | | | | | | | | cchHeaderFirst | | | | | | | | | | | | | | | |
| cchFooterFirst | | | | | | | | | | | | | | | | strHeaderEven (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strFooterEven (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strHeaderFirst (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strFooterFirst (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x089C.

**guidSView (16 bytes):** A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that specifies the current [**sheet view**](#gt_353fb2f1-8556-4d04-8fa8-f38da52d7ecc). If it is zero it means the current sheet. Otherwise, this field MUST match the **guid** field of the preceding [UserSViewBegin](#Section_c75bbfe0f69546109d1eb7d93fc25fe9) record.

**A - fHFDiffOddEven (1 bit):**  A bit that specifies whether the odd and even pages use a different header and footer. If the value is 1, the [Header](#Section_b64cf6b894724f979a69d839f0fa1089) and [Footer](#Section_10606f3c5e9b4e7d8bd97a28489fea4d) records specify the odd page header and footer, and **strHeaderEven** and **strFooterEven** specify the even page header and footer.

**B - fHFDiffFirst (1 bit):**  A bit that specifies whether the first page uses a different header and footer from the rest of the pages. If the value is 1, the Header and Footer records specify the header and footer of the rest of the pages, and **strHeaderFirst** and **strFooterFirst** specify the first page header and footer.

**C - fHFScaleWithDoc (1 bit):**  A bit that specifies whether the header and footer is scaled with the sheet.

**D - fHFAlignMargins (1 bit):**  A bit that specifies whether the left and right edges of the header and footer are lined up with the left and right margins of the sheet.

**unused (12 bits):**  Undefined, and MUST be ignored.

**cchHeaderEven (2 bytes):**  An unsigned integer that specifies the number of characters in **strHeaderEven**. MUST be less than or equal to 255. The value MUST be zero if **fHFDiffOddEven** is zero.

**cchFooterEven (2 bytes):**  An unsigned integer that specifies the number of characters in **strFooterEven**. MUST be less than or equal to 255. The value MUST be zero if **fHFDiffOddEven** is zero.

**cchHeaderFirst (2 bytes):**  An unsigned integer that specifies the number of characters in **strHeaderFirst**. MUST be less than or equal to 255. The value MUST be zero if **fHFDiffFirst** is zero.

**cchFooterFirst (2 bytes):**  An unsigned integer that specifies the number of characters in **strFooterFirst**. MUST be less than or equal to 255. The value MUST be zero if **fHFDiffFirst** is zero.

**strHeaderEven (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the header text on the even pages. The number of characters in the string MUST be equal to **cchHeaderEven**. The string can contain special commands, for example a [**placeholder**](#gt_25caffec-4e4b-4192-a04d-edcd14f0ec5f) for the page number, current date or text formatting attributes. Refer to Header for more details about the string format.

**strFooterEven (variable):**  An XLUnicodeString structure that specifies the footer text on the even pages. The number of characters in the string MUST be equal to **cchFooterEven**. The string can contain special commands, for example a placeholder for the page number, current date or text formatting attributes. Refer to Header for more details about the string format.

**strHeaderFirst (variable):**  An XLUnicodeString structure that specifies the header text on the first page. The number of characters in the string MUST be equal to **cchHeaderFirst**. The string can contain special commands, for example a placeholder for the page number, current date or text formatting attributes. Refer to Header for more details about the string format.

**strFooterFirst (variable):**  An XLUnicodeString structure that specifies the footer text on the first page. The number of characters in the string MUST be equal to **cchFooterFirst**. The string can contain special commands, for example a placeholder for the page number, current date or text formatting attributes. Refer to Header for more details about the string format.

### 2.4.138 HFPicture

The **HFPicture** record specifies a picture used by a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) header or footer. The picture MUST be specified in either an **OfficeArtDgContainer** or **OfficeArtDggContainer** record as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872). The picture can be continued across multiple HFPicture records. The **OfficeArtClientAnchor** structure mentioned in [MS-ODRAW] refers to [OfficeArtClientAnchorHF](#Section_188e0d1e6e0440109fbe5177db3576dd).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | unused | | | | | reserved | | | | | | | | rgDrawing (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0866.

**A - fIsDrawing (1 bit):**  A bit that specifies whether **rgDrawing** is an **OfficeArtDgContainer** record as specified in [MS-ODRAW]. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | **rgDrawing** is an **OfficeArtDggContainer** record as specified in [MS-ODRAW] and **fIsDrawingGroup** MUST be 1. |
| 1 | **rgDrawing** is an **OfficeArtDgContainer** record as specified in [MS-ODRAW] and **fIsDrawingGroup** MUST be 0. |

**B - fIsDrawingGroup (1 bit):**  A bit that specifies whether **rgDrawing** is an **OfficeArtDggContainer** record as specified in [MS-ODRAW]. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | **rgDrawing** is an **OfficeArtDgContainer** record as specified in [MS-ODRAW] and **fIsDrawing** MUST be 1. |
| 1 | **rgDrawing** is an **OfficeArtDggContainer** record as specified in [MS-ODRAW] and **fIsDrawing** MUST be 0. |

**C - fContinue (1 bit):**  A bit that specifies whether this record is continuing the previous HFPicture record. The value 0 means it is the first HFPicture record.

**unused (5 bits):**  Undefined and MUST be ignored.

**reserved (1 byte):** MUST be zero, and MUST be ignored.

**rgDrawing (variable):** The meaning of this field is specified in the following table.

| Value of fIsDrawing | Meaning of rgDrawing |
| --- | --- |
| 0 | This is an **OfficeArtDggContainer** as specified in [MS-ODRAW] that specifies the [**drawing group**](#gt_329c715f-dc26-4866-a759-0d622aa92e92) of this picture. |
| 1 | This is an **OfficeArtDgContainer** as specified in [MS-ODRAW] that specifies the [**drawing object**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac) of this picture |

### 2.4.139 HideObj

The **HideObj** record specifies how [**ActiveX objects**](#gt_0d95e494-61b2-43bc-8818-51aa162d2018), [**OLE objects**](#gt_cdff9514-a3fb-4897-941d-4e99193a0096), and [**drawing objects**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac) appear in a window that contains the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hideObj | | | | | | | | | | | | | | | |

**hideObj (2 bytes):**  A [**HideObjEnum**](#Section_8107b973334c41a786dbfe32fd929fce) enumeration that specifies how ActiveX objects, OLE objects, and drawing objects appear in a window that contains the workbook.

### 2.4.140 HLink

The **HLink** record specifies a [**hyperlink**](#gt_dbe6a2d4-1841-4b4a-a9f6-562c6df7897e) associated with a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| hlinkClsid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| hyperlink (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ref8 (8 bytes):** A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the range of cells containing the hyperlink.

**hlinkClsid (16 bytes):** A [**class identifier (CLSID)**](#gt_e433c806-6cb6-46a2-bb95-523df8818c99) that specifies the [**COM**](#gt_ef2ebebc-1760-407a-9ace-af48f9050e02) component which saved the Hyperlink Object (as defined by [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.3.7.1) in **hyperlink**.

**hyperlink (variable):** A Hyperlink Object (as defined by [MS-OSHARED] section 2.3.7.1) that specifies the hyperlink and hyperlink-related information.

### 2.4.141 HLinkTooltip

The **HLinkTooltip** record specifies the [**hyperlink**](#gt_dbe6a2d4-1841-4b4a-a9f6-562c6df7897e) [**ToolTip**](#gt_5100b5cd-9168-4f0c-a088-a143921b8640) associated with a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderNoGrbit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | wzTooltip (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeaderNoGrbit (10 bytes):** An [FrtRefHeaderNoGrbit](#Section_837c2085a74b497dbfb37e85a611fcf0) structure. The **frtRefHeaderNoGrbit.rt** field MUST be 0x0800. The **frtRefHeaderNoGrbit.ref8** field MUST match a [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) field from an existing [HLink](#Section_f0b9de34b1474f96a1a3ac21f6fd48fa) record.

**wzTooltip (variable):**  An array of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters that specifies the ToolTip string. String length MUST be greater than or equal to 2 and less than or equal to 256 (inclusive of null terminator) and the string MUST be null-terminated.

### 2.4.142 HorizontalPageBreaks

The **HorizontalPageBreaks** record specifies a list of explicit row [**page breaks**](#gt_55584218-fec7-4f6a-8295-e4dbf3b7d871).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cbrk | | | | | | | | | | | | | | | | rgbrk (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cbrk (2 bytes):**  An unsigned integer that specifies the number of page breaks. The value MUST be less than or equal to 1026.

**rgbrk (variable):**  An array of [**HorzBrk**](#Section_6529551805374fa48696ef249f1cecda) structure that specifies all of the page breaks. The array MUST be sorted first by **rgbrk.row**, and then by **rgbrk.ColStart.** Two page breaks MUST NOT overlap. The number of **HorzBrk** structures MUST equal the value of **cbrk**.

### 2.4.143 IFmtRecord

The **IFmtRecord** record specifies the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) to use for the text on an [axis](#Section_4117f73aa0f348d89c0f65864918ffb3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ifmt | | | | | | | | | | | | | | | |

**ifmt (2 bytes):**  An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) structure that specifies the number format identifier.

### 2.4.144 Index

The **Index** record specifies row information and the file locations for all [DBCell](#Section_e08dc762bf8a457cb3ba39055bff423a) records corresponding to each row block in the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). This record, combined with the DBCell records, is used to optimize the [lookup of cells](#Section_24bbaffdab88489e983f3c400c8a8559) in a [cell table](#Section_d690007dd25c4822a650b24c13288bb7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rwMic | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rwMac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ibXF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgibRw (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**reserved (4 bytes):** MUST be zero, and MUST be ignored.

**rwMic (4 bytes):**  A [RwLongU](#Section_a6fff2b4470a463da6e99dad9676cd44) structure that specifies the first row that has at least one [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) with data in current sheet. MUST be 0 if there are no rows that have at least one cell with data.

**rwMac (4 bytes):**  An unsigned integer that specifies one plus the zero-based index of the last row that has at least one cell with data in the sheet. MUST be 0 if there are no rows that have at least one cell with data. If not 0, MUST be greater than **rwMic**.

**ibXF (4 bytes):**  A FilePointer as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.2.1.5 that specifies the file position of the [DefColWidth](#Section_30dc2bcb4f9943a3a745fbc54b5b8161) record in the current sheet.

**rgibRw (variable):** An array of FilePointer. Each FilePointer as specified in [MS-OSHARED] section 2.2.1.5 specifies the file position of each referenced DBCell record. If the positions of DBCell records are not correct, there is no optimized method to do cell lookup and this can cause performance issues. The number of elements in the array MUST be equal to the number of row blocks in this sheet.

### 2.4.145 InterfaceEnd

The **InterfaceEnd** record specifies the end of a collection of records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies information about the user interface.

### 2.4.146 InterfaceHdr

The **InterfaceHdr** record specifies the [**code page**](#gt_210637d9-9634-4652-a935-ded3cd434f38) of the user interface and specifies the beginning of a collection of records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies information about the user interface.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| codePage | | | | | | | | | | | | | | | |

**codePage (2 bytes):** An unsigned integer that specifies the code page.

MUST be 0x04B0, which specifies [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8).

### 2.4.147 Intl

The **Intl** record specifies that the [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491) is an [**international macro sheet**](#gt_17a6eea5-8094-4056-84fd-8d97fbf0c865).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

### 2.4.148 Label

The **Label** record specifies a label on the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) for each [series](#Section_527ce4dfc9f84e50a314d4b07519593c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | st (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cell (6 bytes):** A [Cell](#Section_6bb50f66faf048f9b6a9f0f452a77598) structure that specifies the row and column of the label and the index of the label’s format.

**st (variable):** A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that contains the text of the label.

### 2.4.149 LabelSst

The **LabelSst** record specifies a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that contains a string.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | isst | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**cell (6 bytes):**  A [Cell](#Section_6bb50f66faf048f9b6a9f0f452a77598) structure that specifies the cell containing the string from the shared string table.

**isst (4 bytes):**  An unsigned integer that specifies the zero-based index of an element in the array of [XLUnicodeRichExtendedString](#Section_173d9f51e5d343da8de2be7f22e119b9) structure in the **rgb** field of the [SST](#Section_b6231b92d32e4626baddc3310a672bab) record in this [Workbook Stream](#Section_f682f4b08c6b444e83f852d156f1e8ba) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) that specifies the string contained in the cell. MUST be greater than or equal to zero and less than the number of elements in the **rgb** field of theSST record.

### 2.4.150 Lbl

The **Lbl** record specifies a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | fGrp | | | | | | G | H | I | J | chKey | | | | | | | | cch | | | | | | | |
| cce | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| itab | | | | | | | | | | | | | | | | reserved4 | | | | | | | | reserved5 | | | | | | | |
| reserved6 | | | | | | | | reserved7 | | | | | | | | Name (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgce (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fHidden (1 bit):** A bit that specifies whether the defined name is not [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) in the list of defined names.

**B - fFunc (1 bit):** A bit that specifies whether the defined name represents an [**Excel macro (XLM)**](#gt_11e8ff9f-bce2-4d8b-9ba2-11ac468f7c7b). If this bit is 1, **fProc** MUST also be 1.

**C - fOB (1 bit):** A bit that specifies whether the defined name represents a [**Visual Basic for Applications (VBA)**](#gt_bc3968c6-4bd2-40a2-8619-5cd7695b3e4f) [**macro**](#gt_cd2933d3-08d1-4931-bd5c-7ae0a668fe7c). If this bit is 1, the **fProc** MUST also be 1.

**D - fProc (1 bit):** A bit that specifies whether the defined name represents a macro.

**E - fCalcExp (1 bit):** A bit that specifies whether **rgce** contains a call to a function that can return an array.

**F - fBuiltin (1 bit):** A bit that specifies whether the defined name represents a [**built-in name**](#gt_d40a51df-e96f-45ec-885d-6f936d172b39).

**fGrp (6 bits):** An unsigned integer that specifies the [**function category**](#gt_026a49a8-c3e8-49eb-a97f-58bd2c79c540) for the defined name. MUST be less than or equal to 31. The values 17 to 31 are user-defined. User-defined values are specified in the [FnGroupName](#Section_3b945c1f208a481e91cc333111fce594) record. The values 0 to 16 are defined as specified in the following table:

| Value | Category |
| --- | --- |
| 0 | All |
| 1 | Financial |
| 2 | Date Time |
| 3 | Math Trigonometry |
| 4 | Statistical |
| 5 | Lookup |
| 6 | Database |
| 7 | Text |
| 8 | Logical |
| 9 | Info |
| 10 | Commands |
| 11 | Customize |
| 12 | Macro Control |
| 13 | [**DDE**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) External |
| 14 | User Defined |
| 15 | Engineering |
| 16 | [**Cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7) |

**G - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**H - fPublished (1 bit):** A bit that specifies whether the defined name is [**published**](#gt_8ffc383a-d4f1-4515-a8b5-874d84ab2d2b). This bit is ignored if the **fPublishedBookItems** field of the [BookExt\_Conditional12](#Section_714e951cff5a48769e01bdfa1b548141) structureis 0.

**I - fWorkbookParam (1 bit):** A bit that specifies whether the defined name is a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) parameter.

**J - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**chKey (1 byte):**  The unsigned integer value of the [**ASCII**](#gt_79fa85ca-ac61-467c-b819-e97dc1a7a599) character that specifies the shortcut key for the macro represented by the defined name. MUST be 0 (no shortcut key) if **fFunc** is 1 or if **fProc** is 0. Otherwise MUST[<97>](#Appendix_A_97" \o "Product behavior note 97) be greater than or equal to 0x41 and less than or equal to 0x5A, or greater than or equal to 0x61 and less than or equal to 0x7A.

**cch (1 byte):** An unsigned integer that specifies the number of characters in **Name**. MUST be greater than or equal to zero.

**cce (2 bytes):** An unsigned integer that specifies length of **rgce** in bytes.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**itab (2 bytes):** An unsigned integer that specifies if the defined name is a [**local name**](#gt_6f2787cc-ab35-4cc1-bebd-fb120864d320), and if so, which [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) it is on. If **itab** is not 0, the defined name is a local name and the value MUST be a one-based index to the collection of [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) records as they appear in the Globals Substream.

**reserved4 (1 byte):** MUST be zero, and MUST be ignored.

**reserved5 (1 byte):** MUST be zero, and MUST be ignored.

**reserved6 (1 byte):** MUST be zero, and MUST be ignored.

**reserved7 (1 byte):** MUST be zero, and MUST be ignored.

**Name (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name for the defined name. If **fBuiltin** is 0, this field MUST satisfy the same restrictions as the **name** field of the [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) structure. If **fBuiltin** is 1, this field is for a built-in name. Each built-in name has a zero-based index value associated with it. A built-in name or its index value MUST be used for this field. The built-in names are defined in the following table:

| Values | Names |
| --- | --- |
| 0x00 | Consolidate\_Area |
| 0x01 | Auto\_Open |
| 0x02 | Auto\_Close |
| 0x03 | Extract |
| 0x04 | Database |
| 0x05 | Criteria |
| 0x06 | Print\_Area |
| 0x07 | Print\_Titles |
| 0x08 | Recorder |
| 0x09 | Data\_Form |
| 0x0A | Auto\_Activate |
| 0x0B | Auto\_Deactivate |
| 0x0C | Sheet\_Title |
| 0x0D | \_FilterDatabase |

**rgce (variable):** A [NameParsedFormula](#Section_9afd1c6cc4864d9cb6443708428d2ffb) structure that specifies the **formula** for the **defined name**.

### 2.4.151 LeftMargin

The **LeftMargin** record specifies the left margin of the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| num | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**num (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the left margin of the current sheet in inches. The value MUST be greater than or equal to 0 and less than or equal to 49.

### 2.4.152 Legend

The **Legend** record specifies properties of a [legend](#Section_1832229b7d1945f488d455e9c07466f0), and specifies the beginning of a collection of records defined by [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a legend. The absence of this collection of records implies that a legend does not exist on the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dx | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | wSpace | | | | | | | | A | B | C | D | E | F | reserved2 | | | | | | | | | |

**x (4 bytes):**  An unsigned integer that specifies the x-position, in [SPRC](#Section_d5fc728e68de4972905a975bcef8c82d), of the upper-left corner of the [**bounding rectangle**](#gt_e349a155-0fb9-4ba1-abd4-e363e21abcd1) of the legend. MUST be ignored and the **x1** field from the following [Pos](#Section_b2311d215bad4525b759cacc13d394cf) record MUST be used instead.

**y (4 bytes):**  An unsigned integer that specifies the y-position, in SPRC, of the upper-left corner of the bounding rectangle of the legend. MUST be ignored and the **y1** field from the following Pos record MUST be used instead.

**dx (4 bytes):**  An unsigned integer that specifies the width, in SPRC, of the bounding rectangle of the legend. MUST be ignored and the **x2** field from the following Pos record MUST be used instead.

**dy (4 bytes):**  An unsigned integer that specifies the height, in SPRC, of the bounding rectangle of the legend. MUST be ignored and the **y2** field from the following Pos record MUST be used instead.

**unused (1 byte):** Undefined and MUST be ignored.

**wSpace (1 byte):**  An unsigned integer that specifies the space between [**legend entries**](#gt_6c27eb24-fb59-4bc8-8962-9cdac46a748e). MUST be 0x01, which represents 40 [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382) between legend entries.

**A - fAutoPosition (1 bit):**  A bit that specifies whether the legend is automatically positioned. If this field is 0x1, then **fAutoPosX** MUST be 0x1 and **fAutoPosY** MUST be 0x1.

**B - reserved1 (1 bit):** MUST be 1, and MUST be ignored.

**C - fAutoPosX (1 bit):**  A bit that specifies whether the x-positioning of the legend is automatic.

**D - fAutoPosY (1 bit):**  A bit that specifies whether the y-positioning of the legend is automatic.

**E - fVert (1 bit):**  A bit that specifies the layout of the legend entries. MUST equal 0x1 if **fWasDataTable** is equal to 0x1. MUST be a value from the following table:

| **Value** | **Meaning** |
| --- | --- |
| 0x0 | The legend contains multiple columns of legend entries, or the size of the legend was manually changed from the default size. |
| 0x1 | The legend contains a single column of legend entries. |

**F - fWasDataTable (1 bit):**  A bit that specifies whether the legend is shown in a [data table](#Section_69938f61d2e94da3af87e154edcb0d98).

**reserved2 (10 bits):** MUST be zero, and MUST be ignored.

### 2.4.153 LegendException

The **LegendException** record specifies information about a [**legend entry**](#gt_6c27eb24-fb59-4bc8-8962-9cdac46a748e) which was changed from the default legend entry settings, and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies legend entry formatting. On a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) where the [legend](#Section_1832229b7d1945f488d455e9c07466f0) contains legend entries for the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) and [trendlines](#Section_61d74ebc36714d6dbdc0626db604530d), as defined in the legend overview, there MUST be zero instances or one instance of this record in the sequence of records that conform to the SERIESFORMAT rule.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iss | | | | | | | | | | | | | | | | A | B | reserved | | | | | | | | | | | | | |

**iss (2 bytes):**  An unsigned integer that specifies the legend entry. This field has different interpretations depending on the content of the legend in the chart. The legend overview specifies the types of content the legend can contain, as follows:

 In a chart where the legend contains legend entries for the series and trendlines, this field MUST be 0xFFFF. This record specifies the legend entry of the series or trendline that contains this record.

 In a chart where the legend contains legend entries for each [data point](#Section_9c986ad250d44fa1a157063ac5c971a0) in the chart, this field specifies the zero-based index of a legend entry in the legend, where 0x0000 is the legend entry for the first data point in the series.

 In a chart with a surface [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), this field specifies the zero-based index of a legend entry in the legend, where 0x0000 is the legend entry for the lowest band of the surface chart group.

**A - fDeleted (1 bit):**  A bit that specifies whether the legend entry specified by **iss** was deleted.

**B - fLabel (1 bit):**  A bit that specifies whether the legend entry specified by **iss** was formatted. If this field is 1, there MUST be a sequence of records that conform to the ATTACHEDLABEL rule in the Chart Sheet Substream ABNF following this record.

**reserved (14 bits):**  MUST be zero, and MUST be ignored.

### 2.4.154 Lel

The **Lel** record specifies that a [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) was lost because of the deletion of a supporting label[<98>](#Appendix_A_98" \o "Product behavior note 98).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| stFormulaName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**stFormulaName (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the deleted label. The number of characters MUST be less than 252.

### 2.4.155 Line

The **Line** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a line chart group, and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | reserved | | | | | | | | | | | | |

**A - fStacked (1 bit):**  A bit that specifies whether the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) in the chart group that share the same [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) are stacked.

**B - f100 (1 bit):**  A bit that specifies whether the data points in the chart group are displayed as a percentage of the sum of all data points in the chart group that share the same category (2). MUST be 0 if **fStacked** is 0.

**C - fHasShadow (1 bit):**  A bit that specifies whether one or more [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) in the chart group has shadows.

**reserved (13 bits):**  MUST be zero, and MUST be ignored.

### 2.4.156 LineFormat

The **LineFormat** record specifies the appearance of a line.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| lns | | | | | | | | | | | | | | | | we | | | | | | | | | | | | | | | |
| A | B | C | D | reserved2 | | | | | | | | | | | | icv | | | | | | | | | | | | | | | |

**rgb (4 bytes):**  A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) structure that specifies the color of the line. The color MUST match the color specified by **icv**.

**lns (2 bytes):**  An unsigned integer that specifies the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) of the line. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Solid |
| 0x0001 | Dash |
| 0x0002 | Dot |
| 0x0003 | Dash-dot |
| 0x0004 | Dash dot-dot |
| 0x0005 | None |
| 0x0006 | Dark gray pattern |
| 0x0007 | Medium gray pattern |
| 0x0008 | Light gray pattern |

When the value of this field is 0x0005 (None), the values of **we** and **icv** MUST be set to the values specified in the following table:

| Attribute | Default Value |
| --- | --- |
| Line thickness (**we**) | 0xFFFF (Hairline) |
| Line color (**icv**) | 0x004D |

**we (2 bytes):**  A signed integer that specifies the thickness of the line. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0xFFFF (-1) | Hairline |
| 0x0000 | Narrow (single) |
| 0x0001 | Medium (double) |
| 0x0002 | Wide (triple) |

**A - fAuto (1 bit):**  A bit that specifies whether the line has default formatting.

If the value of **fAuto** is 0, the line has formatting as specified by **lns**, **we**, and **icv**.

If the value of **fAuto** is 1, **lns**, **we**, **icv**, and **rgb** MUST be ignored and default values are used as specified in the following table:

| Attribute | Default Value |
| --- | --- |
| Line pattern (**lns**) | 0xFFFF (Hairline) |
| Line thickness (**we**) | 0x0000 (Narrow) |
| Line color (**icv**) | 0x004D |
| Line color (**rgb**) | Match the default color used for **icv** |

**B - reserved1 (1 bit):**  MUST be zero, and MUST be ignored.

**C - fAxisOn (1 bit):**  A bit that specifies whether the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) line is displayed.

If the previous record is [AxisLine](#Section_d59921ddf25e45729d6adee440bb2d67) and the value of the **id** field of the AxisLine record is equal to 0x0000, this field MUST be a value from the following table:

| fAxisOn | Lns | Meaning |
| --- | --- | --- |
| 0 | 0x0005 | The axis line is not displayed. |
| 0 | Any legal value except 0x0005 | The axis line is displayed. |
| 1 | Any legal value | The axis line is displayed. |

If the previous record is not AxisLine and the value of the **id** field of the AxisLine record is equal to 0x0000, this field MUST be zero, and MUST be ignored.

**D - fAutoCo (1 bit):**  A bit that specifies whether **icv** is equal to 0x004D. If the value is 1, **icv** MUST equal 0x004D. If the value is 0, **icv** MUST NOT equal 0x004D.

**reserved2 (12 bits):**  MUST be zero, and MUST be ignored.

**icv (2 bytes):**  An [IcvChart](#Section_ab0d01c3cf5945b4aef14e02811b61cb) structure that specifies the color of the line. The color MUST match the color specified by **rgb**.

### 2.4.157 List12

The **List12** record specifies the additional formatting information for a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7). These records immediately follow a [Feature11](#Section_4c78a7d3a3ff48e28e2cc89785519322) or [Feature12](#Section_4c95f0ddd35745758b77792dbe2c0d5e) record, and specify additional formatting information for the table specified by the Feature11 or Feature12 record. This record is a [future record type](#Section_b660b67822684414839ed1ae9a4e4e85) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| lsd | | | | | | | | | | | | | | | | idList | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rgb (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0877.

**lsd (2 bytes):** An unsigned integer that specifies the type of data contained in the **rgb** field.

MUST be a value specified in the table listed under **rgb**.

**idList (4 bytes):** An unsigned integer that identifies the associated table for which this record specifies additional formatting. MUST NOT be zero. MUST be equal to the **idList** field of the [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure embedded in the associated Feature11 or Feature12 record.

**rgb (variable):** A structure whose type and meaning are specified by the value of **lsd**, as specified in the following table:

| Value of lsd | Meaning of rgb |
| --- | --- |
| 0x0000 | **rgb** is a [List12BlockLevel](#Section_41a5cec9e6d14a1bb50e9cc33d80be7c) structure that specifies the [table block-level formatting](#Section_0c7947ddc8874a69a5cbc14494d21034). |
| 0x0001 | **rgb** is a [List12TableStyleClientInfo](#Section_7b5bf4e9a7f049ffa8d6da8e92b33144) structure that specifies the [table style](#Section_4ac7212b4aa74ece962526c58224ae80). |
| 0x0002 | **rgb** is a [List12DisplayName](#Section_a4aa2637f9ea47e9b77f09af110e7590) structure that specifies the display name. |

### 2.4.158 LPr

The **LPr** record specifies a record that is unused.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | reserved | | | | | | | | | | | | | unused4 | | | | | | | | | | | | | | | |
| unused5 | | | | | | | | | | | | | | | | unused6 | | | | | | | | | | | | | | | |
| unused7 | | | | | | | | | | | | | | | | unused8 | | | | | | | | | | | | | | | |
| unused9 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - unused1 (1 bit):**  Undefined and MUST be ignored.

**B - unused2 (1 bit):**  Undefined and MUST be ignored.

**C - unused3 (1 bit):**  Undefined and MUST be ignored.

**reserved (13 bits):**  MUST be zero, and MUST be ignored.

**unused4 (2 bytes):**  Undefined and MUST be ignored.

**unused5 (2 bytes):**  Undefined and MUST be ignored.

**unused6 (2 bytes):**  Undefined and MUST be ignored.

**unused7 (2 bytes):**  Undefined and MUST be ignored.

**unused8 (2 bytes):**  Undefined and MUST be ignored.

**unused9 (variable):**  Undefined and MUST be ignored.

### 2.4.159 LRng

The **LRng** record specifies a label [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) for [**natural language formulas**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b)[<99>](#Appendix_A_99" \o "Product behavior note 99).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| crefRw | | | | | | | | | | | | | | | | refRow (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| crefCol | | | | | | | | | | | | | | | | refCol (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**crefRw (2 bytes):**  An unsigned integer that specifies the number of row label ranges. When added to the value of **crefCol**, the value MUST be less than 1028.

**refRow (variable):** An array of [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structures. The array specifies the row label ranges. The size of the array is specified by **crefRw**.

**crefCol (2 bytes):**  An unsigned integer that specifies the number of column label ranges. When added to the value of **crefRw**, the value MUST be less than 1028.

**refCol (variable):** An array of Ref8U structures. The array specifies the column label ranges. The size of the array is specified by **crefCol**.

### 2.4.160 MarkerFormat

The **MarkerFormat** record specifies the color, size, and shape of the associated [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) that appear on line, radar, and scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5). The associated data markers are specified by the preceding [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e) record. If this record is not present in the sequence of records that conforms to the [SS](#section_732ff614d939416bb7c76d983471ff11) rule of the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), then the color, size, and shape of the associated data markers are specified by the default values of the fields of this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgbFore | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbBack | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| imk | | | | | | | | | | | | | | | | A | B | | | C | D | reserved2 | | | | | | | | | |
| icvFore | | | | | | | | | | | | | | | | icvBack | | | | | | | | | | | | | | | |
| miSize | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgbFore (4 bytes):**  A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) structure that specifies the [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) color of the data marker. The color MUST match the color specified by **icvFore**. The default value of this field is automatically selected from the next available color in the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) color table.

**rgbBack (4 bytes):**  A LongRGB structure that specifies the interior color of the data marker. The color MUST match the color specified by **icvBack**. The default value of this field is the same as the default value for **rgbFore** only when the default **imk** is 0x0001, 0x0002, 0x0003, or 0x0008. Otherwise, the default value is 0xFFFFFF.

**imk (2 bytes):**  An unsigned integer that specifies the type of data marker. The default value for this field is automatically selected from the list of data marker types and cannot be 0x0000. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | No marker. |
| 0x0001 | Square markers. |
| 0x0002 | Diamond-shaped markers. |
| 0x0003 | Triangular markers. |
| 0x0004 | Square markers with an X. |
| 0x0005 | Square markers with an asterisk. |
| 0x0006 | Short bar markers. |
| 0x0007 | Long bar markers. |
| 0x0008 | Circular markers. |
| 0x0009 | Square markers with a plus sign. |

**A - fAuto (1 bit):**  A bit that specifies whether the data marker is automatically generated. The default value for this field is 1. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The data marker is not automatically generated. |
| 0x1 | The data marker type, size, and color are automatically generated and the values are set accordingly in this record. |

**B - reserved1 (3 bits):**  MUST be zero, and MUST be ignored.

**C - fNotShowInt (1 bit):**  A bit that specifies whether to show the data marker interior. The default value for this field is 0. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The data marker interior is shown. |
| 0x1 | The data marker interior is not shown. |

**D - fNotShowBrd (1 bit):**  A bit that specifies whether to show the data marker border. The default value for this field is 0. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The data marker border is shown. |
| 0x1 | The data marker border is not shown. |

**reserved2 (10 bits):**  MUST be zero, and MUST be ignored.

**icvFore (2 bytes):**  An [IcvChart](#Section_ab0d01c3cf5945b4aef14e02811b61cb) structure that specifies the border color of the data marker. The color MUST match the color specified by **rgbFore**. The default value of this field is automatically set to match the color specified by **rgbFore**.

**icvBack (2 bytes):**  An IcvChart structure that specifies the interior color of the data marker. The color MUST match the color specified by **rgbBack**. The default value of this field is automatically set to match the color specified by **rgbBack**.

**miSize (4 bytes):**  An unsigned integer that specifies the size in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382) of the data marker. MUST be greater than or equal to 40 and less than or equal to 1440. The default value for this field is 100.

### 2.4.161 MDB

The **MDB** record specifies a unique set of [MDX metadata](#Section_0f7583182c0b4155bf75c7399f89305c) type/value pairs that are shared among all [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) that reference [**MDX**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f) metadata.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgmdir (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x88A.

**rgmdir (variable):** An array of [MDir](#Section_2eb7b3e5f0a2493784e7b527fb0e8eaa) structures that specifies a block of [metadata](#Section_c2df6678f9ab4f71a17b1dfa8b9ac76a) records.

### 2.4.162 MDTInfo

The **MDTInfor** record specifies the information about a single type of [metadata](#Section_c2df6678f9ab4f71a17b1dfa8b9ac76a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | unused1 | | | | | X | Y | Z | a |
| stName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0884.

**A - fGhostRow (1 bit):** A bit that specifies whether the metadata is applied to all [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in newly inserted rows.

**B - fGhostCol (1 bit):** A bit that specifies whether the metadata is applied to all cells in newly inserted columns.

**C - fEdit (1 bit):** A bit that specifies whether the metadata is preserved when the cell is edited.

**D - fDelete (1 bit):** A bit that specifies whether the metadata is preserved when the cell's value is deleted.

**E - fCopy (1 bit):** A bit that specifies whether the metadata is copied when the cell is copied. MUST be 1 if one or more of the values of **fPasteAll**, **fPasteFormulas**, **fPasteValues**, **fPasteFormats**, **fPasteComments**, **fPasteDataValidation**, **fPasteBorders**, **fPasteColWidths**, or **fPasteNumberFormats** is 1.

**F - fPasteAll (1 bit):**  A bit that specifies whether the metadata is pasted when all formulas, values, formatting, comments, and [**data validation**](#gt_1db94de4-1b5d-40aa-a7d9-617078ebb237) rules are pasted from the previously copied cell.

**G - fPasteFormulas (1 bit):** A bit that specifies whether the metadata is pasted when only formulas are pasted from the previously copied cell.

**H - fPasteValues (1 bit):** A bit that specifies whether the metadata is pasted when only values are pasted from the previously copied cell.

**I - fPasteFormats (1 bit):** A bit that specifies whether the metadata is pasted when only formatting is pasted from the previously copied cell.

**J - fPasteComments (1 bit):** A bit that specifies whether the metadata is pasted when only comments are pasted from the previously copied cell.

**K - fPasteDataValidation (1 bit):** A bit that specifies whether the metadata is pasted when only data validation rules are pasted from the previously copied cell.

**L - fPasteBorders (1 bit):** A bit that specifies whether the metadata is pasted when only borders are pasted from the previously copied cell.

**M - fPasteColWidths (1 bit):** A bit that specifies whether the metadata is pasted when only column widths are pasted from the previously copied cell.

**N - fPasteNumberFormats (1 bit):** A bit that specifies whether the metadata is pasted when only number formatting is pasted from the previously copied cell.

**O - fMerge (1 bit):** A bit that specifies whether the metadata is preserved after cells are merged. If the value of this bit is 1, and the cell has the smallest row and column number of the cells that are being merged, the metadata is preserved.

**P - fSplitFirst (1 bit):**  A bit that specifies whether, when a cell is split, the metadata is copied to the cell with the smallest row and column number. If **fSplitAll** is set to 1, **fSplitAll** takes precedence.

**Q - fSplitAll (1 bit):** A bit that specifies whether, when a cell is split, the metadata is copied to all the resulting cells. If the value is 1, the value of **fSplitFirst** MUST be ignored.

**R - fRowColShift (1 bit):** A bit that specifies whether the metadata is preserved when the cell is shifted because of row or column deletion or insertion.

**S - fClearAll (1 bit):** A bit that specifies whether the metadata is preserved when the contents, formatting, and comments of the cell are cleared.

**T - fClearFormats (1 bit):** A bit that specifies whether the metadata is preserved when the formatting of the cell is cleared.

**U - fClearContents (1 bit):** A bit that specifies whether the metadata is preserved when the contents of the cell is cleared.

**V - fClearComments (1 bit):** A bit that specifies whether the metadata is preserved when the comments of the cell are cleared.

**W - fAssign (1 bit):** A bit that specifies whether the metadata is preserved when the cell's value is changed by formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) assignment.

**unused1 (5 bits):** Undefined and MUST be ignored.

**X - fCoerce (1 bit):** A bit that specifies whether the metadata is preserved when the cell's value is coerced to a different type.

**Y - fAdjust (1 bit):** A bit that specifies whether the metadata is updated when the cell's location is changed.

**Z - fCellMeta (1 bit):** A bit that specifies whether this metadata type is [cell metadata](#Section_c925f5199fe14b6ab01807fa18351e68) or [value metadata](#Section_e78bf5ba22754bad8e6cf4f59644efa6). MUST be 0 from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Metadata is value metadata. |
| 1 | Metadata is cell metadata. |

**a - unused2 (1 bit):** Undefined and MUST be ignored.

**stName (variable):** An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) type that specifies the name of the metadata type.

### 2.4.163 MDXKPI

The **MDXKPI**  record specifies [MDX KPI metadata](#Section_db8664f2502b43d2aa88274035b52570).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istrConnName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tfnSrc | | | | | | | | kpiprop | | | | | | | | istrKPIName | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | istrMbrKPI | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x889.

**istrConnName (4 bytes):** An [MDXStrIndex](#Section_c1412a7d7ce3431b85f70f909ccd103c) structure that specifies the index of the connection name string.

**tfnSrc (1 byte):** A [Tag\_Fn\_MDX](#Section_06b9cfca505346439702bf2f26fd78b5) enumeration that specifies the type of [**MDX**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f) [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) that generated the metadata. The value MUST be **TFNCUBEKPIPROPERTY**.

**kpiprop (1 byte):** A [KPIProp](#Section_a2b696796afc4bc59dae03859794de9e) enumeration that specifies the KPI type.

**istrKPIName (4 bytes):** An MDXStrIndex structure that specifies the index of the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) string.

**istrMbrKPI (4 bytes):** An MDXStrIndex structure that specifies the index of the key performance indicator name string.

### 2.4.164 MDXProp

The **MDXProp** record specifies [member property MDX metadata](#Section_722f7e05ca3e4a20b30fbbed1a597e88).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istrConnName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tfnSrc | | | | | | | | istrMbr | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | istrProp | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x888.

**istrConnName (4 bytes):** An [MDXStrIndex](#Section_c1412a7d7ce3431b85f70f909ccd103c) structure that specifies the index of the connection name string.

**tfnSrc (1 byte):** A [Tag\_Fn\_MDX](#Section_06b9cfca505346439702bf2f26fd78b5) enumeration that specifies the type of [**MDX**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f) [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) that generated the metadata. The value MUST be **TFNCUBEMEMBERPROPERTY**.

**istrMbr (4 bytes):** An MDXStrIndex structure that specifies the index of the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) string.

**istrProp (4 bytes):** An MDXStrIndex structure that specifies the index of the property name string.

### 2.4.165 MDXSet

The **MDXSet** record specifies [MDX set metadata](#Section_84d4d0b542b6405ea07be3272dc517f8).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istrConnName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tfnSrc | | | | | | | | sso | | | | | | | | istrSetDef | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cistr | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rgistr (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x887.

**istrConnName (4 bytes):** An [MDXStrIndex](#Section_c1412a7d7ce3431b85f70f909ccd103c) structure that specifies the index of the connection name string.

**tfnSrc (1 byte):** A [Tag\_Fn\_MDX](#Section_06b9cfca505346439702bf2f26fd78b5) enumeration that specifies the type of [**cube function**](#gt_02658bae-45d5-4aad-be23-d35b9d440af3) that generated the metadata. The value MUST be equal to **TFNCUBESET** or **TFNCUBESETCOUNT**.

**sso (1 byte):** An [SD\_SetSortOrder](#Section_f741462d299a4f6290bd58830a748139) enumeration that specifies the set [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7).

**istrSetDef (4 bytes):** An MDXStrIndex structure that specifies the index of the set definition string.

**cistr (4 bytes):** A signed integer that specifies the number of [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) strings. The value MUST be greater than or equal to 0, and less than or equal to the total number of [MDXStr](#Section_c801e9fde2b1419ea1b45c098aa241e5) records in the file.

**rgistr (variable):** An array of MDXStrIndex structures that specifies the indexes of the MDX unique name strings. The number of the elements in the array MUST be equal to the value of **cistr**.

### 2.4.166 MDXStr

The **MDXStr** record specifies a shared text string used by records specifying [MDX metadata](#Section_0f7583182c0b4155bf75c7399f89305c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| st (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x885.

**st (variable):**  An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) type that specifies the content of the string.

### 2.4.167 MDXTuple

The **MDXTuple** record specifies [MDX tuple metadata](#Section_277444ebcca34128b302b39de79eeb41).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istrConnName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tfnSrc | | | | | | | | cistr | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | rgistr (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x886.

**istrConnName (4 bytes):** An [MDXStrIndex](#Section_c1412a7d7ce3431b85f70f909ccd103c) structure that specifies the index of the connection name string.

**tfnSrc (1 byte):** A [Tag\_Fn\_MDX](#Section_06b9cfca505346439702bf2f26fd78b5) enumeration that specifies the type of [**MDX**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f) [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) that generated the metadata. The value MUST be equal to **TFNCUBEMEMBER**, **TFNCUBEVALUE**, or **TFNCUBERANKEDMEMBER**.

**cistr (4 bytes):** A signed integer that specifies the number of [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) strings. The value MUST be greater than or equal to 0, and less than or equal to the total number of [MDXStr](#Section_c801e9fde2b1419ea1b45c098aa241e5) records in the file.

**rgistr (variable):** An array of MDXStrIndex structures that specifies the indexes of the MDX unique name strings. The number of the elements in the array MUST be equal to the value of **cistr.**

### 2.4.168 MergeCells

The **MergeCells** record specifies [**merged cells**](#gt_75cf70e2-3993-471f-9589-b70d384588f2) in the document. If the count of the merged cells in the document is greater than 1026, the file will contain multiple adjacent **MergeCells** records.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cmcs | | | | | | | | | | | | | | | | rgref (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cmcs (2 bytes):** An unsigned integer that specifies the count of [Ref8](#Section_ccb1ac4e95794278a2050945e7fcf13d) structures. MUST be less than or equal to 1026.

**rgref (variable):** An array of Ref8 structures. Each array element specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that are merged into a single merged cell. These ranges MUST NOT overlap. MUST contain the number of elements specified by **cmcs.**

### 2.4.169 Mms

The **Mms** record is reserved and MUST be ignored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved1 | | | | | | | | reserved2 | | | | | | | |

**reserved1 (1 byte):**  MUST be zero, and MUST be ignored.

**reserved2 (1 byte):**  MUST be zero, and MUST be ignored.

### 2.4.170 MsoDrawing

The **MsoDrawing** record specifies a [**drawing**](#gt_4b4d1a42-c4a2-464d-ad16-d53b5c493fd3). If this record is in the [Worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56), [Macro Sheet](#Section_0dddd943f77a4fc2bf92868acb4587f7), or [Dialog Sheet](#Section_da37feb48b9a462d87772a5fddd4866e) substream, the **OfficeArtClientAnchor** structure mentioned in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) refers to the [OfficeArtClientAnchorSheet](#Section_fd656a2cd5ee41718f6517a08b9f2262) structure. If this record appears in the [Chart Sheet](#Section_732ff614d939416bb7c76d983471ff11) substream, the **OfficeArtClientAnchor** structure mentioned in [MS-ODRAW] refers to the [OfficeArtClientAnchorChart](#Section_f936940f9de147c59cb411b09633c2d0) structure.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgChildRec (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgChildRec (variable):** An **OfficeArtDgContainer** structure as specified in [MS-ODRAW] that specifies the drawing. If the **rgChildRec** has a **shape** structure in it as specified in [MS-ODRAW] and that **shape** has a **clientData** record in it as specified in [MS-ODRAW], then the next record following this record MUST be an [Obj](#Section_dd34df60825040a983a3911476a31ea7). The size of the **clientData** record does not include the size of the following Obj record. If the **rgChildRec** has a **shape** structure in it as specified in [MS-ODRAW] and that **shape** has a **clientTextbox** record in it as specified in [MS-ODRAW], then the next record following this record MUST be a [TxO](#Section_638c08e629424783b71b144ccf758fc7). The size of the **clientTexbox** record does not include the size of this TxO record.

### 2.4.171 MsoDrawingGroup

The **MsoDrawingGroup** record specifies a group of [**drawing objects**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgChildRec (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgChildRec (variable):** An **OfficeArtDggContainer** as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) that specifies the group of drawing objects.

### 2.4.172 MsoDrawingSelection

The **MsoDrawingSelection** record specifies [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) [**drawing objects**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac) and the drawing objects in focus on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| selection (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**selection (variable):** An **OfficeArtFDGSL** structure as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.2.33 that specifies the selected drawing objects.

### 2.4.173 MTRSettings

The **MTRSettings** record specifies multithreaded calculation settings.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fMTREnabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fUserSetThreadCount | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cUserThreadCount | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x089A.

**fMTREnabled (4 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the multithreaded calculation is enabled. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | Multithreaded calculation is disabled. |
| 0x00000001 | Multithreaded calculation is enabled. |

**fUserSetThreadCount (4 bytes):**  A Boolean that specifies whether the thread count was manually specified by the user. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | The thread count **cUserThreadCount** was not manually specified by the user. |
| 0x00000001 | The thread count **cUserThreadCount** was manually specified by the user. |

**cUserThreadCount (4 bytes):** A signed integer that specifies the count of calculation threads. MUST be greater than or equal to 0x00000001 and MUST be less than or equal to 0x00000400. If **fMTREnabled** is 0x00000000 or **fUserSetThreadCount** is 0x00000000, the value of this field MUST be ignored.

### 2.4.174 MulBlank

The **MulBlank** record specifies a [series](#Section_527ce4dfc9f84e50a314d4b07519593c) of blank [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) row. This record can store up to 256 [IXFCell](#Section_f9bc476745704f609a8e6fd3f32ddf3b) structures.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rw | | | | | | | | | | | | | | | | colFirst | | | | | | | | | | | | | | | |
| rgixfe (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colLast | | | | | | | | | | | | | | | |

**rw (2 bytes):**  An [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) structure that specifies a row containing the blank cells.

**colFirst (2 bytes):**  A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) structure that specifies the first column in the series of blank cells within the sheet. The value of **colFirst.col** MUST be less than or equal to 254.

**rgixfe (variable):** An array of IXFCell structures. Each element of this array contains an IXFCell structure corresponding to a blank cell in the series. The number of entries in the array MUST be equal to the value given by the following formula:

Number of entries in **rgixfe** = (**colLast.col** – **colFirst.col** +1)

**colLast (2 bytes):**  A Col structure that specifies the last column in the series of blank cells within the sheet. This **colLast.col** value MUST be greater than **colFirst.col** value.

### 2.4.175 MulRk

The **MulRk** record specifies a [series](#Section_527ce4dfc9f84e50a314d4b07519593c) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) with numeric data in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) row. This record can store up to 256 [RkRec](#Section_b2e3021e06734a268440eb367f63b1e8) structures.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rw | | | | | | | | | | | | | | | | colFirst | | | | | | | | | | | | | | | |
| rgrkrec (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colLast | | | | | | | | | | | | | | | |

**rw (2 bytes):**  An [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) structure that specifies the row containing the cells with numeric data.

**colFirst (2 bytes):**  A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) structure that specifies the first column in the series of numeric cells within the sheet. The value of **colFirst.col** MUST be less than or equal to 254.

**rgrkrec (variable):** An array of RkRec structures. Each element in the array specifies an RkRec in the row. The number of entries in the array MUST be equal to the value given by the following formula:

Number of entries in **rgrkrec** = (**colLast.col** – **colFirst.col** +1)

**colLast (2 bytes):**  A Col structure that specifies the last column in the set of numeric cells within the sheet. This **colLast.col** value MUST be greater than the **colFirst.col** value.

### 2.4.176 NameCmt

The **NameCmt** record specifies a [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) associated with a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchName | | | | | | | | | | | | | | | | cchComment | | | | | | | | | | | | | | | |
| name (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| comment (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0894.

**cchName (2 bytes):**  An unsigned integer that specifies the number of characters in the **name**. The value MUST be less than or equal to 0x00FF.

**cchComment (2 bytes):**  An unsigned integer that specifies the number of characters in the **comment**. The value MUST be less than or equal to 0x00FF.

**name (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the defined name; **cchName** specifies the number of characters in this string. This string MUST satisfy the formatting restrictions specified in the [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) structure. This string MUST also satisfy the following formatting restriction based on the **fBuiltin** field in the preceding [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record:

| Value of fBuiltIn field in the preceding Lbl record | Restrictions on this field |
| --- | --- |
| 0 | The string in this field MUST be the same string (using case-insensitive comparison) as the string in the **name** field of the preceding Lbl record. |
| 1 | The string in this field MUST be the defined name associated with the [**built-in name**](#gt_d40a51df-e96f-45ec-885d-6f936d172b39) number that appears in the **name** field in the preceding Lbl record. |

**comment (variable):**  An XLUnicodeStringNoCch structure that specifies the comment; **cchComment** specifies the number of characters in this string.

### 2.4.177 NameFnGrp12

The **NameFnGrp12** record specifies the name of a [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) in a [**function category**](#gt_026a49a8-c3e8-49eb-a97f-58bd2c79c540) that is specified in an [**FnGrp12**](#Section_a2c6b3b4267c4f858b5d21ebfb9e1cdd) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cachName | | | | | | | | | | | | | | | | fgrp | | | | | | | | | | | | | | | |
| rgach (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0899.

**cachName (2 bytes):** An unsigned integer that specifies the number of characters in the name of the function. The value MUST be greater than or equal to 1 and less than or equal to 255.

**fgrp (2 bytes):** An unsigned integer that specifies the zero-based index of the function category that this function belongs to. This value minus 32 specifies the zero-based index of an FnGrp12 record in the collection of FnGrp12 records, as specified by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). MUST be greater than or equal to 32 and less than or equal to 255.

**rgach (variable):** An [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) structure that specifies the name of the function. The length MUST be equal to **cachName**.

### 2.4.178 NamePublish

The **NamePublish** record specifies information about a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | unused | | | | | | | | | | | | | | strName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0893.

**A - fPublished (1 bit):**  A bit that specifies whether the defined name is published to a server. This bit is ignored if the **fPublishedBookItems** field of the [BookExt\_Conditional12](#Section_714e951cff5a48769e01bdfa1b548141) structureis 0.

**B - fWorkbookParam (1 bit):**  A bit that specifies whether the defined name is a [**workbook parameter**](#gt_be16812d-eaff-41db-83cc-d145e61e8ef6).

**unused (14 bits):** Undefined and MUST be ignored.

**strName (variable):**  An [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) structure that specifies the defined name.

### 2.4.179 Note

The **Note** record specifies a [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) associated with a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) or revision information about a comment associated with a cell.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| body (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**body (variable):** A variable type field. The data type and meaning of this field is determined by the stream that contains this record, as specified in the following table:

| Stream that contains this record | Body field data type and meaning |
| --- | --- |
| [Workbook stream](#Section_f682f4b08c6b444e83f852d156f1e8ba)  In the Workbook stream the record MUST be in a [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56), a [Dialog Sheet substream](#Section_da37feb48b9a462d87772a5fddd4866e), or a [Macro Sheet substream](#Section_0dddd943f77a4fc2bf92868acb4587f7). | A [NoteSh](#Section_3a610bb39d35435f92efcdbc42974404) structure that specifies a comment associated with a cell. |
| [Revision stream (revision log)](#Section_d120a1ffd2e6488381a507236f1994b0) | A [NoteRR](#Section_48099b26293944e8be1e78a3f708663a) structure that specifies a [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) for a comment associated with a cell. |

### 2.4.180 Number

The **Number** record specifies a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that contains a [**floating-point number**](#gt_237156df-b9cf-4b8a-9753-98001801a90d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cell | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | num | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**cell (6 bytes):**  A [Cell](#Section_6bb50f66faf048f9b6a9f0f452a77598) structure that specifies the cell.

**num (8 bytes):**  An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the cell value.

If this record appears in a [SERIESDATA](#section_732ff614d939416bb7c76d983471ff11) record collection, and this record specifies a cell in the [chart data cache](#Section_e21d24e4e71f4fdc81077f0d6a6efa6a) that specifies data for an [error bar](#Section_762a461d0a45474ebd7d5994bb294af2) [series](#Section_527ce4dfc9f84e50a314d4b07519593c), then this field is a [ChartNumNillable](#Section_fb50281744124328b538fa23fc3ced0c) value. If a ChartNumNillable is used, a blank cell is specified by a [NilChartNum](#Section_8adcc3efb44f41e09375535cb2b87ff3) structure that has a **type** field with a value of 0x0000, and a cell with a #N/A error is specified by a NilChartNum that has a **type** field with a value of 0x0100.

### 2.4.181 Obj

The **Obj** record specifies the properties of an object in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cmo (22 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | gmo (optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pictFormat (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | pictFlags (optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbls (16 bytes, optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rbo (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | sbs (24 bytes, optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | nts (26 bytes, optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| macro (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pictFmla (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| linkFmla (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| checkBox (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| radioButton (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| edit (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| list (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| gbo (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved (optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**cmo (22 bytes):** An [FtCmo](#Section_29161566501843568d2550e6674c66fa) structure that specifies the common properties of this object.

**gmo (6 bytes):** An optional [FtGmo](#Section_7655dade103b4824958353ec2ad03e30) structure that specifies the properties of this group object. This field MUST exist if and only if **cmo.ot** is equal to 0x00.

**pictFormat (6 bytes):**  An optional [FtCf](#Section_fc5bb3ce8e354393b22f9cf54062a3a4) structure that specifies the format of this picture object. This field MUST exist if and only if **cmo.ot** is equal to 0x08.

**pictFlags (6 bytes):** An optional [FtPioGrbit](#Section_8eee0b3d9d27429485fca66ae8a361c9) structure that specifies additional properties of this picture object. This field MUST exist if and only if **cmo.ot** is equal to 0x08.

**cbls (16 bytes):** An optional [FtCbls](#Section_9da2385d32d449acb0ea4b83a01f44c2) structure that represents a check box or radio button. This field MUST exist if and only if **cmo.ot** is equal to 0x0B or 0x0C.

**rbo (10 bytes):** An optional [FtRbo](#Section_0bdbbfbf70ed4a2084d2697529ce482d) structure that represents a radio button. This field MUST exist if and only if **cmo.ot** is equal to 0x0C.

**sbs (24 bytes):** An optional [FtSbs](#Section_d5124c56e2b64b9692a5f55eba876b64) structure that specifies the properties of this spin control, scrollbar, list, or drop-down list object. This field MUST exist if and only if **cmo.ot** is equal to 0x10, 0x11, 0x12, or 0x14.

**nts (26 bytes):** An optional [FtNts](#Section_b09911676b904e6f910b8c153a7e0f87) structure that specifies the properties of this [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) object. This field MUST exist if and only if **cmo.ot** is equal to 0x19.

**macro (variable):** An optional [FtMacro](#Section_ab3090bea01a46559bc9e94969ec51bb) structure that specifies the action associated with this object.

**pictFmla (variable):** An optional [FtPictFmla](#Section_00f89d3267b0408e9eaff4fecbddb089) structure that specifies the location of the data associated with this picture object. This field MUST NOT exist unless **cmo.ot** is equal to 0x08.

**linkFmla (variable):** An optional [ObjLinkFmla](#Section_fc0cf7bd9bcd4be99311e1d09d1d5e75) structure that specifies the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) that has a value linked to this object. This field MUST NOT exist unless **cmo.ot** is equal to 0x0B, 0x0C, 0x10, 0x11, 0x12, or 0x14. The value of **linkFmla.ft** MUST equal 0x14 if **cmo.ot** is equal to 0x0B or 0x0C. Otherwise, **linkFmla.ft** MUST equal 0x0E.

**checkBox (12 bytes):** An optional [FtCblsData](#Section_bcd10caf0f4e405aa2deea091a9c5d58) structure that specifies the properties of this check box or radio button object. This field MUST exist if and only if **cmo.ot** is equal to 0x0B or 0x0C.

**radioButton (8 bytes):** An optional [FtRboData](#Section_b2ff21b8a0164b8aa6931e14e76829bb) structure that specifies additional properties of this radio button object. This field MUST exist if and only if **cmo.ot** is equal to 0x0C.

**edit (12 bytes):** An optional [FtEdoData](#Section_0f000cf931114b77b498762fb8df7de1) structure that specifies the properties of this edit box object. This field MUST exist if and only if **cmo.ot** is equal to 0x0D.

**list (variable):** An optional [FtLbsData](#Section_064379be857b4a8ca9bfd79f21043148) structure that specifies the properties of this list box or drop-down object. This field MUST exist if and only if **cmo.ot** is equal to 0x12 or 0x14.

**gbo (10 bytes):** An optional [FtGboData](#Section_fb0a9decad614cb09621b4f05ac080cd) structure that specifies the properties of this group box object. This field MUST exist if and only if **cmo.ot** is equal to 0x13.

**reserved (4 bytes):** Optional. MUST be 0, and MUST be ignored. This field MUST exist if and only if **cmt.ot** does not equal 0x12 or 0x14.

### 2.4.182 ObjectLink

The **ObjectLink** record specifies an object on a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), or the entire chart, to which the [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record is linked.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wLinkObj | | | | | | | | | | | | | | | | wLinkVar1 | | | | | | | | | | | | | | | |
| wLinkVar2 | | | | | | | | | | | | | | | |

**wLinkObj (2 bytes):**  An unsigned integer that specifies the object that the Text record is linked to. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | Entire chart. |
| 0x0002 | Value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3), or vertical value axis on bubble and scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5) |
| 0x0003 | Category axis, or horizontal value axis on bubble and scatter chart groups. |
| 0x0004 | [Series](#Section_527ce4dfc9f84e50a314d4b07519593c) or [data points](#Section_9c986ad250d44fa1a157063ac5c971a0). |
| 0x0007 | Series axis. |
| 0x000C | [**Display units**](#gt_7d807b62-cff1-4e03-a73f-840844345b83) labels of an axis. |

**wLinkVar1 (2 bytes):** An unsigned integer that specifies the zero-based index into a [Series](#Section_d6eec0192d634c1e8080442af941b462) record in the collection of Series records in the current Chart Sheet substream. Each referenced Series record specifies a series for the chart group to which the Text record is linked. When the **wLinkObj** field is 4, MUST be less than or equal to 254. When the **wLinkObj** field is not 4, MUST be zero, and MUST be ignored.

**wLinkVar2 (2 bytes):** An unsigned integer that specifies the zero-based index into the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) within the series specified by **wLinkVar1**, to which the Text record is linked. When the **wLinkObj** field is 4, if the Text record is linked to a series instead of a single data point, the value MUST be 0xFFFF; if the Text record is linked to a data point, the value MUST be less than or equal to 31999. When the **wLinkObj** field is not 4, MUST be zero, and MUST be ignored.

### 2.4.183 ObjProtect

The **ObjProtect** record specifies the [**protection**](#gt_dbeb9653-2ab1-4ec4-b64e-e77a8951c499) state of the objects on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). This record exists if the sheet is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829) and the objects on the sheet are protected.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fLockObj | | | | | | | | | | | | | | | |

**fLockObj (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies that the objects are protected. MUST be 0x0001.

### 2.4.184 ObNoMacros

The existence of the **ObNoMacros** record specifies that an [ObProj](#Section_884177af912944cea21ae561b5950f52) record exists in the file, and that there are no [**forms**](#gt_c7858bfa-d4d2-48a7-ac9c-d2e90fbe3590), [**modules**](#gt_3f7df968-a51b-4dea-9f2c-4cf6ce65ccc1), or [**class modules**](#gt_25ca6ee7-698a-45cc-9e3c-8be094d77324) in the [**VBA project**](#gt_980e3334-2874-4425-a73a-f2235cec1e1e) located in the [VBA storage](#Section_27d93f33eaa941d49ec07f2a69d8ff5f) stream.

### 2.4.185 ObProj

The existence of the **ObProj** record specifies that there is a [**VBA project**](#gt_980e3334-2874-4425-a73a-f2235cec1e1e) in the file. This project is located in the [VBA storage](#Section_27d93f33eaa941d49ec07f2a69d8ff5f) stream.

### 2.4.186 OleDbConn

The **OleDbConn** record specifies the connection information for an [**OLE DB**](#gt_333f4fb1-4882-48df-bce6-f9961b408f31) [**connection string**](#gt_03a9d0ca-2f10-4f3d-b910-052714a96f7d), and specifies the beginning of a collection of [ExtString](#Section_48ec5507dc4c49049590a32423145f0e) records as defined by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of ExtString records specifies the connection string for a [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) that retrieves [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | reserved1 | | | | | | | | | | | | | | cst | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x080A.

**A - fPasswd (1 bit):** A bit that specifies whether the connection password is present in the connection string. A value of 1 specifies that the password was stripped from the connection string.

**B - fLocal (1 bit):** A bit that specifies whether the connection string is the main connection string or an alternate connection string. See [ConnGrbitDbtOledb](#Section_b6e55e1249014c8f827e3110cfee247c) for more information.

**reserved1 (14 bits):** MUST be zero, and MUST be ignored.

**cst (2 bytes):** An unsigned integer that specifies the number of ExtString records that follow this record. MUST be greater than 0. If the value is 1, the connection string is specified by ExtString.**string**. If the value is greater than 1, the connection string is determined by concatenating each of the ExtString.**string** fields of the ExtString records that follow.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

### 2.4.187 OleObjectSize

The **OleObjectSize** record specifies the visible [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) when this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is displayed as an [**embedded object**](#gt_708607be-8655-416e-93f3-b434e9ecbd56) in another document.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| unused | | | | | | | | | | | | | | | | ref | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**unused (2 bytes):** Undefined and MUST be ignored.

**ref (6 bytes):** A [RefU](#Section_0bb7dda629a3440db2bea793540b3f16) structure that specifies the visible range of cells, if the workbook is an embedded object and the [**active sheet**](#gt_767d2df7-5efd-40a1-9e58-4b6a597cc389) is a [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615), a [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491), or a [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8) as specified by the **itabCur** field of a [Window1](#Section_5e7b06630af04ff583fbb3c42a7ed54f) record. Otherwise, **ref** is undefined and MUST be ignored.

### 2.4.188 Palette

The **Palette** record specifies a [**custom color palette**](#gt_c24c2bf1-b41b-4eae-92a5-fe10cca57e2e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ccv | | | | | | | | | | | | | | | | rgColor (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ccv (2 bytes):**  A signed integer that specifies the number of colors in the **rgColor** array. The value MUST be 56.

**rgColor (variable):** An array of [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) structures that specifies the colors of the [**color palette**](#gt_05879d13-b9e0-4333-b96d-63cc3433997e). The number of items in the array MUST be equal to the value specified in the **ccv** field.

### 2.4.189 Pane

The **Pane** record specifies the position of [**frozen**](#gt_1e984b7c-9760-4832-88c8-798e30f845db) [**panes**](#gt_fa363a22-6c89-4829-86aa-09f939f40a54) or unfrozen panes in the window used to display the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| x | | | | | | | | | | | | | | | | y | | | | | | | | | | | | | | | |
| rwTop | | | | | | | | | | | | | | | | colLeft | | | | | | | | | | | | | | | |
| pnnAcct | | | | | | | | reserved | | | | | | | |

**x (2 bytes):**  An unsigned integer that specifies the horizontal position of the split in the pane. If the value of **fFrozenRt** in the preceding [Window2](#Section_80576ec8e7f04c9990a7d850587bc97b) record is 1, the value of **x** is measured in cells and MUST be less than or equal to 255. If the value of **fFrozenRt** in the preceding Window2 is 0, the value of **x** is measured in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382), and MUST be less than or equal to 32767.

**y (2 bytes):**  An unsigned integer that specifies the vertical position of the split in the pane. If the value of **fFrozenRt** in the preceding Window2 record is 1, the value of **y** is measured in cells. If the value of **fFrozenRt** in the preceding Window2 is 0, the value of **y** is measured in twips, and MUST be less than or equal to 32767.

**rwTop (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the topmost [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) row in the bottom pane.

**colLeft (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the first visible [**logical left**](#gt_ccc2ab6c-db9b-4c67-9b95-21ce79e7358d) column in the [**logical right**](#gt_ef86cf61-a2e3-4130-abc4-9e92dae5a2a7) pane.

**pnnAcct (1 byte):**  A [PaneType](#Section_016387b99dac43dfb22634800b3c2198) enumeration that specifies the active pane.

**reserved (1 byte):**  MUST be zero, and MUST be ignored.

### 2.4.190 ParamQry

The **ParamQry** record specifies the parameters for a [**parameterized query**](#gt_c68a3a26-317d-4a1d-9eff-c2630b53067c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fixed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**fixed (8 bytes):** A [PARAMQRY\_Fixed](#Section_448881a2b8e342a59c30e13922cef44d) structure that specifies the type information of the parameters.

**rgb (variable):** Variable type field that specifies a parameter for a parameterized query. The data type and meaning are specified in the following table:

| Value of fixed.pbt | Value of fixed.grbit | Meaning |
| --- | --- | --- |
| 0 | Any | **rgb** is an [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) followed by an unused byte. |
| 1 | 0x001 | **rgb** is an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)). |
| 1 | 0x002 | **rgb** is an SXString followed by an unused byte. |
| 1 | 0x800 | **rgb** is a 4-byte signed integer. |
| 2 | Any | **rgb** is an [FMSER\_param](#Section_fb16913970a445628b9f7f3722f589b6) that specifies the cell reference containing the parameter. |

### 2.4.191 Password

The **Password** record specifies the password verifier for the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) or [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). If this record exists in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1), then it is a password for the workbook. If this record exists in a [worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56), [chart sheet substream](#Section_732ff614d939416bb7c76d983471ff11), [macro sheet substream](#Section_0dddd943f77a4fc2bf92868acb4587f7), or [dialog sheet substream](#Section_da37feb48b9a462d87772a5fddd4866e), then it is a password for only that sheet. This record MUST exist for the workbook. A sheet has a password if and only if this record exists.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wPassword | | | | | | | | | | | | | | | |

**wPassword (2 bytes):** An unsigned integer that specifies the password verifier[<100>](#Appendix_A_100" \o "Product behavior note 100). See [Password Verifier Algorithm](#Section_e8a5fbec6cdc40d89fef9ad80e4172f4) for more information. If the password is for a sheet, MUST NOT equal 0x0000. If **wPassword** is 0x0000 it means the workbook has no password.

### 2.4.192 PhoneticInfo

The **PhoneticInfo** record specifies the default format for [**phonetic strings**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77) and the [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) that have phonetic strings that are [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| phs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sqref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**phs (4 bytes):** A [Phs](#Section_a9702cefc57842d69d881c23252e1f3a) structure that specifies the default format for phonetic strings on the sheet. When a phonetic string is entered into a cell that does not already contain a phonetic string, the default format is applied to the phonetic string.

**sqref (variable):** An [SqRef](#Section_31e64836df9647cbb04e4495d2871aaa) structure that specifies the ranges of cells on the sheet that have phonetic strings that are visible.

### 2.4.193 PicF

The **PicF** record specifies the layout of a picture that is attached to a picture-filled chart element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptyp | | | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | A | B | C | D | | | | numScale | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptyp (2 bytes):**  An unsigned integer that specifies the picture layout. If this record is not located in the sequence of records that conform to the [SS](#section_732ff614d939416bb7c76d983471ff11) rule, as specified by the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), then this field MUST be 0x0001. If this record is located in the sequence of records that conform to the SS rule, then this field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | Stretched. The picture is scaled to fit within the dimensions of the filled areas of the chart element. |
| 0x0002 | Stacked. The pictures in the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) are stacked on top of each other in the direction of the value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). |
| 0x0003 | Stacked and scaled. The pictures in the data points are stacked next to or on top of each other, and each picture is scaled to fit in the number of units on the value axis as specified by **numScale**. |

**unused (2 bytes):** Undefined and MUST be ignored.

**reserved1 (9 bits):**  MUST be zero, and MUST be ignored.

**A - fTopBottom (1 bit):**  A bit that specifies whether the picture covers the top and bottom fill areas of the data points. The top and bottom fill areas of the data points are parallel to the [**floor**](#gt_dc38c098-e0d3-4701-9656-5f2cf4d80f29) in a 3-D [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). If a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record does not exist in the chart sheet substream, or if this record is not in an SS rule or if this record is in an SS rule that contains a [Chart3DBarShape](#Section_890f01ed66bc47238f32328364b89137) record with the **riser** field equal to 0x01, this field MUST be 1.

**B - fBackFront (1 bit):**  A bit that specifies whether the picture covers the front and back fill areas of the data points on a bar or column [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). If a Chart3d record does not exist in the chart sheet substream, or if this record is not in an SS rule or if this record is in an SS rule that contains a Chart3DBarShape record with the **riser** field equal to 0x01, this field MUST be 1.

**C - fSide (1 bit):**  A bit that specifies whether the picture covers the side fill areas of the data points on a bar or column chart group. If a Chart3d record does not exist in the chart sheet substream, or if this record is not in an SS rule or if this record is in an SS rule that contains a Chart3DBarShape record with the **riser** field equal to 0x01, this field MUST be 1.

**D - reserved2 (4 bits):**  MUST be zero, and MUST be ignored.

**numScale (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the number of units on the value axis in which to fit the entire picture. The picture is scaled to fit within this number of units. If the value of **ptyp** is not 0x0003, this field is undefined and MUST be ignored.

### 2.4.194 Pie

The **Pie** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a pie chart group or a doughnut chart group, and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| anStart | | | | | | | | | | | | | | | | pcDonut | | | | | | | | | | | | | | | |
| A | B | reserved | | | | | | | | | | | | | |

**anStart (2 bytes):**  An unsigned integer that specifies the starting angle of the first [data point](#Section_9c986ad250d44fa1a157063ac5c971a0), clockwise from the top of the circle. MUST be less than or equal to 360.

**pcDonut (2 bytes):**  An unsigned integer that specifies the size of the center hole in a doughnut chart group as a percentage of the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) size. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Pie chart group. |
| 10 to 90 | Doughnut chart group. |

**A - fHasShadow (1 bit):**  A bit that specifies whether one data point or more data points in the chart group have shadows.

**B - fShowLdrLines (1 bit):**  A bit that specifies whether the [**leader lines**](#gt_8b7c448e-82e3-4d22-a8ba-52e0a10b14fa) to the [data labels](#Section_cac7f43a3af142f58ff2814c2870427f) are shown.

**reserved (14 bits):**  MUST be zero, and MUST be ignored.

### 2.4.195 PieFormat

The **PieFormat** record specifies the distance of a [data point](#Section_9c986ad250d44fa1a157063ac5c971a0) or data points in a [series](#Section_527ce4dfc9f84e50a314d4b07519593c) from the center of one of the following:

 The [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) for a doughnut or pie [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5).

 The [**primary pie**](#gt_e2300016-b59d-4384-9b70-c000523747e0) in a pie of pie or bar of pie chart group.

 The [**secondary bar/pie**](#gt_e452a278-4e13-44c6-9f1b-db3c93841bc6) of a pie of pie chart group.

The data point or data points in a series are specified by the sequence of records that conforms to the [SS](#section_732ff614d939416bb7c76d983471ff11) rule in the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) that contains this record.

MUST NOT exist on chart group types other than pie, doughnut, bar of pie, or pie of pie. MUST NOT exist if the chart group type is doughnut and the series is not the outermost series. MUST NOT exist on the data points on the secondary bar/pie of a bar of pie chart group.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| pcExplode | | | | | | | | | | | | | | | |

**pcExplode (2 bytes):**  A signed integer that specifies the distance of a data point or data points in a series from the center of one of the following:

 The plot area for a doughnut or pie chart group.

 The primary pie in a pie of pie or bar of pie chart group.

 The secondary bar/pie of a pie of pie chart group.

The value of this field specifies the distance as a percentage. If this value is 0, then the data point or data points in a series is as close to the center as possible for the particular chart group type. If this value is 100, then the data point is at the edge of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)). If this value is greater than 100, such that the data point is beyond the edge of the chart area, then all the data points in the chart group are scaled down to fit inside the chart area such that the data point with the highest **pcExplode** value is at the edge of the chart area .

MUST be greater than or equal to 0.

### 2.4.196 PivotChartBits

The **PivotChartBits** record specifies the flags applicable to a [Pivot Chart](#Section_bed5fbd356f54997bb54b49f04e734b7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rt | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| A | unused2 | | | | | | | | | | | | | | | reserved1 (optional) | | | | | | | | | | | | | | | |
| reserved2 (optional) | | | | | | | | | | | | | | | | reserved3 (optional) | | | | | | | | | | | | | | | |

**rt (2 bytes):**  An unsigned integer that specifies the [FRT](#Section_b660b67822684414839ed1ae9a4e4e85) record type. MUST be 0x0859.

**unused1 (2 bytes):**  Undefined, and MUST be ignored.

**A - fGXHide (1 bit):**  A bit that specifies whether to hide the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) captions in the Pivot Chart.

**unused2 (15 bits):**  Undefined, and MUST be ignored.

**reserved1 (2 bytes):**  This field SHOULD[<101>](#Appendix_A_101" \o "Product behavior note 101) exist. If this field exists, this value MUST be 0x0000, and MUST be ignored.

**reserved2 (2 bytes):**  This field SHOULD[<102>](#Appendix_A_102" \o "Product behavior note 102) exist. If this field exists, this value MUST be 0x0000, and MUST be ignored.

**reserved3 (2 bytes):**  This field SHOULD[<103>](#Appendix_A_103" \o "Product behavior note 103) exist. If this field exists, this value MUST be 0x0000, and MUST be ignored.

### 2.4.197 PlotArea

The **PlotArea** record is empty, specifying that the [Frame](#Section_0cb3e202342740b4b93b277c0bd977ff) record that immediately follows this record specifies properties of the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c).

### 2.4.198 PlotGrowth

The **PlotGrowth** record specifies the scale factors to use when calculating the [**font scaling**](#gt_47254269-4165-4a8c-92a0-c920f732d0bd) information for a [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) in the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). If no [Fbi](#Section_f3d70b00be314223b3ec717dfab54ec1) record exists in the [chart sheet](#Section_2c90d75bc92645aa8ff29d4483f51831) where **scab** is 0x0001, this record is unused and MUST be ignored. Otherwise, the values from each Fbi record where **scab** is 0x0001 are used in conjunction with values in this record to render the scaled fonts in the plot area.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dxPlotGrowth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dyPlotGrowth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dxPlotGrowth (4 bytes):**  A **FixedPoint** as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.2.1.6 that specifies the horizontal growth (in [**points**](#gt_d072e4da-7898-4227-8f25-9fe77db43571)) of the plot area for font scaling.

**dyPlotGrowth (4 bytes):**  A **FixedPoint** as specified in [MS-OSHARED] section 2.2.1.6 that specifies the vertical growth (in points) of the plot area for font scaling.

### 2.4.199 Pls

The **Pls** record specifies printer settings and the printer driver information.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | | rgb (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**rgb (variable):**  A **DEVMODE** structure, as defined in [[DEVMODE]](https://go.microsoft.com/fwlink/?LinkId=89844), which specifies the printer settings. The size of this field is equal to the size of the current record and all of the following [Continue](#Section_999fae21d3d942e88290639782460c67) records, excluding the record's heading and **reserved** field.

### 2.4.200 PLV

The **PLV** record specifies the settings of a [**Page Layout view**](#gt_c5ea3e6c-db72-4a85-b273-596e95a3841e) for a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wScalePLV | | | | | | | | | | | | | | | | A | B | C | unused | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x088B.

**wScalePLV (2 bytes):**  An unsigned integer that specifies zoom scale as a percentage for the Page Layout view of the current sheet. For example, if the value is 107, then the zoom scale is 107%. The value 0 means that the zoom scale is not set. If the value is nonzero, it MUST be greater than or equal to 10 and less than or equal to 400.

**A - fPageLayoutView (1 bit):**  A bit that specifies whether the sheet is in the Page Layout view. If the **fSLV** in [**Window2**](#Section_80576ec8e7f04c9990a7d850587bc97b) record is 1 for this sheet, it MUST be 0.

**B - fRulerVisible (1 bit):**  A bit that specifies whether the application displays the [**ruler**](#gt_03895998-6780-4615-8795-0fda97bd6379).

**C - fWhitespaceHidden (1 bit):**  A bit that specifies whether the margins between pages are [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) in the Page Layout view.

**unused (13 bits):**  Undefined, and MUST be ignored.

### 2.4.201 Pos

The **Pos** record specifies the size and position for a [legend](#Section_1832229b7d1945f488d455e9c07466f0), an [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a), or the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c), as specified by the primary [axis group](#Section_578b739742624944b5a67ee6d4d3bb55). This record MUST be ignored for the plot area when the **fManPlotArea** field of [ShtProps](#Section_8de5048d5e784a8da3288a8293e1fe40) in the associated [chart sheet](#section_732ff614d939416bb7c76d983471ff11) substream is set to 1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| mdTopLt | | | | | | | | | | | | | | | | mdBotRt | | | | | | | | | | | | | | | |
| x1 | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| y1 | | | | | | | | | | | | | | | | unused2 | | | | | | | | | | | | | | | |
| x2 | | | | | | | | | | | | | | | | unused3 | | | | | | | | | | | | | | | |
| y2 | | | | | | | | | | | | | | | | unused4 | | | | | | | | | | | | | | | |

**mdTopLt (2 bytes):** A [PositionMode](#Section_1004130236be430988520e56cc2dac64) structure that specifies the positioning mode for the upper-left corner of a legend, an attached label, or the plot area. The valid combinations of **mdTopLt** and **mdBotRt** and the meaning of **x1**, **y1**, **x2**, **y2** are specified in the **Valid Combinations of mdTopLt and mdBotRt by Type** table.

**mdBotRt (2 bytes):** A PositionMode structure that specifies the positioning mode for the lower-right corner of a legend, an attached label, or the plot area. The valid combinations of **mdTopLt** and **mdBotRt** and the meaning of **x1**, **y1**, **x2**, **y2** are specified in the following table.

| Type | mdTopLt  Position Mode | mdBotRt Position Mode | Meaning |
| --- | --- | --- | --- |
| plot area (axis group) | **MDPARENT** | **MDPARENT** | The values of **x1** and **y1** specify the horizontal and vertical offsets of the primary axis group's upper-left corner, relative to the upper-left corner of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)), in [SPRC](#Section_d5fc728e68de4972905a975bcef8c82d). The values of **x2** and **y2** specify the width and height of the primary axis group, in SPRC. |
| legend | **MDCHART** | **MDABS** | The values **x1** and **y1** specify the horizontal and vertical offsets of the legend's upper-left corner, relative to the upper-left corner of the chart area (section 2.2.3.17) in SPRC. The values of **x2** and **y2** specify the width and height of the legend, in [**points**](#gt_d072e4da-7898-4227-8f25-9fe77db43571). |
| legend | **MDCHART** | **MDPARENT** | The values of **x1** and **y1** specify the horizontal and vertical offsets of the legend's upper-left corner, relative to the upper-left corner of the chart area (section 2.2.3.17) in SPRC. The values of **x2** and **y2** MUST be ignored. The size of the legend is determined by the application. |
| legend | **MDKTH** | **MDPARENT** | The values of **x1**, **y1**, **x2** and **y2** MUST be ignored. The legend is located inside a [data table](#Section_69938f61d2e94da3af87e154edcb0d98). |
| attached label | **MDPARENT** | **MDPARENT** | The meaning of **x1** and **y1** is specified in the Meaning of **x1** and **y1** as specified by the Type of **Attached Label** table. **x2** and **y2** MUST be ignored. The size of the attached label is determined by the application. |

The following table shows the meaning of x1 and y1 as specified by the type of attached label.

| Type of Attached Label | Meaning |
| --- | --- |
| Chart title | The value of **x1** and **y1** specify the horizontal and vertical offset of the title, relative to its default position, in SPRC. |
| Axis title | The value of **x1** and **y1** specify the offset of the title along the direction of a specific [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). The value of **x1** specifies an offset along the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) axis, date axis, or horizontal value axis. The value of **y1** specifies an offset along the value axis. Both offsets are relative to the title's default position, in 1/1000th of the axis length. |
| Data label | If the chart is not a pie [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) or a radar chart group, **x1** and **y1** specify the offset of the label along the direction of the specific axis. The **x1** value is an offset along the category (2) axis, date axis, or horizontal value axis. The **y1** value is an offset along the value axis, opposite to the direction of the value axis. Both offsets are relative to the label's default position, in 1/1000th of the axis length.  For a pie chart group, the value of **x1** specifies the clockwise angle, in degrees, and the value of **y1** specifies the radius offset of the label relative to its default position, in 1/1000th of the pie radius length. A label moved toward the pie center has a negative radius offset.  For a radar chart group, the values of **x1** and **y1** specify the horizontal and vertical offset of the label relative to its default position, in 1/1000th of the axis length. |

**x1 (2 bytes):** A signed integer that specifies a position. The meaning is specified in the earlier table showing the valid combinations **mdTopLt** and **mdBotRt** by type.

**unused1 (2 bytes):** Undefined and MUST be ignored.

**y1 (2 bytes):** A signed integer that specifies a position. The meaning is specified in the earlier table showing the valid combinations **mdTopLt** and **mdBotRt** by type.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**x2 (2 bytes):** A signed integer that specifies a width. The meaning is specified in the earlier table showing the valid combinations **mdTopLt** and **mdBotRt** by type.

**unused3 (2 bytes):** Undefined and MUST be ignored.

**y2 (2 bytes):** A signed integer that specifies a height. The meaning is specified in the earlier table showing the valid combinations **mdTopLt** and **mdBotRt** by type.

**unused4 (2 bytes):** Undefined and MUST be ignored.

### 2.4.202 PrintGrid

The **PrintGrid** record specifies whether the [**gridlines**](#gt_82f8a326-64b0-4506-a18e-930f7c2c95b9) are printed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | unused | | | | | | | | | | | | | | |

**A - fPrintGrid (1 bit):** A bit that specifies whether the gridlines are printed.

**unused (15 bits):** Undefined, and MUST be ignored.

### 2.4.203 PrintRowCol

The **PrintRowCol** record specifies whether the row and column headers are printed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| printRwCol | | | | | | | | | | | | | | | |

**printRwCol (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the row and column headers are printed. MUST be a value from the following table:

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0x0000 | Row and column headers are not printed. |
| 0x0001 | Row and column headers are not printed. |

### 2.4.204 PrintSize

The **PrintSize** record specifies the printed size of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). This record affects the charts printed only on their own page.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| printSize | | | | | | | | | | | | | | | |

**printSize (2 bytes):**  An unsigned integer that specifies the printed size of the chart. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The record is part of a [UserSViewBegin](#Section_c75bbfe0f69546109d1eb7d93fc25fe9) block and the [**print settings**](#gt_6ef7745e-6602-4ff5-a8b0-9b9fd9f95b4a) are unchanged from the defaults specified in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). |
| 0x0001 | The chart is resized to fill the entire page regardless of the original chart proportions, within page margins. |
| 0x0002 | The chart is resized proportionally to fill the entire page, within page margins. |
| 0x0003 | The printed size of the chart is defined in the [Chart](#Section_8f56b001f57445e0932f84cf30408323) record. |

### 2.4.205 Prot4Rev

The **Prot4Rev** record specifies whether removal of the [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc)'s [revision logs](#Section_2cbd26e86f7e4195ada414c8b7e595b8) is disallowed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fRevLock | | | | | | | | | | | | | | | |

**fRevLock (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether removal of the shared workbook's revision logs is disallowed. The value MUST be one of the values specified in the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Removal of the shared workbook's revision logs is allowed. |
| 0x0001 | Removal of the shared workbook's revision logs is disallowed. |

### 2.4.206 Prot4RevPass

The **Prot4RevPass** record specifies the password verifier that is required to change the value of the **fRevLock** field of the [Prot4Rev](#Section_0e300242057545f3b3e0df888710697a) record that immediately precedes this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| protPwdRev | | | | | | | | | | | | | | | |

**protPwdRev (2 bytes):**  An unsigned integer that specifies the password verifier that is required to change the value of the **fRevLock** field of the Prot4Rev record that immediately precedes this record[<104>](#Appendix_A_104" \o "Product behavior note 104). The algorithm to generate the password verifier is documented in the [password verifier algorithm](#Section_e8a5fbec6cdc40d89fef9ad80e4172f4). If the value is 0, there is no password. MUST be 0 if the **fRevLock** field of Prot4Rev is 0x0000.

### 2.4.207 Protect

The **Protect** record specifies the [**protection**](#gt_dbeb9653-2ab1-4ec4-b64e-e77a8951c499) state for the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) or [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). If this record exists in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1), then the protection state specified in this record applies to the workbook. If this record exists in a [worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56), [chart sheet substream](#Section_732ff614d939416bb7c76d983471ff11), [macro sheet substream](#Section_0dddd943f77a4fc2bf92868acb4587f7), or [dialog sheet substream](#Section_da37feb48b9a462d87772a5fddd4866e), then the protection state specified in this record applies to only that sheet. This record MUST exist for the workbook. For a sheet, the sheet is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829) if and only if this record exists.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fLock | | | | | | | | | | | | | | | |

**fLock (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the sheet or workbook is protected. For a sheet, **fLock** MUST be 0x0001, and it means the sheet is protected. For the workbook, it MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The workbook is not protected. |
| 0x0001 | The workbook is protected. |

### 2.4.208 Qsi

The **Qsi** record specifies properties for a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289), and specifies the beginning of a collection of records as defined by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies additional information for the query table.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | G | H | I | J | K | L | | M | N | | itblAutoFmt | | | | | | | | | | | | | | | |
| O | P | Q | R | S | T | unused3 | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rgchName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused4 | | | | | | | | | | | | | | | |

**A - fTitles (1 bit):**  A bit that specifies whether the first row of the query table contains column titles.

**B - fRowNums (1 bit):**  A bit that specifies whether the first column of the query table displays row numbers.

**C - fDisableRefresh (1 bit):**  A bit that specifies whether the query table can be refreshed.

| Value | Meaning |
| --- | --- |
| 0 | The query table can be refreshed. |
| 1 | The query table cannot be refreshed. |

**D - fAsync (1 bit):**  A bit that specifies whether the query table refreshes data asynchronously. MUST be set to 1 if **fNewAsync** field is set to1.

**E - fNewAsync (1 bit):**  A bit that specifies whether data has been refreshed for this query table. MUST be set to 0 if **fAsync** field is set to 0.

| Value | Meaning |
| --- | --- |
| 0 | The first background data [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) was finished at the time the file was saved. |
| 1 | The first background data refresh was not finished at the time the file was saved. |

**F - fAutoRefresh (1 bit):**  A bit that specifies whether the query table refreshes its data automatically when the document is opened.

**G - fShrink (1 bit):**  A bit that specifies the behavior when dealing with a variable number of rows of data in the query table between refresh operations. If **fOverwrite** is 1, this value MUST be 0. MUST be one of the following.

| Value | Meaning |
| --- | --- |
| 0 | Unused [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) are to be cleared. |
| 1 | Unused cells are to be deleted |

**H - fFill (1 bit):**  A bit that specifies whether formulas in columns adjacent to the query table are filled down whenever the query table is refreshed.

**I - fAutoFormat (1 bit):**  A bit that is unused and SHOULD be set to zero[<105>](#Appendix_A_105" \o "Product behavior note 105).

**J - fSaveData (1 bit):**  A bit that specifies whether the query table preserves all of its data in the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) when the document is saved. MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x0 | Data in the query table will not be saved |
| 0x1 | Data in the query table will be saved |

**K - fDisableEdit (1 bit):**  A bit that specifies whether the content used with this query table is editable.

| Value | Meaning |
| --- | --- |
| 0 | Content is editable |
| 1 | Content is [**locked**](#gt_7795ac77-550e-4531-9ce5-327bbde6fa81) |

**L - unused1 (2 bits):**  Undefined and MUST be ignored.

**M - fOverwrite (1 bit):**  A bit that specifies the behavior when dealing with a variable number of rows of data in the query table between refresh operations. If **fShrink** is 1, this value MUST be 0. MUST be one of the following.

| Value | Meaning |
| --- | --- |
| 0 | Insert new cells for new data |
| 1 | Overwrite existing cells for new data |

**N - unused2 (2 bits):** Undefined and MUST be ignored.

**itblAutoFmt (2 bytes):**  An [AutoFmt8](#Section_c43451301af54d2892707082e9f98154) that specifies the [**AutoFormat**](#gt_f7e1ea19-1129-4519-a857-008db95c462f) to be applied to the query table. MUST be less than or equal to 0x0014.

**O - fibitAtrNum (1 bit):**  A bit that specifies whether numeric cell data is formatted according to the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) specified in **itblAutoFmt** field.

**P - fibitAtrFnt (1 bit):**  A bit that specifies whether cell text is formatted according to the style specified in **itblAutoFmt** field.

**Q - fibitAtrAlc (1 bit):**  A bit that specifies whether cell text alignment is set according to the style specified in **itblAutoFmt** field.

**R - fibitAtrBdr (1 bit):**  A bit that specifies whether [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) is set according to the style specified in **itblAutoFmt** field.

**S - fibitAtrPat (1 bit):**  A bit that specifies whether the pattern is formatted according to the style specified in **itblAutoFmt** field.

**T - fibitAtrProt (1 bit):**  A bit that specifies whether the cell is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829) according to the style specified in **itblAutoFmt** field.

**unused3 (10 bits):**  Undefined and MUST be ignored.

**reserved (4 bytes):** MUST be zero, and MUST be ignored.

**rgchName (variable):**  A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) string that specifies the name of the query table. The number of characters in this array MUST be less than 0x00FF. Within this [workbook](#Section_f682f4b08c6b444e83f852d156f1e8ba), there MUST be a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) as specified by an [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record with its **fHidden** field equal to 1 and its **Name** field matching this field’s value and the **rgce** field only containing a [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) referencing the range of cells for the query table fields. Spaces within **rgchName** are converted to underscores for the purposes of this comparison.

**unused4 (2 bytes):** Undefined and MUST be ignored.

### 2.4.209 Qsif

The **Qsif** record specifies the properties for a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289) field. One Qsif record is stored for each query table field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | iSortKey | | | | | | | | D | E | F | G | | H | reserved3 | | | | | | | | | | | | | | |
| idField | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idList (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0807.

**A - fUserIns (1 bit):**  A bit that specifies whether this column was inserted into the query table.

| Value | Meaning |
| --- | --- |
| 0 | The column is from the [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) source. |
| 1 | The column was inserted into the query table and is not from the external data source. |

**B - fFillDown (1 bit):**  A bit that specifies whether the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in this query table field is filled down on data [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060).

**C - fSortDes (1 bit):**  A bit that specifies whether this query table field is sorted in [**descending order**](#gt_f6de77a5-8743-4d03-813a-fa5e4d7c9fe8) if it is included as part of a [**sort range**](#gt_9d8dbd94-ffa2-47fc-a60b-3ffdad40d90e).

**iSortKey (8 bits):**  An unsigned integer that specifies the position of this query table field in the sort range. MUST be a value from the following table:

| Value | Axis Description |
| --- | --- |
| 0 | This query table field does not contain [**sort**](#gt_95f9d655-2668-4f39-889e-9d4040d05880) criteria. |
| 1 | This query table field contains sort criteria for the first sort key as specified in the [Sort](#Section_6f9f7e0308404af2b5afd0a8ae37e7f9) record. |
| 2 | This query table field contains sort criteria for the second sort key as specified in the Sort record. |
| 3 | This query table field contains sort criteria for the third sort key as specified in the Sort record. |

**D - fRowNums (1 bit):**  A bit that specifies whether this query table field contains the row numbers for the data from the external data source.

**E - reserved1 (1 bit):**  MUST be zero, and MUST be ignored.

**F - fSorted (1 bit):**  A bit that specifies whether this query table field is part of a sort range.

**G - reserved2 (2 bits):**  MUST be zero, and MUST be ignored.

**H - fClipped (1 bit):**  A bit that specifies whether this query table field is currently outside the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) bounds as specified in the [cell table](#Section_d690007dd25c4822a650b24c13288bb7). If the **fUserIns** field is set to 1, this field MUST be set to 0.

**reserved3 (15 bits):** MUST be zero, and MUST be ignored.

**idField (4 bytes):**  An unsigned integer that specifies a unique identifier of this query table field in the query table. MUST be greater than or equal to 0x0001 and less than or equal to 0xFFFF.

**idList (4 bytes):** An optional unsigned integer that specifies the value corresponding to the **idList** field of the [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure that is linked with this query table. This field exists only if the **verLastXLSaved** field of the [BOF](#Section_4d6a3d1ed7c5405fbbaed01e9cb79366) records is greater than or equal to 0x4.

**rgbTitle (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) string that specifies the name of the query table field. The length of the query table field MUST less than or equal to 0x00FF.

### 2.4.210 Qsir

The **Qsir** record specifies the properties related to the formatting of a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289), and specifies the beginning of a collection of [Qsif](#Section_4eac5c646b994ccd9665be0dde5ff648) records as defined by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of Qsif records specifies properties for a query table field.

One Qsir record is stored for each query table

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbQsirSaved | | | | | | | | | | | | | | | | cbQsifSaved | | | | | | | | | | | | | | | |
| A | B | C | reserved1 | | | | | | | | | | | | | | | | D | E | F | G | H | I | J | wVerBeforeRefreshAlert | | | | | K |
| iSortCustom | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cQsif | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cpstDeleted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idFieldNext | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ccolExtraLeft | | | | | | | | | | | | | | | | ccolExtraRight | | | | | | | | | | | | | | | |
| idList (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtRefHeaderU (12 bytes):**  An [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297) structure. The **frtRefHeaderU.rt** field MUST be 0x0806. The **frtRefHeaderU.grbitFrt.fFrtRef** field MUST be 1 and the **frtRefHeaderU.ref8** field MUST refer to the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with this record.

**cbQsirSaved (2 bytes):**  An unsigned integer that specifies the number of bytes in the Qsir record excluding the **frtRefHeaderU** , **cbQsirSaved**, and **cbQsifSaved** fields.

**cbQsifSaved (2 bytes):**  An unsigned integer that specifies the size in bytes of each Qsif record that follows this Qsir record. This value MUST be less than the difference between the size in bytes for the Qsif record and the size in bytes of the **frtHeaderOld** field in the same record.

**A - fPersist (1 bit):**  A bit that specifies whether sorting, filtering, and layout is preserved for this query table after data [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) operations.

**B - fPersistSort (1 bit):**  A bit that specifies whether the sorting is preserved for this query table after data refresh operations. MUST be equal to **fPersist**.

**C - fPersistAutoFilter (1 bit):**  A bit that specifies whether [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) is preserved for this query table after data refresh operations. MUST be equal to **fPersist**.

**reserved1 (16 bits):**  MUST be zero, and MUST be ignored.

**D - reserved2 (1 bit):**  MUST be zero, and MUST be ignored.

**E - fSorted (1 bit):**  A bit that specifies whether a [**sort**](#gt_95f9d655-2668-4f39-889e-9d4040d05880) was applied for this query table.

**F - fCaseSensSort (1 bit):**  A bit that specifies whether the sort on the query table is case-sensitive.

**G - fHdrRowSort (1 bit):**  A bit that specifies whether the query table sort accounted for a [**header row**](#gt_42711baf-2679-445d-a994-0eadd91b1a38).

**H - fidWrapped (1 bit):**  A bit that specifies whether the **idFieldNext** field value has exceeded its upper-bound value (0xFFFF).

**I - reserved3 (1 bit):**  MUST be zero, and MUST be ignored.

**J - fTitlesOld (1 bit):**  A bit that specifies whether the query table had titles the last time it was refreshed.

**wVerBeforeRefreshAlert (5 bits):**  An unsigned integer that specifies the oldest version of the application that is expected to correctly refresh the data in the query table without any errors. MUST be less than or equal to 0x000C. The application version is a value specified in the following table:

| Value | Application Version |
| --- | --- |
| 0x0008 | Specifies the application version.[<106>](#Appendix_A_106" \o "Product behavior note 106) |
| 0x0009 | Specifies the application version.[<107>](#Appendix_A_107" \o "Product behavior note 107) |
| 0x000A | Specifies the application version.[<108>](#Appendix_A_108" \o "Product behavior note 108) |
| 0x000B | Specifies the application version.[<109>](#Appendix_A_109" \o "Product behavior note 109) |
| 0x000C | Specifies the application version.[<110>](#Appendix_A_110" \o "Product behavior note 110) |
| 0x000E | Specifies the application version.[<111>](#Appendix_A_111" \o "Product behavior note 111) |
| 0x000F | Specifies the application version.[<112>](#Appendix_A_112" \o "Product behavior note 112) |

**K - reserved4 (1 bit):** MUST be zero, and MUST be ignored.

**iSortCustom (4 bytes):**  An unsigned integer that specifies the zero-based index of the [**custom list**](#gt_92d2bb3a-2615-4bf8-b87f-887302d4c40c) that specifies the [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7). The set of custom lists is based on the current user's environment.

For more information about how the set of custom lists is determined, see[[MSFT-XL2000]](https://go.microsoft.com/fwlink/?LinkId=119104).

**cQsif (4 bytes):**  An unsigned integer that specifies the count of Qsif records that immediately follow this Qsir record.

**cpstDeleted (4 bytes):**  An unsigned integer that specifies the number of elements in the **rgbTitle** array.

**idFieldNext (4 bytes):**  An unsigned integer that specifies the next unique number available for assignment to a newly created Qsif record. MUST be greater than or equal to 0x0001 and less than or equal to 0xFFFF.

**ccolExtraLeft (2 bytes):**  A [DCol](#Section_902a939388ee47059f559fe85f174c6e) structure that specifies the number of columns that do not contain [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) that are included at the beginning of the query table by resizing. When a sort is applied to the query table, they are also applied to these columns.

**ccolExtraRight (2 bytes):**  A DCol structure that specifies the number of columns that do not contain external data that are included at the end of the query table by resizing. When a sort is applied to the query table, they are also applied to these columns.

**idList (4 bytes):**  An optional unsigned integer that specifies the value corresponding to the **idList** field of the [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure that is linked with this query table. This field exists only if the **verLastXLSaved** field of the [BOF](#Section_4d6a3d1ed7c5405fbbaed01e9cb79366) record is greater than or equal to 0x3.

**rgbTitle (variable):** An array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structures. This array specifies the names of the database fields in the database [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) that are not included in the query table. The number of elements in this array MUST be equal to the value of the **cpstDeleted** field. The count of characters in each name MUST be greater than or equal to 0x0001 and less than or equal to 0x00FF.

### 2.4.211 QsiSXTag

The **QsiSXTag** record specifies the name and [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) information for a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289) or a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), and specifies the beginning of a collection of records as defined by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies additional information for a query table or a PivotTable view.

If **fSx** is 0 and **stName** is equal to the **rgchName** field of a [Qsi](#Section_262f630c4e9a4cbda2e81bb96a4fc8b3) record in this worksheet substream, then this collection of records applies to the query table that the Qsi record is associated with. If **fSx** is 1 and **stName** is equal to the **stName** field of an [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record in this worksheet substream, then this collection of records applies to the PivotTable view that the SxView record is associated with and its [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4). Otherwise, this collection of records MUST be ignored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fSx | | | | | | | | | | | | | | | | A | B | C | reserved1 | | | | | | | | | | | | |
| dwQsiFuture | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| verSxLastUpdated | | | | | | | | verSxUpdatableMin | | | | | | | | obCchName | | | | | | | | reserved2 | | | | | | | |
| stName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0802.

**fSx (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether this record relates to a PivotTable view or a query table.

| Value | Meaning |
| --- | --- |
| 0x0000 | Specifies that this record relates to a query table. |
| 0x0001 | Specifies that this record relates to a PivotTable view. |

**A - fEnableRefresh (1 bit):** A bit that specifies whether refresh of the PivotTable view or query table is enabled. MUST be 0 if **fSx** is 1 and the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated PivotCache is greater than or equal to 3.

| Value | Value of fSx | Meaning |
| --- | --- | --- |
| 0 | 0 | Whether refresh of the query table is enabled is specified by the fDisableRefresh field of the associated Qsi record. |
| 0 | 1 | Whether refresh of the associated PivotCache is enabled is specified by the fEnableRefresh field in the [SXDB](#Section_f0e04937a8cf4a1c891bea1fa4b85fdc) record of the [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e). |
| 1 | 0 | Specifies that refresh of the query table is enabled. |
| 1 | 1 | Specifies that refresh of the associated PivotCache is enabled. |

**B - fInvalid (1 bit):**  A bit that specifies the invalid state of the [cache records](#Section_fe6e4ca0a9b646a4898124e4b61a770a) of the associated PivotCache; see Cache Records for more information. MUST be 1 if **fSx** is 1 and the PivotCache functionality level of the associated PivotCache is greater than or equal to 3.

**C - fTensorEx (1 bit):** A bit that specifies whether the PivotTable view is an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f). MUST be equal to 0 if fSx is 0.

**reserved1 (13 bits):** MUST be zero, and MUST be ignored.

**dwQsiFuture (4 bytes):** This structure specifies additional option flags for a query table or a PivotTable view depending on the value of the **fSx** field.

| Value of fSx Field | Type of dwQsiFuture |
| --- | --- |
| 0x0000 | [DwQsiFuture](#Section_4251e0524881459fae1368ee4dd2a63e) |
| 0x0001 | [SXView9Save](#Section_7f274de6deb14f998fae6e6b773afb88) |

**verSxLastUpdated (1 byte):** A [DataFunctionalityLevel](#Section_e2661c5bd55247a697ee7c72ad88be4b) value that specifies the [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) that the PivotTable view was last refreshed with. MUST be 0 if this record relates to a query table.

**verSxUpdatableMin (1 byte):**  A DataFunctionalityLevel value that specifies the minimum version of the application that can recalculate the PivotTable view. MUST be 0x00 or 0x03. MUST be 0 if this record is for a query table. MUST be 3 if the PivotCache functionality level of the associated PivotCache is 3.

**obCchName (1 byte):**  MUST be 0x10, and MUST be ignored.

**reserved2 (1 byte):**  MUST be zero, and MUST be ignored.

**stName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the query table or PivotTable view name.

**unused (2 bytes):** Undefined and MUST be ignored.

### 2.4.212 Radar

The **Radar** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a radar chart group and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | reserved | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |

**A - fRdrAxLab (1 bit):**  A bit that specifies whether [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) labels are displayed.

**B - fHasShadow (1 bit):**  A bit that specifies whether one or more [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) in the chart group has shadows.

**reserved (14 bits):** MUST be zero, and MUST be ignored.

**unused (2 bytes):** Undefined and MUST be ignored.

### 2.4.213 RadarArea

The **RadarArea** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a filled radar chart group and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | reserved | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |

**A - fRdrAxLab (1 bit):**  A bit that specifies whether [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) labels are displayed.

**B - fHasShadow (1 bit):**  A bit that specifies whether the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) in the chart group have shadows.

**reserved (14 bits):** MUST be zero, and MUST be ignored.

**unused (2 bytes):** Undefined and MUST be ignored.

### 2.4.214 RealTimeData

The **RealTimeData** record specifies the [**real-time data (RTD)**](#gt_1e71aa16-cd0f-4271-b57d-1fd99d8740b6) information for a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

There is one RealTimeData record for each [**RTD topic**](#gt_1b5b3428-25ab-4aa9-bbee-c1c147ece9de) in the workbook.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ichSamePrefix | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stTopic (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rtdOper (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgRTDE (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0813.

**ichSamePrefix (4 bytes):**  An unsigned integer that specifies the number of leading characters in common with the **stTopic** string in the previous RealTimeData record. MUST be 0 if there is no prefix in common or if this is the first RealTimeData record.

**stTopic (variable):**  An [XLUnicodeStringSegmentedRTD](#Section_1f0b785a05e8495a812dc7c164840985) structure that specifies the string for the RTD topic specified by this record. The string can be stored in a compressed or uncompressed format. When **ichSamePrefix** is greater than 0, this string does not include any leading characters that are in common with the **stTopic** string in the previous RealTimeData record. The first substring specifies the [**ProgID**](#gt_06b2ae3d-4106-49f3-9ca0-e2bcd649e75a) of the [**RTD server**](#gt_d4fc2cb5-c030-4ce4-9078-69627d562fc7). The second substring specifies the [**server name**](#gt_854f54be-1a9d-40d2-82e5-55cf9e48e2c2) that the RTD server is running on or, if this substring is empty, specifies that the RTD server is running locally. The rest of the substrings are combined to form a unique RTD topic.

**rtdOper (variable):**  An [RTDOper](#Section_464cc147279840a2bd5e6f683e4ea94d) structure that specifies the data returned by the RTD server.

**rgRTDE (variable):** An array of [RTDEItem](#Section_a4980fc181ca4fc9ac3785deba21e18a) structures that specifies the set of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with the RTD topic. The length of the array is specified by the following formula:

Array length = (size of this record and associated [ContinueFrt](#Section_3aa793f4afb042be8ac7bb47d76da6f0) records - 16 - size of **stTopic** – size of **rtdOper**) / 6

### 2.4.215 RecalcId

The **RecalcId** record specifies the identifier of the recalculation engine that performed the last recalculation.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rt | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| dwBuild | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rt (2 bytes):**  An unsigned integer that specifies the record identifier. MUST be 449.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**dwBuild (4 bytes):**  An unsigned integer that specifies the identifier of the recalculation engine that performed the last recalculation. If the value is less than the recalculation engine identifier associated with the application, the application will [**recalculate**](#gt_74366612-1dc4-4e8f-8e1a-d833b829f0c3) the results of all formulas on this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) immediately after loading the file.

### 2.4.216 RecipName

The **RecipName** record specifies information about a recipient of a [**routing slip**](#gt_8cedfe36-260c-416e-aeab-7fee4bdef9c3)[<113>](#Appendix_A_113" \o "Product behavior note 113).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cchRecip | | | | | | | | | | | | | | | | ulEIDSize | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | szFriendly (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchSSAddr (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cchRecip (2 bytes):**  An unsigned integer that specifies the count of characters in the **szFriendly** field string. MUST be less than or equal to 256.

**ulEIDSize (4 bytes):**  An unsigned integer that specifies the count of characters in the **rgchSSAddr** field string.

**szFriendly (variable):**  A NULL-terminated array of ANSI characters that specifies the recipient's [**friendly name**](#gt_3dafc161-8c9d-406a-8cbd-c61e7f925eea). The length of the string MUST be specified by the **cchRecip** field.

**rgchSSAddr (variable):**  An array of ANSI characters whose length is specified by the **ulEIDSize** field that specifies the identifier used by the [**messaging system service provider**](#gt_ff288e35-3b60-4a5e-99d6-faa6afa8009a) to identify the recipient.

### 2.4.217 RefreshAll

The **RefreshAll** record specifies whether [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) ranges, [PivotTables](#Section_a5f57198f2af40b2ba07e4b1836d73f3) and [**XML maps**](#gt_01b93f1f-ca62-4216-82d5-b6154e925c9f) will be refreshed on [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) load.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| refreshAll | | | | | | | | | | | | | | | |

**refreshAll (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether to force [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) of external data ranges, PivotTables and XML maps on workbook load. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | Force refresh of external data ranges, PivotTables and XML maps on workbook load. |
| 0x0000 | Do not force refresh of external data ranges, PivotTables and XML maps on workbook load. |

MUST be 0x0000 if workbook is not a [**template**](#gt_159ca22f-c24d-4c6d-b08a-3d4c4c923953).

### 2.4.218 RichTextStream

The **RichTextStream** record specifies additional text properties for the text in the entire [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), text in the current [legend](#Section_1832229b7d1945f488d455e9c07466f0), text in the current [**legend entry**](#gt_6c27eb24-fb59-4bc8-8962-9cdac46a748e), or text in the [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a). These text properties are a superset of the properties stored in the [Text](#Section_362cfe7d650949fb81402ad59c16b4c4), [Font](#Section_291a910ccb694799875ea201845d4fd1), [FontX](#Section_8c065ab610d44029a20dac422620eed2), [BRAI](#Section_c4e36e616c174a75b414f33803c7456b), and [ObjectLink](#Section_50f2d49d1e5f416b866f057e0ab23ba9) records based on the following table, as specified by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). In each case, the associated Font record is specified by the associated FontX record. [<114>](#Appendix_A_114" \o "Product behavior note 114)

| Rule Containing the RichTextStream record | Meaning |
| --- | --- |
| CHARTFORMATS | Specifies additional Rich Text Format properties for the text of the entire chart.  The associated Text and FontX records are contained in the attached label that is contained in the first sequence of records that conforms to the DFTTEXT rule in the chart, and not contained in the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). |
| LD | Specifies additional Rich Text Format properties for text in the current legend.  The associated Text and FontX records are contained in the sequence of records that conforms to the ATTACHEDLABEL rule that is contained in the sequence of records that conforms to the LD rule. |
| SERIESFORMAT | Specifies additional Rich Text Format properties for the current legend entry.  The associated Text and FontX records are contained in the sequence of records that conforms to the ATTACHEDLABEL rule that immediately precedes this record in the sequence of records that conforms to the SERIESFORMAT rule.  The associated BRAI record is contained in the sequence of records that conforms to the AI rule that is contained in the sequence of records that conforms to the SERIESFORMAT rule. |
| ATTACHEDLABEL | Specifies additional Rich Text Format properties for the text in the attached label.  The associated Text and FontX records are contained in the sequence of records that conforms to the ATTACHEDLABEL rule.  The associated BRAI record is contained in the sequence of records that conforms to the ATTACHEDLABEL rule.  The associated ObjectLink record is contained in the sequence of records that conforms to the ATTACHEDLABEL rule. |

These Rich Text Format properties are stored in the **XML stream** (section [2.1.7.22](#Section_e25e01370b9c4429bd260eed92e01c35)) specified in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4, section 5.7.2.217.

An application can choose to ignore this record without loss of functionality, but will lose access to the additional Rich Text Format properties. If an application chooses to implement this record, the application MUST implement the validation [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) specified by the **dwCheckSum** field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwCheckSum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x08A6.

**dwCheckSum (4 bytes):**  An unsigned integer that specifies the checksum of the attributes of the Rich Text Format properties related to this record. The algorithm used to calculate the checksum is specified by [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.4.3.2. The checksum MUST be calculated from every property of the [**property stream**](#gt_dbd8bc67-1371-445e-af6a-dfa5eeef670c), taken as an array of bytes as specified by the [RichTextStreamChecksumData](#Section_3afd3155eb0e40a59b51c8e7dd286c2d) structure.

The information required to build the memory stream can be gathered from the Text, FontX, Font, BRAI, and ObjectLink records associated with this record, as previously specified.

When reading this record, the checksum is calculated as previously specified and compared to the **dwCheckSum** value stored in this record. If the calculated checksum does not match the **dwCheckSum** data, the application MUST assume that the **XML stream** (section 2.1.7.22) is out of date, and the data from the associated records MUST be used instead of the data specified by the **XML stream** (section 2.1.7.22).

**cb (4 bytes):**  An unsigned integer that specifies the size of the **rgb** field. This field MUST contain the exact length in bytes of the **rgb** field.

**rgb (variable):**  An array of ANSI characters that contains the [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) representation of the text formatting properties, as defined in [ECMA-376] Part 4, section 5.7.2.217. The length of this field is specified by the **cb** field.

### 2.4.219 RightMargin

The **RightMargin** record specifies the right margin of the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| num | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**num (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the right margin of the current sheet in inches. The value MUST be greater than or equal to 0 and less than or equal to 49.

### 2.4.220 RK

The **RK** record specifies the numeric data contained in a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rw | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |
| rkrec | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**rw (2 bytes):**  An [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) structure that specifies a row index.

**col (2 bytes):**  A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) structure that specifies a column index.

**rkrec (6 bytes):** An [RkRec](#Section_b2e3021e06734a268440eb367f63b1e8) structure that specifies the numeric data for a single cell.

### 2.4.221 Row

The **Row** record specifies a single row on a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rw | | | | | | | | | | | | | | | | colMic | | | | | | | | | | | | | | | |
| colMac | | | | | | | | | | | | | | | | miyRw | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| A | | | B | C | D | E | F | reserved3 | | | | | | | | ixfe\_val | | | | | | | | | | | | G | H | I | J |

**rw (2 bytes):**  An [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) structure that specifies the row index.

**colMic (2 bytes):**  An unsigned integer that specifies the zero-based index of the first column that contains a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) populated with data or formatting in the current row. MUST be less than or equal to 255.

**colMac (2 bytes):**  An unsigned integer that specifies the one-based index of the last column that contains a cell populated with data or formatting in the current row. MUST be less than or equal to 256. If **colMac** is equal to **colMic**, this record specifies a row with no [CELL](#section_a1b3d8b4744241fd9c57bbd2a6394082) records.

**miyRw (2 bytes):**  An unsigned integer that specifies the row height in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382). If **fDyZero** is 1, the row is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) and the value of **miyRw** specifies the original row height. MUST be greater than or equal to 2 and MUST be less than or equal to 8192.

**reserved1 (2 bytes):** MUST be zero, and MUST be ignored.

**unused1 (2 bytes):** Undefined and MUST be ignored.

**A - iOutLevel (3 bits):**  An unsigned integer that specifies the [**outline level**](#gt_a5cd5eff-ddeb-490b-bc71-f6256774e3c3) of the row.

**B - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**C - fCollapsed (1 bit):**  A bit that specifies whether the rows that are one level of outlining deeper than the current row are included in the [**collapsed outline state**](#gt_37d20510-d4a0-4fa6-9ff1-83d99d8f9262).

**D - fDyZero (1 bit):**  A bit that specifies whether the row is hidden.

**E - fUnsynced (1 bit):**  A bit that specifies whether the row height was manually set.

**F - fGhostDirty (1 bit):**  A bit that specifies whether the row was formatted.

**reserved3 (1 byte):** MUST be 1, and MUST be ignored.

**ixfe\_val (12 bits):**  An unsigned integer that specifies an [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) record for the row formatting. See [IXFCell](#Section_f9bc476745704f609a8e6fd3f32ddf3b) for more information. If **fGhostDirty** is 0, **ixfe\_val** is undefined and MUST be ignored.

**G - fExAsc (1 bit):**  A bit that specifies whether any cell in the row has a thick top [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c), or any cell in the row directly above the current row has a thick bottom border. Thick borders are specified by the following enumeration values from [BorderStyle](#Section_e6134bd9203f49f1bc777ab3692f2364): **THICK** and **DOUBLE**.

**H - fExDes (1 bit):**  A bit that specifies whether any cell in the row has a medium or thick bottom border, or any cell in the row directly below the current row has a medium or thick top border. Thick borders are previously specified. Medium borders are specified by the following enumeration values from BorderStyle: **MEDIUM**, **MEDIUMDASHED**, **MEDIUMDASHDOT**, **MEDIUMDASHDOTDOT**, and **SLANTDASHDOT**.

**I - fPhonetic (1 bit):**  A bit that specifies whether the [**phonetic guide**](#gt_f5ae2680-242d-4731-8f12-da90d5d7f09f) feature is enabled for any cell in this row.

**J - unused2 (1 bit):** Undefined and MUST be ignored.

### 2.4.222 RRAutoFmt

The **RRAutoFmt** record specifies the changes caused by [**AutoFormat**](#gt_f7e1ea19-1129-4519-a857-008db95c462f) actions in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ref8 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | itbl | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | reserved | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revid** MUST be 0 because this is a [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) that cannot be reviewed. The **rrd.revt** MUST be equal to 0x000C. The **rrd.tabid** MUST NOT be 0xFFFF because this revision corresponds to a specific [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**ref8 (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells affected by AutoFormat changes.

**itbl (2 bytes):**  An [AutoFmt8](#Section_c43451301af54d2892707082e9f98154) structure that specifies which AutoFormat was applied.

**A - fApplyNumberFormats (1 bit):**  A bit that specifies whether the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) properties contained in the AutoFormat specified by **itbl** were applied.

**B - fApplyFontFormats (1 bit):**  A bit that specifies whether the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) properties contained in the AutoFormat specified by **itbl** were applied.

**C - fApplyAlignmentFormats (1 bit):**  A bit that specifies whether the text alignment properties contained in the AutoFormat specified by **itbl** were applied.

**D - fApplyBorderFormats (1 bit):**  A bit that specifies whether the [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) properties contained in the AutoFormat specified by **itbl** were applied.

**E - fApplyPatternFormats (1 bit):**  A bit that specifies whether the color pattern properties contained in the AutoFormat specified by **itbl** were applied.

**F - fApplyWidthHeightFormats (1 bit):**  A bit that specifies whether the width or height properties contained in the AutoFormat specified by **itbl** were applied.

**reserved (10 bits):** MUST be zero, and MUST be ignored.

### 2.4.223 RRDChgCell

The **RRDChgCell** record specifies a [change cells revision](#Section_5184d2e269654093971afeb70ff736cb).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | vt | | | vtOld | | | A | B | C | D | E | F | G | H | I | |
| ifmtDisp | | | | | | | | J | K | L | reserved2 | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cbOldVal | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cetxpRst | | | | | | | | | | | | | | | |
| dxfOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxf (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rkOld (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numOld (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| besOld (optional) | | | | | | | | | | | | | | | | xpeOld (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rk (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| num (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| st (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bes (optional) | | | | | | | | | | | | | | | | xpe (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc). Because this [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) corresponds to a specific [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d), **rrd**.**revt** MUST be 0x0008, **rrd**.**fDelAtEdgeOfSort** MUST be 0x0000, **rrd**.**revid** MUST be greater than or equal to 0, and **rrd**.**tabid** MUST NOT be 0xFFFF.

**vt (3 bits):** An unsigned integer that specifies the type of the new [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) contents. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | New cell is blank. |
| 0x1 | New cell contains an [RkNumber](#Section_04fa5340122f49db93ea00cc75501efc) value. |
| 0x2 | New cell contains an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value. |
| 0x3 | New cell contains an [XLUnicodeRichExtendedString](#Section_173d9f51e5d343da8de2be7f22e119b9) value. |
| 0x4 | New cell contains a [Bes](#Section_4a18edf4b88c4b39a857b31757314d0f) value. |
| 0x5 | New cell contains a [CellParsedFormula](#Section_7dd67f0a671d4905b87b4cc07295e442) value. |

**vtOld (3 bits):** An unsigned integer that specifies the type of the old cell contents. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Old cell is blank. |
| 0x1 | Old cell contains an RkNumber value. |
| 0x2 | Old cell contains an Xnum value. |
| 0x3 | Old cell contains an XLUnicodeRichExtendedString value. |
| 0x4 | Old cell contains a Bes value. |
| 0x5 | Old cell contains a CellParsedFormula value. |

**A - f123Prefix (1 bit):** A bit that specifies whether prefix characters are present in the cell. Possible prefix characters include single quotation mark (0x27), double quotation mark (0x22), caret (0x5E), and backslash (0x5C).

**B - unused (1 bit):** Undefined and MUST be ignored.

**C - fOldFmt (1 bit):** A bit that specifies whether there is old formatting information available for this cell. If **fOldFmt** is 0x1 and **fOldFmtNull** is 0x0, **dxfOld** MUST exist.

**D - fOldFmtNull (1 bit):** A bit that specifies whether the old formatting information is empty. This value MUST be ignored if **fOldFmt** is 0. If **fOldFmt** is 0x1 and **fOldFmtNull** is 0x0, **dxfOld** MUST exist. If **fOldFmt** is 0x1 and **fOldFmtNull** is 0x1, old formatting information is available for the cell, but the old formatting information is not written to disk and **dxfOld** MUST NOT exist.

**E - fXfDxf (1 bit):** A bit that specifies that the affected cells will have their format reset to the format defined by the current [cell style](#Section_f9425d3f127545be8389bf80f65b56b7) before applying any format from **dxf**, if present.

**F - fStyXfDxf (1 bit):** A bit that specifies that the format of the cell will be cleared before applying any format from **dxf**, if present.

**G - fDxf (1 bit):** A bit that specifies whether there was a formatting change for this cell. If **fDxf** is 0x1 and **fDxfNull** is 0x0, **dxf** MUST exist.

**H - fDxfNull (1 bit):** A bit that specifies whether the new formatting information is empty. This value MUST be ignored if **fDxf** is 0. If **fDxf** is 0x1 and **fDxfNull** is 0x0, **dxf** MUST exist. If **fDxf** is 0x1 and **fDxfNull** is 0x1, this means that there was a formatting change for this cell, but the **dxf** describing the formatting change MUST NOT exist.

**I - reserved1 (2 bits):** MUST be zero, and MUST be ignored.

**ifmtDisp (8 bits):** An unsigned integer that specifies the identifier of the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) to use to display the new cell contents. MUST be a value from the following table. For more information about how [**format strings**](#gt_07085e26-506a-4b35-81ad-972464e277ff) are interpreted, see [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4: Markup Language Reference, section 3.8.31.

| Value | Description | Positive Value Format | Negative Value Format | Zero Format |
| --- | --- | --- | --- | --- |
| 0x0000 | Automatic | 0 | -0 | 0 |
| 0x0004 | Number, two decimal places, use the 1000 separator (,) | #,##0.00 | -#,##0.00 | 0.00 |
| 0x000B | Currency, two decimal places, use parentheses for negative values | $#,##0.00 | ($#,##0.00) | $0.00 |
| 0x000D | Percentage, zero decimal places | 0% | -0% | 0% |
| 0x000E | Percentage, two decimal places | 0.00% | -0.00% | 0.00% |
| 0x000F | Scientific | 0.00E+00 | -0.00E+00 | 0.00E+00 |
| 0x0010 | Engineering | ##0.0E+0 | -##0.0E+0 | 0.0E+0 |
| 0x0011 | Fraction, up to one digit numerator and denominator | # ?/? | -# ?/? | 0 |
| 0x0012 | Fraction, up to two digit numerator and denominator | # ??/?? | -# ??/?? | 0 |
| 0x0013 | Date (MM-DD-YY) | mm-dd-yy | mm-dd-yy |  |
| 0x0015 | Date (DD-MMM) | d-mmm | d-mmm |  |
| 0x0017 | Time (H:MM AM/PM) | h:mm AM/PM | h:mm AM/PM |  |
| 0x001B | Date/Time, 24 hour format (M/D/YY H:MM) | m/d/yy h:mm | m/d/yy h:mm |  |
| 0x0022 | Accounting (currency with decimal point aligned, and centered minus-sign for 0-value), two decimal places, use currency symbol | \_($\* #,##0.00\_) | \_($\* #,##0.00) | \_($\* "-" ??\_) |

**J - fPhShow (1 bit):** A bit that specifies whether the new cell contains a [**phonetic string**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77).

**K - fPhShowOld (1 bit):** A bit that specifies whether the old cell contains a phonetic string.

**L - fEOLFmlaUpdate (1 bit):** A bit that specifies whether the new cell contents were changed because of an adjustment to the formula.

**reserved2 (5 bits):** MUST be zero, and MUST be ignored.

**loc (4 bytes):** An [RgceLoc](#Section_f2395c3334a44b0785a99bb5f07848d9) structure that specifies the location of the cell change revision.

**cbOldVal (4 bytes):** An unsigned integer that specifies the size of the old cell contents. If **cbOldVal** is greater than 0, the old cell contents immediately follow the **cetxpRst** field, then it is followed by the new cell contents. MUST be a value from the following table based on the value of **vtOld**:

| vtOld | cbOldVal |
| --- | --- |
| 0x0 | MUST be 0x00000000. |
| 0x1 | MUST be 0x00000004. |
| 0x2 | MUST be 0x00000008. |
| 0x3 | MUST be equal to the size of the old XLUnicodeRichExtendedString. The size is calculated assuming all characters are double-byte characters. That is, if XLUnicodeRichExtendedString.**fHighByte** is 1, the calculation is made by using the size of XLUnicodeRichExtendedString. |
| 0x4 | MUST be 0x00000002. |
| 0x5 | MUST be greater than or equal to 0x00000018. |

**cetxpRst (2 bytes):** An unsigned integer that specifies the number of [RRDRstEtxp](#Section_7851645890124f128987457ffb1272f8) records that follow this record.

**dxfOld (variable):** A [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) structure that specifies the [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) for the old cell contents. This field MUST exist if **fOldFmt** is 0x1 and **fOldFmtNull** is 0x0.

**dxf (variable):** A DXFN structure that specifies the differential formatting for the new cell contents. This field MUST exist if **fDxf** is 0x1 and **fDxfNull** is 0x0.

**rkOld (4 bytes):** An RkNumber structure that specifies the old cell contents. This field MUST exist if and only if **cbOldVal** is greater than 0 and **vtOld** is 0x1.

**numOld (8 bytes):** An Xnum value that specifies the old cell contents. This field MUST exist if and only if **cbOldVal** is greater than 0 and **vtOld** is 0x2.

**stOld (variable):** An XLUnicodeRichExtendedString structure that specifies the old cell contents. This field MUST exist if and only if **cbOldVal** is greater than 0 and **vtOld** is 0x3.

**besOld (2 bytes):** A Bes structure that specifies the old cell contents. This field MUST exist if and only if **cbOldVal** is greater than 0 and **vtOld** is 0x4.

**xpeOld (variable):** A CellParsedFormula structure that specifies the old cell contents. This field MUST exist if and only if **cbOldVal** is greater than 0 and **vtOld** is 0x5.

**rk (4 bytes):** An RkNumber value that specifies the new cell contents. This field MUST exist if and only if **vt** is 0x1.

**num (8 bytes):** An Xnum value that specifies the new cell contents. This field MUST exist if and only if **vt** is 0x2.

**st (variable):** An XLUnicodeRichExtendedString structure that specifies the new cell contents. This field MUST exist if and only if **vt** is 0x3.

**bes (2 bytes):** A Bes structure that specifies the new cell contents. This field MUST exist if and only if **vt** is 0x4.

**xpe (variable):** A CellParsedFormula structure that specifies the new cell contents. This field MUST exist if and only if **vt** is 0x5.

### 2.4.224 RRDConflict

The **RRDConflict** record specifies the resolution of a conflict between the revisions of two uses'.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc). The **rrd.revid** MUST be greater than 0. The **rrd.revid** identifies the [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) that won the conflict. The **rrd.revt** MUST be equal to [**revtConflict**](#Section_874efbc3c2ab4f458ea5fb05fa81ee16).

### 2.4.225 RRDDefName

The **RRDDefName** record specifies a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) revision.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | tabidLocal | | | | | | | | | | | | | | | |
| fViewName | | | | | | | | reserved | | | | | | | | grbit | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| grbitOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | builtinIndex | | | | | | | | unused (optional) | | | | | | | |
| ... | | | | | | | | | | | | | | | | stDefName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pe (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stCustomMenu (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDescription (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stHelpTopic (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stStatusText (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| peOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stCustomMenuOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDescriptionOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stHelpTopicOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stStatusTextOld (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc). The **revt** field of the RRD structure MUST be 0x000A or 0x0022. The **fDelAtEdgeOfSort** field of the RRD structure MUST be 0x0000. The **revid** field of the RRD structure MUST be greater than or equal to 0.

**tabidLocal (2 bytes):** A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) structure that specifies the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) containing the defined name. A value of 0xFFFF specifies that the defined name is not a [**local name**](#gt_6f2787cc-ab35-4cc1-bebd-fb120864d320).

**fViewName (1 byte):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the defined name belongs to a [**custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4). MUST be a value from the following table:

| **Value** | **Meaning** |
| --- | --- |
| 0x00 | The defined name does not belong to a custom view. |
| 0x01 | The defined name belongs to a custom view. |

**reserved (1 byte):** MUST be zero, and MUST be ignored.

**grbit (6 bytes):** An [RRDDefNameFlags](#Section_27f6e3076b6149c9a21b2a03b782c91e) structure that specifies data for the new defined name.

**grbitOld (6 bytes):** An RRDDefNameFlags structure that specifies data for the old defined name.

**builtinIndex (1 byte):** An unsigned integer that specifies the identifier of a built-in name. MUST be a value from the following table:

| Identifier | Built-in Name |
| --- | --- |
| 0x00 | Not a built-in name |
| 0x01 | "Consolidate\_Area" |
| 0x02 | "Auto\_Open" |
| 0x03 | "Auto\_Close" |
| 0x04 | "Extract" |
| 0x05 | "Database" |
| 0x09 | "Recorder" |
| 0x0A | "Data\_Form" |
| 0x0B | "Auto\_Activate" |
| 0x0C | "Auto\_Deactivate" |
| 0x0D | "Sheet\_Title" |

**unused (3 bytes):** Optional, undefined, and MUST be ignored. MUST exist if and only if **builtinIndex** is not equal to 0.

**stDefName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the defined name. MUST exist if and only if **builtinIndex** is equal to 0. MUST be less than or equal to 255 characters. MUST begin with a letter or underscore character.

**pe (variable):** A [NameParsedFormula](#Section_9afd1c6cc4864d9cb6443708428d2ffb) structure that specifies the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) of the new defined name. The length of the formula in bytes is specified by **grbit**.**cce**.

**stCustomMenu (variable):** An XLUnicodeString structure that specifies the new custom menu text.

**stDescription (variable):** An XLUnicodeString structure that specifies the new description text.

**stHelpTopic (variable):** An XLUnicodeString structure that specifies the new help text.

**stStatusText (variable):** An XLUnicodeString structure that specifies the new status bar text.

**peOld (variable):** A NameParsedFormula structure that specifies the formula of the old defined name. The length of the formula in bytes is specified by **grbitOld**.**cce**.

**stCustomMenuOld (variable):** An XLUnicodeString structure that specifies the old custom menu text.

**stDescriptionOld (variable):** An XLUnicodeString structure that specifies the old description text.

**stHelpTopicOld (variable):** An XLUnicodeString structure that specifies the old help text.

**stStatusTextOld (variable):** An XLUnicodeString structure that specifies the old status bar text.

### 2.4.226 RRDHead

The **RRDHead** record specifies metadata about a set of revisions that a user has made in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | guid (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | wFileCodePage | | | | | | | | | | | | | | | |
| cchUser | | | | | | | | | | | | | | | | stUser (114 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sddtr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tabidMac | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revt** MUST be equal to 0x0020. The **rrd.cbMemory** MUST be equal to 0xFFFFFFFF and MUST be ignored. The **rrd.revid** MUST be 0 because this is a [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) that cannot be reviewed.

**guid (16 bytes):**  A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that specifies a unique identifier for this set of revisions.

**wFileCodePage (2 bytes):**  An unsigned integer that specifies the [**sheet's**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) [**code page**](#gt_210637d9-9634-4652-a935-ded3cd434f38). The value MUST be one of the code page values specified in [[CODEPG]](https://go.microsoft.com/fwlink/?LinkId=89840) or the special value 1200, which means that the sheet is [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8).

**cchUser (2 bytes):** An unsigned integer that specifies the number of characters in **stUser** that are used to specify the name of the user who made this set of revisions. Characters in **stUser** that are to the right of these used characters are ignored. The value of **cchUser** MUST be less than or equal to 54.

**stUser (114 bytes):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the user who made this set of revisions.

**sddtr (8 bytes):**  A [ShortDTR](#Section_c6ed848642884cd9a9e81792fa0486fb) structure that specifies the date and time when the user saved this set of revisions.

**tabidMac (2 bytes):**  A signed integer that specifies the next available sheet identifier in this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). The value MUST be greater than or equal to -1. Each sheet identifier is specified by the order in which the [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) records appear in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1).

### 2.4.227 RRDInfo

The **RRDInfo** record specifies information about a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wXLVer | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| A | B | C | D | E | reserved2 | | | | | | | | | | | guid (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | guidRoot (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | revid | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | version | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | F | G | reserved3 | | | | | | | | | | | | | |
| wRevHistoryInterval | | | | | | | | | | | | | | | |

**wXLVer (2 bytes):** An unsigned integer that specifies the major [**BIFF**](#gt_f9965de8-cd18-4e26-a9c6-adfee3d67517) version that was last used to save a shared workbook.

**reserved1 (2 bytes):** MUST be zero, and MUST be ignored.

**A - fssShared (1 bit):** A bit that specifies whether this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is a shared workbook. If this value is 1, **fssExclusive** MUST be equal to 0.

**B - fssDiskHasRev (1 bit):** A bit that specifies whether the [**revision history**](#gt_3ff09b0f-14fb-44b7-bfc7-675c39a2da1e) on disk contains revisions. If this value is 1, **fssRevTrack** MUST be equal to 1.

**C - fssRevHist (1 bit):** A bit that specifies whether revisions are automatically deleted. If this value is 1, **fssRevTrack** MUST be equal to 1. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Revisions are not automatically deleted. |
| 1 | Revisions are automatically deleted. |

**D - fssRevTrack (1 bit):** A bit that specifies whether the revisions are being tracked. If this value is 1, **fssShared** MUST be equal to 1.

**E - fssExclusive (1 bit):** A bit that specifies whether this workbook is in exclusive mode. Exclusive mode means the workbook was shared when revisions were made, but it is no longer shared. If this value is 1, **fssShared** MUST be equal to 0.

**reserved2 (11 bits):** MUST be zero, and MUST be ignored.

**guid (16 bytes):** A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that specifies the last set of revisions. MUST be 0, or MUST match the GUID for the most recent header.

**guidRoot (16 bytes):** A GUID as specified by [MS-DTYP] that specifies the last set of revisions that was saved to the file. MUST be 0, or MUST match the GUID for one of the [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) headers.

**revid (4 bytes):**  A signed integer that specifies the current revision number of this shared workbook. This identifier is used to track the order of [revision records](#Section_9e91e8bce4f249b897d4741481349d1b). MUST be greater than or equal to 0.

**version (4 bytes):** An unsigned integer that specifies the current version of this shared workbook.

**F - fNoRevHist (1 bit):** A bit that specifies whether this workbook preserves revision history. If this value is 1, **wRevHistoryInterval** MUST be equal to 0 and **fssShared** MUST be equal to 1. If this value is 0, **wRevHistoryInterval** MUST be greater than or equal to 1.

**G - fProtRev (1 bit):** A bit that specifies whether the revision history is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829) for this shared workbook. If this value is 1, **fssShared** MUST be equal to 1.

**reserved3 (14 bits):** MUST be zero, and MUST be ignored.

**wRevHistoryInterval (2 bytes):** An unsigned integer that specifies the number of days for which the revision history is stored for this workbook. MUST be less than or equal to 0x7FFF. If **fssExclusive** is equal to 1, this field MUST be ignored.

### 2.4.228 RRDInsDel

The **RRDInsDel** record specifies the [insertion / deletion of rows / columns revision](#Section_6241f2cd16874b319cab2ff269a8e892) changes, and specifies the beginning of a collection of records as defined by the [Revision Stream](#Section_d120a1ffd2e6488381a507236f1994b0) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies insertions and deletions in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

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| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ... | | | | | | | | | | | | | | | | A | reserved | | | | | | | | | | | | | | |
| refn | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cUcr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgDucr (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):** An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revid** field MUST be greater than 0. The **rrd.tabid** field MUST NOT be 0xFFFF. The **rrd.revt** field MUST be greater than or equal to 0 and less than or equal to 3.

**A - fEndOfList (1 bit):** A bit that specifies that a row was inserted at the bottom of the filled cells [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). This field has meaning only if the **rrd.revt** field of this record is [REVTINSRW](#Section_874efbc3c2ab4f458ea5fb05fa81ee16). MUST be 1 if data was inserted at the bottom of the filled cells range. MUST be 0 if data was inserted or deleted in any other place.

**reserved (15 bits):** MUST be zero, and MUST be ignored.

**refn (8 bytes):** A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the range of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) affected by the insertion or deletion action.

**cUcr (4 bytes):** An unsigned integer that specifies the number of items in **rgDucr**.

**rgDucr (variable):** An array of [Ducr](#Section_19786641f7a74e14b7beb6a0a805103f) structures that specifies undo data to apply to an [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106) for which the [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) was rejected.

### 2.4.229 RRDInsDelBegin

The **RRDInsDelBegin** record specifies the beginning of a collection of records as defined by the [Revision Stream](#Section_d120a1ffd2e6488381a507236f1994b0) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a set of [Insertion / Deletion of Rows / Columns Revision](#Section_6241f2cd16874b319cab2ff269a8e892) changes.

### 2.4.230 RRDInsDelEnd

The **RRDInsDelEnd** record specifies the end of a collection of records as defined by the [Revision Stream](#Section_d120a1ffd2e6488381a507236f1994b0) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a set of [Insertion / Deletion of Rows / Columns Revision](#Section_6241f2cd16874b319cab2ff269a8e892) changes.

### 2.4.231 RRDMove

The **RRDMove** record represents [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information about the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that have moved.

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| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ... | | | | | | | | | | | | | | | | refSrc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | refDst | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | tabidSrc | | | | | | | | | | | | | | | |
| cUcr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgDucr (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):** An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the revision record information used to track changes in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc). The **rrd.revid** MUST be greater than 0. The **rrd.revt** MUST be equal to 0x0004. The **rrd.tabid** MUST NOT be 0xFFFF because this [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) corresponds to a specific [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**refSrc (8 bytes):** A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the original location of the range of cells that moved.

**refDst (8 bytes):** A Ref8U structure that specifies the new location of the range of cells that moved.

**tabidSrc (2 bytes):** A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) structure that specifies the sheet on which **refSrc** resides.

**cUcr (4 bytes):** An unsigned integer that specifies the number of elements in **rgDucr**.

**rgDucr (variable):** An array of [Ducr](#Section_19786641f7a74e14b7beb6a0a805103f) structures that specifies undo data that will have to be applied to an [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106) if the revision is rejected.

### 2.4.232 RRDMoveBegin

The **RRDMoveBegin** record specifies the beginning of a collection of records as defined by the [Revision Stream](#Section_d120a1ffd2e6488381a507236f1994b0) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies moved [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

### 2.4.233 RRDMoveEnd

The **RRDMoveEnd** record specifies the end of a collection of records as defined by the [Revision Stream](#Section_d120a1ffd2e6488381a507236f1994b0) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies moved [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

### 2.4.234 RRDRenSheet

The **RRDRenSheet** record specifies the old and new name of a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) after renaming the sheet in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cchOldName | | | | | | | | | | | | | | | |
| stOldName (255 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | cchNewName | | | | | | | |
| ... | | | | | | | | stNewName (255 bytes) | | | | | | | | | | | | | | | | | | | | | | | |
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| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revid** MUST be greater than 0. The **rrd.revt** MUST be equal to 0x0009. The **rrd.tabid** MUST NOT be 0xFFFF.

**cchOldName (2 bytes):** An unsigned integer that specifies the number of characters in **stOldName** that are used to specify the name of the old sheet. Characters in **stOldName** that are to the right of these used characters are ignored. If **stOldName.fHighByte** is 0, the value MUST be less than or equal to 227. If **stOldName.fHighByte** is 1, the value MUST be less than or equal to 127.

**stOldName (255 bytes):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the old sheet.

**cchNewName (2 bytes):** An unsigned integer that specifies the number of characters in **stNewName** that are used to specify the name of the new sheet. Characters in **stNewName** that are to the right of these used characters are ignored. If **stNewName.fHighByte** is 0, the value MUST be less than or equal to 227. If **stNewName.fHighByte** is 1, the value MUST be less than or equal to 127.

**stNewName (255 bytes):** An XLUnicodeStringNoCch structure that specifies the name of the new sheet.

### 2.4.235 RRDRstEtxp

The **RRDRstEtxp** record specifies [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) information for a [**formatting run**](#gt_10031ac8-2a26-4200-beee-cd8d9420ca96). Instances of this record MUST be preceded by an [RRDChgCell](#Section_f7c1ffa25ac54cccb1e941d556ff4b75) record that specifies the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) containing the formatting run.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iFnt | | | | | | | | | | | | | | | | cchFontName | | | | | | | | fFullStr | | | | | | | |
| stFontName (62 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stxp (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | icvFore | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**iFnt (2 bytes):** An unsigned integer that specifies the zero-based index of this record in the set of RRDRstEtxp records that have a common preceding RRDChgCell record. MUST be greater than or equal to zero and less than the **cetxpRst** field of the preceding RRDChgCell record.

**cchFontName (1 byte):** An unsigned integer that specifies the count of double-byte [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters in **stFontName**. MUST be less than or equal to 0x1F.

**fFullStr (1 byte):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies that **stFontName** contains double-byte Unicode characters. MUST be 0x01 if **cchFontName** is greater than 0. If **cchFontName** is 0, the value of **fFullStr** is undefined and MUST be ignored.

**stFontName (62 bytes):**  A fixed length array of Unicode characters that specifies the name of the font. Characters whose position in this array is greater than **cchFontName** are undefined and MUST be ignored.

**stxp (16 bytes):** An [Stxp](#Section_35f2f61e21db4916860db32d27e45154) structure that specifies the font attributes.

**icvFore (2 bytes):** An [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) structure that specifies the [**color palette**](#gt_05879d13-b9e0-4333-b96d-63cc3433997e) value for the font.

**reserved1 (2 bytes):** MUST be zero, and MUST be ignored.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

### 2.4.236 RRDTQSIF

The **RRDTQSIF** record specifies the [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289) field that has been removed in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rt | | | | | | | | | | | | | | | | grbitfrt | | | | | | | | | | | | | | | |
| ref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | idField | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**rt (2 bytes):** An unsigned integer that specifies the RRDTQSIF record type. The value MUST be 0x0808.

**grbitfrt (2 bytes):** MUST be 0x0001, and MUST be ignored.

**ref (variable):** An [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) or [Ref8U2007](#Section_a0c5fe20105342089359fec7a43fcf32) that specifies the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of the query table from which the field was removed. If the value of the **wXLVer** field of the [RRDInfo](#Section_7605dea102c9430c8038ae56e9497315) record in this [revision log](#Section_2cbd26e86f7e4195ada414c8b7e595b8) as specified by the [Revision Stream (Revision Log)](#section_d120a1ffd2e6488381a507236f1994b0) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) is equal to 12, Ref8U2007 is used. Otherwise, Ref8U is used.

**rrd (14 bytes):** An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) that specifies the properties of this [**revision record**](#gt_8a81af64-18af-4ccf-8bf6-1a26d77f257f). The value of **rrd.revid** MUST be 0x0. The value of **rrd.revt** MUST be 0x2E. The value of **rrd.fDelAtEdgeofSort** MUST be 0x0.

**idField (4 bytes):** An unsigned integer that specifies the identity of this field in the query table. The value MUST be unique among **idField** fields of all RRDTQSIF records in the query table and all [Qsif](#Section_4eac5c646b994ccd9665be0dde5ff648) records in the query table. MUST be greater than 0x00000000 and less than 0x0000FFFF.

### 2.4.237 RRDUserView

The **RRDUserView** record specifies the changes caused by a [**custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4) [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | guid (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revid** MUST be 0 because this is a revision that cannot be reviewed The **rrd.revt** MUST be equal to 0x002B or 0x002C. The **rrd.tabid** MUST be 0xFFFF because this revision does not correspond to a specific [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**guid (16 bytes):**  A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that specifies the custom view in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) whose revision caused the changes specified in this record. MUST be globally unique. The value of this field MUST be equal to one of the **guid** fields of the [UserSViewBegin](#Section_c75bbfe0f69546109d1eb7d93fc25fe9) collection in the sheet.

### 2.4.238 RRFormat

The **RRFormat** record specifies a formatting change that was applied to a [**shared workbook**](#gt_241c4cae-c49a-438a-87dc-c8fb2c871921). If the change information is too large for a single RRFormat record, it is split into multiple RRFormat records. This record cannot be continued with [Continue](#Section_999fae21d3d942e88290639782460c67) records.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | reserved | | | | | | | | | | | | |
| sqref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfn (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc). The RRD structure MUST conform to the restrictions specified in the following table:

| Value | Restriction |
| --- | --- |
| **rrd.revt** | MUST be 0x000B. |
| **rrd.revid** | MUST be 0x0. |
| **rrd.tabid** | MUST NOT be 0xFFFF. |

**A - fXfDxf (1 bit):**  A bit that specifies that the affected [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) need to have their format reset to the format specified by the current [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) before applying any format from **dxfn**, if present.

**B - fXfDxfNull (1 bit):**  A bit that specifies whether **dxfn** exists.

**C - fStyXfDxf (1 bit):** A bit that specifies that the format of the cells need to be cleared before applying any format from **dxfn**, if present.

**reserved (13 bits):** MUST be zero, and MUST be ignored.

**sqref (variable):**  An [SqRefU](#Section_867dcebec0624c4699b11b2a479e6f32) structure that specifies the location or locations on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) affected by the formatting changes specified by this record.

**dxfn (variable):** A [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) structure that specifies the new cell formatting. MUST exist if and only if fXfDxfNull is 0.

### 2.4.239 RRInsertSh

The **RRInsertSh** record specifies the changes caused by inserting a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | itabPos | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | cch | | | | | | | | | | | | | | | |
| stName (256 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revid** MUST be greater than 0 because this is a reviewable [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e). The **rrd.revt** MUST be equal to 0x0005. The **rrd.tabid** MUST NOT be 0xFFFF because this revision corresponds to a specific sheet.

**itabPos (2 bytes):**  A [TabIndex](#Section_4bf91dd999de44058bfb95aa32a1a29f) structure that specifies the position of the new sheet in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

**reserved (2 bytes):**  MUST be zero, and MUST be ignored.

**cch (2 bytes):** An unsigned integer that specifies the number of characters in **stName** that are used to specify the name of the new sheet. Characters in **stName** that are to the right of these used characters are ignored. If **stName.fHighByte** is 0, the value MUST be less than or equal to 227. If **stName.fHighByte** is 1, the value MUST be less than or equal to 127.

**stName (256 bytes):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the new sheet.

### 2.4.240 RRSort

The **RRSort** record specifies the changes caused by [**sort**](#gt_95f9d655-2668-4f39-889e-9d4040d05880) actions in a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ref8 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | reserved | | | | | | | | | | | | | | |
| cbSort | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgSortMap (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rrd (14 bytes):**  An [RRD](#Section_9dd8f25ef0fd4801a04f6d6cf21e40ee) structure that specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes in a shared workbook. The **rrd.revt** MUST be equal to 0x0007. The **rrd.tabid** MUST NOT be 0xFFFF because this [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) corresponds to a specific [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**ref8 (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells affected by sort actions. If the value of **fCol** is 0, the range of rows MUST be within the valid range of the number of rows on the sheet as defined in the used range specified by the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record. If the value of **fCol** is 1, the range of columns MUST be within the valid range of the number of columns on the sheet as defined in the used range specified by the Dimensions record.

**A - fCol (1 bit):**  A bit that specifies whether sorting is performed on the columns.

| Value | Meaning |
| --- | --- |
| 0 | The rows have been reordered. |
| 1 | The columns have been reordered. |

**reserved (15 bits):** MUST be zero, and MUST be ignored.

**cbSort (4 bytes):**  An unsigned integer that specifies the size of **rgSortMap** in bytes.

**rgSortMap (variable):** An array of [SortItem](#Section_a5fd3225057c4d55a6ee4ca8a8179f97) structures. The size MUST be equal to **cbSort**.

### 2.4.241 RRTabId

The **RRTabId** record specifies an array of unique [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) identifiers, each of which is associated with a sheet in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). The order of the sheet identifiers in the array matches the order of the [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) records as they appear in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). If the workbook contains more than 4112 sheets, then this record is not present and each sheet identifier is specified by the order in which the BoundSheet8 records appear in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1), beginning with 1.[<115>](#Appendix_A_115" \o "Product behavior note 115)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgtabid (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgtabid (variable):** An array of 2-byte unsigned integers. Each element of this array is a unique sheet identifier, which is associated with a sheet in the workbook. The order of the sheet identifiers in the array matches the order in which the BoundSheet8 records appear in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1).

### 2.4.242 SBaseRef

The **SBaseRef** record specifies the location of a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) referenced by a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ref (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the location of a PivotTable view referenced by a chart.

### 2.4.243 Scatter

The **Scatter** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a scatter chart group or a bubble chart group, and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| pcBubbleSizeRatio | | | | | | | | | | | | | | | | wBubbleSize | | | | | | | | | | | | | | | |
| A | B | C | reserved | | | | | | | | | | | | |

**pcBubbleSizeRatio (2 bytes):**  An unsigned integer that specifies the size of the [data points](#Section_9c986ad250d44fa1a157063ac5c971a0) as a percentage of their default size. A value of 100 shows all the data points in their default size, as determined by the application. MUST be greater than or equal to 0 and less than or equal to 300. MUST be ignored if the **fBubbles** field is 0.

**wBubbleSize (2 bytes):**  An unsigned integer that specifies how the default size of the data points represents the value. MUST be ignored if the **fBubbles** field is 0. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | The area of the data point represents the value. |
| 0x0002 | The width of the data point represents the value. |

**A - fBubbles (1 bit):**  A bit that specifies whether this chart group is a scatter chart group or bubble chart group. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Scatter chart group |
| 1 | Bubble chart group |

**B - fShowNegBubbles (1 bit):**  A bit that specifies whether data points with negative values in the chart group are shown on the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). MUST be ignored if the **fBubbles** field is 0.

**C - fHasShadow (1 bit):**  A bit that specifies whether one or more [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) in a scatter chart group or data points in a bubble chart group have shadows.

**reserved (13 bits):**  MUST be zero, and MUST be ignored.

### 2.4.244 SCENARIO

The **SCENARIO** record specifies a [**scenario**](#gt_ee14f43c-19d8-467b-aa0b-e025635f6ba3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cref | | | | | | | | | | | | | | | | fLocked | | | | | | | | fHidden | | | | | | | |
| cchName | | | | | | | | cchComment | | | | | | | | cchNameUser | | | | | | | | rgchName (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchNameUser (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchComment (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgSLC (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgst (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cref (2 bytes):**  An unsigned integer that specifies the number of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the scenario. MUST be greater than zero and less than or equal to 32.

**fLocked (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the scenario can be modified if the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829). It MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | The user can change the scenario. |
| 0x01 | When the workbook is protected, the user cannot change the scenario. |

**fHidden (1 byte):**  A Boolean that specifies whether the scenario is to be [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) from the user if the workbook is protected. It MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | The scenario is never hidden |
| 0x01 | When the workbook is protected, the scenario is hidden from the user. |

**cchName (1 byte):**  An unsigned integer that specifies the character count in the field **rgchName**.

**cchComment (1 byte):**  An unsigned integer that specifies the character count in the field **rgchComment**.

**cchNameUser (1 byte):**  An unsigned integer that specifies the character count in the field **rgchNameUser**.

**rgchName (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the scenario.

**rgchNameUser (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the user who created the scenario. The character count MUST be less than or equal to 52. MUST be omitted if **cchNameUser** is 0.

**rgchComment (variable):**  An XLUnicodeString structure that specifies a [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) associated with the scenario. MUST be omitted if **cchComment** is 0.

**rgSLC (variable):** An array of [SLCO8](#Section_d5543c70ed1e4417b792570313390fa7) structures. Each element of the array specifies one cell that is changed by the scenario. Its element count MUST be **cref**.

**rgst (variable):** An array of XLUnicodeString structures. Each element of the array specifies the value associated to a cell by the scenario. Its element count MUST be **cref**.

**unused (variable):** Undefined and MUST be ignored. The size of this field in bytes MUST be 2\***cref**.

### 2.4.245 ScenarioProtect

The **ScenarioProtect** record specifies the [**protection**](#gt_dbeb9653-2ab1-4ec4-b64e-e77a8951c499) state for [**scenarios**](#gt_ee14f43c-19d8-467b-aa0b-e025635f6ba3) in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). Scenarios are defined in the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fScenProtect | | | | | | | | | | | | | | | |

**fScenProtect (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the scenarios in the sheet are [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Scenarios are not protected. |
| 0x0001 | Scenarios are protected. |

### 2.4.246 ScenMan

The **ScenMan** record specifies the state of the [**Scenario Manager**](#gt_66a30626-8b99-48f5-9488-7706735454e7) for the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

This record also specifies the beginning of a collection of [Scenario](#Section_a4cbc8c15b954f5682fa945bc8082e4f) records as defined by the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of Scenario records specifies individual scenarios.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| csct | | | | | | | | | | | | | | | | isctCur | | | | | | | | | | | | | | | |
| isctShown | | | | | | | | | | | | | | | | irefResult | | | | | | | | | | | | | | | |
| rgref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**csct (2 bytes):**  A signed integer that specifies the total number of [**scenarios**](#gt_ee14f43c-19d8-467b-aa0b-e025635f6ba3) in the sheet. MUST be equal to the number of Scenario records in the Worksheet substream and MUST be greater than or equal to 0.

**isctCur (2 bytes):**  A signed integer that specifies the zero-based index of the Scenario in this Worksheet substream that is currently [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) in the Scenario Manager. If **csct** is greater than 0, then **isctCur** MUST be greater than or equal to –1 and MUST be less thanthe number of Scenario records in the Worksheet substream. The value -1 means that no scenario is currently selected.

**isctShown (2 bytes):**  A signed integer that specifies the zero-based index of the Scenario in this Worksheet substream that specifies the scenario that is currently applied in the sheet associated with this record. If **csct** is greater than 0, then **isctShown** MUST be greater than or equal to –1 and MUST be less thanthe number of Scenario records in the Worksheet substream. The value –1 means that no scenario is currently shown.

**irefResult (2 bytes):**  A signed integer that specifies the number of [**result cells**](#gt_353bd534-530f-4478-b618-271b85cab0b8) that are referenced in the field **rgref**. MUST be greater than or equal to 0 and less than or equal to 32.

**rgref (variable):** An array of [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structures. Each element specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells in the current sheet. These cells contain the results that are to be compared across scenarios. Its count MUST be equal to **irefResult**.

### 2.4.247 Scl

The **Scl** record specifies the [**zoom level**](#gt_bfb33471-a018-422b-bc63-177c8bc1831f) of the current view in the window used to display the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) as a fraction given by the following formula:

Fraction = **nscl** / **dscl**

The fraction MUST be greater than or equal to 1/10 and less than or equal to 4.

This record MUST exist if the zoom level of the current view is not equal to 1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| nscl | | | | | | | | | | | | | | | | dscl | | | | | | | | | | | | | | | |

**nscl (2 bytes):**  A signed integer that specifies the numerator of the fraction. The value MUST be greater than or equal to 1.

**dscl (2 bytes):**  A signed integer that specifies the denominator of the fraction. The value MUST be greater than or equal to 1.

### 2.4.248 Selection

The **Selection** record specifies [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) within a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). There can be multiple contiguous Selection records that have the same **pnn** value to specify all selected cells within a sheet[<116>](#Appendix_A_116" \o "Product behavior note 116). If this is the case, the values of **rwAct**, **colAct**, and **irefAct** MUST be the same across all the contiguous Selection records that have the same **pnn** value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| pnn | | | | | | | | rwAct | | | | | | | | | | | | | | | | colAct | | | | | | | |
| ... | | | | | | | | irefAct | | | | | | | | | | | | | | | | cref | | | | | | | |
| ... | | | | | | | | rgref (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**pnn (1 byte):**  A [PaneType](#Section_016387b99dac43dfb22634800b3c2198) enumeration that specifies the [**active pane**](#gt_33f49274-001d-40a3-bcca-f54a93906c29).

**rwAct (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the zero-based row number of the [**active cell**](#gt_2c0759a5-6721-422b-8cb9-f4bb09e07c84).

**colAct (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the zero-based column number of the active cell.

**irefAct (2 bytes):**  A signed integer that specifies the zero-based index to the [RefU](#Section_0bb7dda629a3440db2bea793540b3f16) structure in **rgref** that contains the active cell. MUST be greater than or equal to 0. If this record is one of multiple contiguous Selection records, this value is the index to the RefU structure across the aggregation of **rgref** arrays of all Selection records.

**cref (2 bytes):**  An unsigned integer that specifies the number of RefU structures in the **rgref** array of this record.

**rgref (variable):** An array of RefU structures that specifies ranges of selected cells in the sheet. The number of RefU structures in this array MUST be less than or equal to 1369.

### 2.4.249 SerAuxErrBar

The **SerAuxErrBar** record specifies properties of an [error bar](#Section_762a461d0a45474ebd7d5994bb294af2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| sertm | | | | | | | | ebsrc | | | | | | | | fTeeTop | | | | | | | | reserved | | | | | | | |
| numValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cnum | | | | | | | | | | | | | | | |

**sertm (1 byte):**  An unsigned integer that specifies the direction of the error bars. MUST be a value from the following table.

| Value | Meaning |
| --- | --- |
| 0x01 | Error bars are horizontal in the plus direction. |
| 0x02 | Error bars are horizontal in the minus direction. |
| 0x03 | Error bars are vertical in the plus direction. |
| 0x04 | Error bars are vertical in the minus direction. |

**ebsrc (1 byte):**  An unsigned integer that specifies the error amount type of the error bars. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x01 | Percentage |
| 0x02 | Fixed value |
| 0x03 | Standard deviation |
| 0x04 | Custom values (array of values or [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99)) |
| 0x05 | Standard error |

If the **cce** field of the [ChartParsedFormula](#Section_c5cd4a9adfc14dfcb06f94d31c7e116c) record contained in the **formula** field of the closest preceding [BRAI](#Section_c4e36e616c174a75b414f33803c7456b) record with **id** field equal to 0x0001 is 0x0000, then the error bars value source is an array of values. Each value in this array MUST be stored in a [Number](#Section_a40c74c63df44e819a4385521cc92c0a) record in the [SERIESDATA](#section_732ff614d939416bb7c76d983471ff11) part of the Chart Sheet substream as specified in the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The **cell.col** field of each Number record MUST store the zero-based position index of the closest preceding [Series](#Section_d6eec0192d634c1e8080442af941b462) record, as it is calculated across all Series records in the current [Chart Sheet](#Section_2c90d75bc92645aa8ff29d4483f51831) substream. The **cell.rw** field MUST store the zero-based index of this value in the array.

Otherwise, the value source is a range. The closest preceding BRAI record with the **id** field equal to 0x0001 specifies a link to the [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) structure that describes this range.

**fTeeTop (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the error bars are T-shaped.

**reserved (1 byte):**  MUST be 0x01 and MUST be ignored.

**numValue (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the fixed value, percentage, or number of standard deviations for the error bars. If **ebsrc** is equal to 0x05 or 0x04, MUST be ignored.

**cnum (2 bytes):**  An unsigned integer that specifies the number of value or cell references used for custom error bars when **ebsrc** is equal to 0x04. This value MUST be ignored if **ebsrc** does not equal 0x04.

If the value source is an array of values, this value MUST equal the count of Number records whose **cell.col** field stores the zero-based index of the closest preceding Series record in the collection of Series records in the current chart sheet substream.

If the value source is a range, this value MUST equal the count of cell references of the range as specified in the **rgce** field of the ChartParsedFormula contained in the **formula** field of the closest preceding BRAI record that has an **id** field equal to 0x0001.

### 2.4.250 SerAuxTrend

The **SerAuxTrend** record specifies a [trendline](#Section_61d74ebc36714d6dbdc0626db604530d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| regt | | | | | | | | ordUser | | | | | | | | numIntercept | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | fEquation | | | | | | | | fRSquared | | | | | | | |
| numForecast | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numBackcast | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**regt (1 byte):**  An unsigned integer that specifies the type of trendline. The value MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x00 | Polynomial |
| 0x01 | Exponential |
| 0x02 | Logarithmic |
| 0x03 | Power |
| 0x04 | [**Moving average**](#gt_4b582231-b8d5-4dea-bda8-83c6f83b05e6) |

**ordUser (1 byte):**  An unsigned integer that specifies the polynomial order or moving average period. MUST be greater than or equal to 0x02 and less than or equal to 0x06 if **regt** is equal to 0x00; MUST be greater than or equal to 0x02 and less than or equal to the value of the **cValx** field of the [Series](#Section_d6eec0192d634c1e8080442af941b462) record specified by the preceding [SerParent](#Section_30274589f3324004b09deb47856e6858) record minus one if **regt** is equal to 0x04. MUST be ignored for trendlines of all other types.

**numIntercept (8 bytes):**  A [ChartNumNillable](#Section_fb50281744124328b538fa23fc3ced0c) structure that specifies where the trendline intersects the value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) or vertical axis on bubble and scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5). If no intercept is specified, this ChartNumNillable structure MUST specify a [NilChartNum](#Section_8adcc3efb44f41e09375535cb2b87ff3) structure, and the value of the **type** field in the NilChartNum structure MUST be 0x0100.

**fEquation (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the trendline equation is displayed in the trendline label. MUST be ignored if **regt** is equal to 0x04. MUST be ignored if the [chart sheet](#Section_732ff614d939416bb7c76d983471ff11) substream contains an [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a) with an [ObjectLink](#Section_50f2d49d1e5f416b866f057e0ab23ba9) record that contains both a **wLinkObj** field equal to 0x0004 and a **wLinkVar1** field equal to the zero-based index into a Series record in the collection of Series records in the current chart sheet substream that represents this trendline , and the attached label contains a [SeriesText](#Section_e5d661c4bd7e4664a848495354b9fc3b) record.

**fRSquared (1 byte):**  A Boolean that specifies whether the R-squared value is displayed in the trendline label. MUST be ignored if **regt** is equal to 0x04. MUST be ignored if the chart sheet substream contains an attached label with an ObjectLink record that contains both a **wLinkObj** field equal to 0x0004 and a **wLinkVar1** field equal to the zero-based index into a Series record in the collection of Series records in the current chart sheet substream that represents this trendline, and the attached label contains a SeriesText record.

**numForecast (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the number of periods to [**forecast**](#gt_0a5478cf-8836-4a9a-a663-7684366646a3) forward.

**numBackcast (8 bytes):** An Xnum that specifies the number of periods to forecast backward.

### 2.4.251 SerFmt

The **SerFmt** record specifies properties of the associated [data points](#Section_9c986ad250d44fa1a157063ac5c971a0), [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b), or lines of the [series](#Section_527ce4dfc9f84e50a314d4b07519593c).  The associated data points, data markers, or lines of the series are specified by the preceding [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e) record. If this record is not present in the sequence of records that conforms to the [SS](#section_732ff614d939416bb7c76d983471ff11) rule of the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), then the properties of the associated data points, data markers, or lines of the series are specified by the default values of the fields of this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | reserved | | | | | | | | | | | | |

**A - fSmoothedLine (1 bit):**  A bit that specifies whether the lines of the series are displayed with a smooth line effect on a scatter, radar, and line [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). The default value of this field is 0.

**B - f3DBubbles (1 bit):**  A bit that specifies whether the data points of a bubble chart group are displayed with a 3-D effect.  MUST be ignored for all other chart groups. The default value of this field is 0.

**C - fArShadow (1 bit):**  A bit that specifies whether the data markers are displayed with a shadow on bubble, scatter, radar, stock, and line chart groups. The default value of this field is 0.

**reserved (13 bits):**  MUST be zero, and MUST be ignored.

### 2.4.252 Series

The **Series** record specifies properties of the data for a [series](#Section_527ce4dfc9f84e50a314d4b07519593c), a [trendline](#Section_61d74ebc36714d6dbdc0626db604530d), or [error bars](#Section_762a461d0a45474ebd7d5994bb294af2), and specifies the beginning of a collection of records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a series, a trendline, or error bars.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| sdtX | | | | | | | | | | | | | | | | sdtY | | | | | | | | | | | | | | | |
| cValx | | | | | | | | | | | | | | | | cValy | | | | | | | | | | | | | | | |
| sdtBSize | | | | | | | | | | | | | | | | cValBSize | | | | | | | | | | | | | | | |

**sdtX (2 bytes):**  An unsigned integer that specifies the type of data in [**categories (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1), or horizontal values on bubble and scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5), in the series. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | The series contains categories (2), or horizontal values on bubble and scatter chart groups, with numeric information. |
| 0x0003 | The series contains categories (2), or horizontal values on bubble and scatter chart groups, with text information. |

**sdtY (2 bytes):** An unsigned integer that specifies that the values or vertical values on bubble and scatter chart groups, in the series contain numeric information. It MUST be 0x0001 and MUST be ignored.

**cValx (2 bytes):**  An unsigned integer that specifies the count of categories (2), or horizontal values on bubble and scatter chart groups, in the series. The value MUST be less than or equal to 32767.

**cValy (2 bytes):**  An unsigned integer that specifies the count of values, or vertical values on bubble and scatter chart groups, in the series. The value MUST be less than or equal to 32767.

**sdtBSize (2 bytes):**  An unsigned integer that specifies that the [**bubble size**](#gt_3a0cf938-5b61-4460-bdbb-3540d84d4180) values in the series contain numeric information. The value MUST be 0x0001, and MUST be ignored.

**cValBSize (2 bytes):**  An unsigned integer that specifies the count of bubble size values in the series. The value MUST be less than or equal to 32767.

### 2.4.253 SeriesList

The **SeriesList** record specifies the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) for the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cser | | | | | | | | | | | | | | | | rgiser (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cser (2 bytes):**  An unsigned integer that specifies the count of series indexes in the **rgiser** field.

**rgiser (variable):** An array of 2-byte unsigned integers, each of which specifies a one-based index of a [Series](#Section_d6eec0192d634c1e8080442af941b462) record in the collection of Series records in the current [chart sheet](#Section_732ff614d939416bb7c76d983471ff11) substream. Each referenced Series specifies a series for the chart.

### 2.4.254 SeriesText

The **SeriesText** record specifies the text for a [series](#Section_527ce4dfc9f84e50a314d4b07519593c), [trendline](#Section_61d74ebc36714d6dbdc0626db604530d) name, trendline label, [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) title or [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) title.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | | stText (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**stText (variable):**  A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) that specifies the text string.

### 2.4.255 SerParent

The **SerParent** record specifies the [series](#Section_527ce4dfc9f84e50a314d4b07519593c) to which the current [trendline](#Section_61d74ebc36714d6dbdc0626db604530d) or [error bar](#Section_762a461d0a45474ebd7d5994bb294af2) corresponds.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| series | | | | | | | | | | | | | | | |

**series (2 bytes):**  An unsigned integer that specifies the one-based index of a [Series](#Section_d6eec0192d634c1e8080442af941b462) record in the collection of Series records in the current [chart sheet](#Section_2c90d75bc92645aa8ff29d4483f51831) substream. The referenced Series record specifies the series associated with the current trendline or error bar. The value MUST be greater than or equal to 0x0001 and less than or equal to 0x0FE.

### 2.4.256 SerToCrt

The **SerToCrt** record specifies the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) for the current [series](#Section_527ce4dfc9f84e50a314d4b07519593c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| id | | | | | | | | | | | | | | | |

**id (2 bytes):**  An unsigned integer that specifies the zero-based index of a [ChartFormat](#Section_919bca437a814203b9b9b12e4315d5af) record in the collection of ChartFormat records in the current [chart sheet](#Section_2c90d75bc92645aa8ff29d4483f51831) substream. The referenced ChartFormat record specifies the chart group that contains the current series.

### 2.4.257 Setup

The **Setup** record specifies the page format settings used to print the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iPaperSize | | | | | | | | | | | | | | | | iScale | | | | | | | | | | | | | | | |
| iPageStart | | | | | | | | | | | | | | | | iFitWidth | | | | | | | | | | | | | | | |
| iFitHeight | | | | | | | | | | | | | | | | A | B | C | D | E | F | G | H | I | J | K | | L | | | |
| iRes | | | | | | | | | | | | | | | | iVRes | | | | | | | | | | | | | | | |
| numHdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numFtr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iCopies | | | | | | | | | | | | | | | |

**iPaperSize (2 bytes):**  An unsigned integer that specifies the paper size. Refer to the following table for values. The value 0, or values greater than or equal to 256, specify custom printer paper sizes. Values between 118 and 255 are reserved for future use. If **fNoPls** is 1, this value is undefined and MUST be ignored.

| Value | Meaning |
| --- | --- |
| 1 | US Letter 8 1/2 x 11 in |
| 2 | US Letter Small 8 1/2 x 11 in |
| 3 | US Tabloid 11 x 17 in |
| 4 | US Ledger 17 x 11 in |
| 5 | US Legal 8 1/2 x 14 in |
| 6 | US Statement 5 1/2 x 8 1/2 in |
| 7 | US Executive 7 1/4 x 10 1/2 in |
| 8 | A3 297 x 420 mm |
| 9 | A4 210 x 297 mm |
| 10 | A4 Small 210 x 297 mm |
| 11 | A5 148 x 210 mm |
| 12 | B4 (JIS) 250 x 354 |
| 13 | B5 (JIS) 182 x 257 mm |
| 14 | Folio 8 1/2 x 13 in |
| 15 | Quarto 215 x 275 mm |
| 16 | 10 x 14 in |
| 17 | 11 x 17 in |
| 18 | US Note 8 1/2 x 11 in |
| 19 | US Envelope #9 3 7/8 x 8 7/8 |
| 20 | US Envelope #10 4 1/8 x 9 1/2 |
| 21 | US Envelope #11 4 1/2 x 10 3/8 |
| 22 | US Envelope #12 4 \276 x 11 |
| 23 | US Envelope #14 5 x 11 1/2 |
| 24 | C size sheet |
| 25 | D size sheet |
| 26 | E size sheet |
| 27 | Envelope DL 110 x 220mm |
| 28 | Envelope C5 162 x 229 mm |
| 29 | Envelope C3 324 x 458 mm |
| 30 | Envelope C4 229 x 324 mm |
| 31 | Envelope C6 114 x 162 mm |
| 32 | Envelope C65 114 x 229 mm |
| 33 | Envelope B4 250 x 353 mm |
| 34 | Envelope B5 176 x 250 mm |
| 35 | Envelope B6 176 x 125 mm |
| 36 | Envelope 110 x 230 mm |
| 37 | US Envelope Monarch 3.875 x 7.5 in |
| 38 | 6 3/4 US Envelope 3 5/8 x 6 1/2 in |
| 39 | US Std Fanfold 14 7/8 x 11 in |
| 40 | German Std Fanfold 8 1/2 x 12 in |
| 41 | German Legal Fanfold 8 1/2 x 13 in |
| 42 | B4 (ISO) 250 x 353 mm |
| 43 | Japanese Postcard 100 x 148 mm |
| 44 | 9 x 11 in |
| 45 | 10 x 11 in |
| 46 | 15 x 11 in |
| 47 | Envelope Invite 220 x 220 mm |
| 48 | RESERVED--DO NOT USE |
| 49 | RESERVED--DO NOT USE |
| 50 | US Letter Extra 9 \275 x 12 in |
| 51 | US Legal Extra 9 \275 x 15 in |
| 52 | US Tabloid Extra 11.69 x 18 in |
| 53 | A4 Extra 9.27 x 12.69 in |
| 54 | Letter Transverse 8 \275 x 11 in |
| 55 | A4 Transverse 210 x 297 mm |
| 56 | Letter Extra Transverse 9\275 x 12 in |
| 57 | SuperA/SuperA/A4 227 x 356 mm |
| 58 | SuperB/SuperB/A3 305 x 487 mm |
| 59 | US Letter Plus 8.5 x 12.69 in |
| 60 | A4 Plus 210 x 330 mm |
| 61 | A5 Transverse 148 x 210 mm |
| 62 | B5 (JIS) Transverse 182 x 257 mm |
| 63 | A3 Extra 322 x 445 mm |
| 64 | A5 Extra 174 x 235 mm |
| 65 | B5 (ISO) Extra 201 x 276 mm |
| 66 | A2 420 x 594 mm |
| 67 | A3 Transverse 297 x 420 mm |
| 68 | A3 Extra Transverse 322 x 445 mm |
| 69 | Japanese Double Postcard 200 x 148 mm |
| 70 | A6 105 x 148 mm |
| 71 | Japanese Envelope Kaku #2 |
| 72 | Japanese Envelope Kaku #3 |
| 73 | Japanese Envelope Chou #3 |
| 74 | Japanese Envelope Chou #4 |
| 75 | Letter Rotated 11 x 8 1/2 11 in |
| 76 | A3 Rotated 420 x 297 mm |
| 77 | A4 Rotated 297 x 210 mm |
| 78 | A5 Rotated 210 x 148 mm |
| 79 | B4 (JIS) Rotated 364 x 257 mm |
| 80 | B5 (JIS) Rotated 257 x 182 mm |
| 81 | Japanese Postcard Rotated 148 x 100 mm |
| 82 | Double Japanese Postcard Rotated 148 x 200 mm |
| 83 | A6 Rotated 148 x 105 mm |
| 84 | Japanese Envelope Kaku #2 Rotated |
| 85 | Japanese Envelope Kaku #3 Rotated |
| 86 | Japanese Envelope Chou #3 Rotated |
| 87 | Japanese Envelope Chou #4 Rotated |
| 88 | B6 (JIS) 128 x 182 mm |
| 89 | B6 (JIS) Rotated 182 x 128 mm |
| 90 | 12 x 11 in |
| 91 | Japanese Envelope You #4 |
| 92 | Japanese Envelope You #4 Rotated |
| 93 | PRC 16K 146 x 215 mm |
| 94 | PRC 32K 97 x 151 mm |
| 95 | PRC 32K(Big) 97 x 151 mm |
| 96 | PRC Envelope #1 102 x 165 mm |
| 97 | PRC Envelope #2 102 x 176 mm |
| 98 | PRC Envelope #3 125 x 176 mm |
| 99 | PRC Envelope #4 110 x 208 mm |
| 100 | PRC Envelope #5 110 x 220 mm |
| 101 | PRC Envelope #6 120 x 230 mm |
| 102 | PRC Envelope #7 160 x 230 mm |
| 103 | PRC Envelope #8 120 x 309 mm |
| 104 | PRC Envelope #9 229 x 324 mm |
| 105 | PRC Envelope #10 324 x 458 mm |
| 106 | PRC 16K Rotated |
| 107 | PRC 32K Rotated |
| 108 | PRC 32K(Big) Rotated |
| 109 | PRC Envelope #1 Rotated 165 x 102 mm |
| 110 | PRC Envelope #2 Rotated 176 x 102 mm |
| 111 | PRC Envelope #3 Rotated 176 x 125 mm |
| 112 | PRC Envelope #4 Rotated 208 x 110 mm |
| 113 | PRC Envelope #5 Rotated 220 x 110 mm |
| 114 | PRC Envelope #6 Rotated 230 x 120 mm |
| 115 | PRC Envelope #7 Rotated 230 x 160 mm |
| 116 | PRC Envelope #8 Rotated 309 x 120 mm |
| 117 | PRC Envelope #9 Rotated 324 x 229 mm |
| 118 | PRC Envelope #10 Rotated 458 x 324 mm |

**iScale (2 bytes):**  An unsigned integer that specifies the scaling factor for printing as a percentage. For example, if the value is 107 then the scaling factor is 107%. If **fNoPls** is 1, this value is undefined and MUST be ignored.

**iPageStart (2 bytes):**  A signed integer that specifies the starting page number. If **fUsePage** is 0, MUST be ignored.

**iFitWidth (2 bytes):**  An unsigned integer that specifies the number of pages the sheet width is fit to. MUST be less than or equal to 32767. The value 0 means use as many pages as necessary to print the columns in the sheet.

**iFitHeight (2 bytes):**  An unsigned integer that specifies the number of pages the sheet height is fit to. MUST be less than or equal to 32767. The value 0 means use as many pages as necessary to print the rows of the sheet.

**A - fLeftToRight (1 bit):**  A bit that specifies the order that multiple pages are sent to the printer for a single sheet.

| Value | Meaning |
| --- | --- |
| 0 | Pages are printed top-to-bottom first and then left-to-right. |
| 1 | Pages are printed left-to-right first and then top-to-bottom. |

**B - fPortrait (1 bit):**  A bit that specifies whether to print using portrait mode or landscape mode. If **fNoPls** is 1, the value is undefined and MUST be ignored. If **fNoOrient** is 1, the value is undefined and MUST be ignored.

| Value | Meaning |
| --- | --- |
| 0 | Pages are printed using landscape mode. |
| 1 | Pages are printed using portrait mode. |

**C - fNoPls (1 bit):**  A bit that specifies whether the **iPaperSize**, **iScale**, **iRes**, **iVRes**, **iCopies**, **fNoOrient**, and **fPortrait** data are undefined and ignored. If the value is 1, they are undefined and ignored.

**D - fNoColor (1 bit):**  A bit that specifies whether the document is printed in black and white.

**E - fDraft (1 bit):**  A bit that specifies whether the document is printed using draft quality.

**F - fNotes (1 bit):**  A bit that specifies whether [**comments**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) are printed.

**G - fNoOrient (1 bit):**  A bit that specifies whether the paper orientation is set.

| Value | Meaning |
| --- | --- |
| 0 | Paper orientation is specified by the value of **fPortrait**. |
| 1 | Pages are printed using portrait mode. |

**H - fUsePage (1 bit):**  A bit that specifies whether a custom starting page number is used to print. If the value is 1, the custom starting page number specified by the value of **iPageStart** is used.

**I - unused1 (1 bit):**  Undefined and MUST be ignored.

**J - fEndNotes (1 bit):**  A bit that specifies whether the comments are printed at the end of the sheet. If **fNotes** is 0, the value MUST be ignored.

| Value | Meaning |
| --- | --- |
| 0 | Comments are printed as displayed on the sheet. |
| 1 | Comments are printed at the end of the sheet. |

**K - iErrors (2 bits):**  An unsigned integer that specifies how to handle errors in the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) data. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Print errors as displayed on the sheet. |
| 1 | Print errors as blank. |
| 2 | Print errors as dashes ("--"). |
| 3 | Print errors as "#N/A". |

**L - reserved (4 bits):** MUST be zero, and MUST be ignored.

**iRes (2 bytes):**  An unsigned integer that specifies the print resolution in dots per inch (DPI). If **fNoPls** is 1, this value is undefined and MUST be ignored.

**iVRes (2 bytes):**  An unsigned integer that specifies the vertical print resolution in DPI. If **fNoPls** is 1, this value is undefined and MUST be ignored.

**numHdr (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value that specifies the header margin in inches. The value MUST be greater than or equal to 0 and less than 49.

**numFtr (8 bytes):** An Xnum value that specifies the footer margin in inches. The value MUST be greater than or equal to 0 and less than 49.

**iCopies (2 bytes):**  An unsigned integer that specifies the number of copies to print. If **fNoPls** is 1, this value is undefined and MUST be ignored.

### 2.4.258 ShapePropsStream

The **ShapePropsStream** record specifies the [**shape**](#gt_d0e38aa4-2c71-4a6f-b5e6-75766fa9409e) formatting properties for [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) elements. These shape formatting properties are a superset of the properties stored in the [LineFormat](#Section_1bff256238664b958a6bf3fea1659f6d), [AreaFormat](#Section_affb9fe34721495a9e5351c7d3c65480), [MarkerFormat](#Section_28ad6229e22f477dbc1403cd93220277), and [GelFrame](#Section_fd655637a8e94d4e85880a02afc99fae) records. They are stored in the **rgb** field, which is an **XML stream** (section [2.1.7.22](#Section_e25e01370b9c4429bd260eed92e01c35)), as defined in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4, section 5.7.2.198.[<117>](#Appendix_A_117" \o "Product behavior note 117)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wObjContext | | | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |
| dwChecksum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field of the field MUST be 0x08A4.

**wObjContext (2 bytes):**  An unsigned integer that specifies the chart element that the shape formatting properties in this record apply to.

If this record is in a sequence of records that specifies an [AXS](#section_732ff614d939416bb7c76d983471ff11) rule, then it MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The shape properties in this record apply to the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). |
| 0x0001 | The shape properties in this record apply to the [**major gridlines**](#gt_2803347c-6396-46a5-9ede-6bef1149b013) of the axis. |
| 0x0002 | The shape properties in this record apply to the [**minor gridlines**](#gt_49980976-6314-43ad-ad51-8d3e55ef4b59) of the axis. |
| 0x0003 | The shape properties in this record apply to the three-dimensional surfaces of the [**walls**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c) or [**floor**](#gt_dc38c098-e0d3-4701-9656-5f2cf4d80f29). |

If this record precedes an [End](#Section_abe8fd1db6a847b8864052ba75a76f5c) record matched by a [Begin](#Section_52d0d2c76cc540c4adf3aea158411ef3) record in a sequence of records that conforms to the CRT rule, then this field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The shape properties in this record apply to the [**drop lines**](#gt_e8c745bf-646c-4acd-8b5e-5314fa4965fa) of the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). |
| 0x0001 | The shape properties in this record apply to the [**high-low lines**](#gt_56aec928-ddcc-4415-9d08-5d1dd3982bbc) of the chart group. |
| 0x0002 | The shape properties in this record apply to the [**leader lines**](#gt_8b7c448e-82e3-4d22-a8ba-52e0a10b14fa) of the chart group. |
| 0x0003 | The shape properties in this record apply to the [**series lines**](#gt_bda50b03-68fa-49f9-bd9e-d0dc289ac88a) of the chart group. |

If this record is in a sequence of records that conforms to the SS rule, then this field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The shape properties in this record apply to the [series](#Section_527ce4dfc9f84e50a314d4b07519593c), [data points](#Section_9c986ad250d44fa1a157063ac5c971a0), [error bars](#Section_762a461d0a45474ebd7d5994bb294af2), or [trendlines](#Section_61d74ebc36714d6dbdc0626db604530d) specified by the [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e) record. |
| 0x0001 | The shape properties in this record apply to the [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) specified by the DataFormat record. |

If this record is in a sequence of records that conforms to the FRAME rule, then it MUST be 0x0000, which means the shape properties apply to the current [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)), [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c), [legend](#Section_1832229b7d1945f488d455e9c07466f0), or [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a).

If this record is in a sequence of records that conforms to the DROPBAR rule as specified by the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), then it MUST be 0x0000, which means the shape properties apply to [**up bar**](#gt_24acb31a-39aa-4a44-829b-c18e1767a4ac) or [**down bar**](#gt_d8bcbdc9-46a4-44e5-b184-40c565e4dd07) formatting.

**unused (2 bytes):**  Undefined and MUST be ignored.

**dwChecksum (4 bytes):**  An unsigned integer that specifies the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the shape formatting properties related to this record. The algorithm used to calculate the checksum is defined by [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.4.3.2. The checksum MUST be calculated by using every property of the [**property stream**](#gt_dbd8bc67-1371-445e-af6a-dfa5eeef670c), as a stream of bytes as specified by the [ShapePropsStreamChecksumData](#Section_4522f9f6762040598b4ec62b40c9a215) structure.

The information required to build the stream of bytes can be gathered from the LineFormat, AreaFormat, MarkerFormat, and GelFrame records associated with this record, as specified by [LinePropertiesForShapePropsStreamChecksum](#Section_19e023a95e2f46c3afdfe36976ce4892), [InteriorColorPropertiesForShapePropsStreamChecksum](#Section_4c6e3f22cf28490c876fd0f3c69ca197), and [FillStylePropertiesForShapePropsStreamChecksum](#Section_8427f96e675e4440937aff6e51a1b8da).

When reading this record, the checksum is calculated as previously specified and compared to the **dwChecksum** value stored in this record. If the calculated checksum does not match the **dwChecksum** value, the application MUST assume that the XML stream is out of date, and the data from the LineFormat, AreaFormat, MarkerFormat, and GelFrame records MUST be used instead of the data specified by the **XML stream** (section 2.1.7.22).

**cb (4 bytes):** An unsigned integer that specifies the length of the character array in the **rgb** field.

**rgb (variable):** An array of ANSI characters whose length is specified by **cb** that contains the XML representation of the shape formatting properties as defined in [ECMA-376] Part 4, section 5.7.2.198.[<118>](#Appendix_A_118" \o "Product behavior note 118)

### 2.4.259 SheetExt

The **SheetExt** record specifies [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) properties, including [**sheet tab**](#gt_3b131045-238c-4ce8-9c22-b6aac874c7c5) color and additional optional information specified by using the [SheetExtOptional](#Section_ad38fef0aec74ea7882137fd7c86f73d) structure.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| icvPlain | | | | | | | reserved | | | | | | | | | | | | | | | | | | | | | | | | |
| sheetExtOptional (20 bytes, optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0862.

**cb (4 bytes):**  An unsigned integer that specifies the size of this record in bytes.

**icvPlain (7 bits):** An unsigned integer that specifies the tab color of this sheet. If the tab has a color assigned to it, the value of this field MUST be greater than or equal to 0x08 and less than or equal to 0x3F, as specified in the color table for the [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) structure. If the tab has no color assigned to it, the value of this field MUST be 0x7F, and MUST be ignored.

**reserved (25 bits):** MUST be zero, and MUST be ignored.

**sheetExtOptional (20 bytes):** A SheetExtOptional structure that specifies optional[<119>](#Appendix_A_119" \o "Product behavior note 119) fields. Exists if and only if the value of **cb** is 0x00000028.

### 2.4.260 ShrFmla

The **ShrFmla** record specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that is shared across multiple [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). This record specifies a file size optimization. It is used with the [Formula](#Section_8e3c69786c9f4915a82607613204b244) record to compress the amount of storage required for the formula. This record is preceded by a single Formula record that specifies the first cell in the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) that uses this shared formula. Other Formula records that use this shared formula follow later in the file, not necessarily in a contiguous sequence. Formula records that use this shared formula have the Formula.**fShrFmla** bit set, and a Formula.**cell** that is within the range specified in the **ref** field of this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | cUse | | | | | | | |
| formula (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ref (6 bytes):** A [RefU](#Section_0bb7dda629a3440db2bea793540b3f16) structure that specifies the range of cells that use this shared formula. Cells in this range do not have to use the shared formula.

**reserved (8 bits):** MUST be zero, and MUST be ignored.

**cUse (8 bits):** An unsigned integer that specifies the number of cells that use this shared formula.

**formula (variable):** A [SharedParsedFormula](#Section_458bbec0cd894a5dbf64576c64896ff0) structure that specifies the shared formula.

### 2.4.261 ShtProps

The **ShtProps** record specifies properties of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | reserved1 | | | | | | | | | | | mdBlank | | | | | | | | reserved2 | | | | | | | |

**A - fManSerAlloc (1 bit):**  A bit that specifies whether [series](#Section_527ce4dfc9f84e50a314d4b07519593c) are automatically allocated for the chart.

**B - fPlotVisOnly (1 bit):**  A bit that specifies whether to plot [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) cells only.

**C - fNotSizeWith (1 bit):**  A bit that specifies whether to size the chart with the window.

**D - fManPlotArea (1 bit):**  If **fAlwaysAutoPlotArea** is 1, then this field MUST be 1. If **fAlwaysAutoPlotArea** is 0, then this field MUST be ignored.

**E - fAlwaysAutoPlotArea (1 bit):**  A bit that specifies whether the default [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) [**dimension (2)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) is used.

| Value | Meaning |
| --- | --- |
| 0 | Use the default plot area dimension (2) regardless of the [Pos](#Section_b2311d215bad4525b759cacc13d394cf) record information. |
| 1 | Use the plot area dimension (2) of the Pos record; and **fManPlotArea** MUST be 1. |

**reserved1 (11 bits):**  MUST be zero, and MUST be ignored.

**mdBlank (1 byte):**  An unsigned integer that specifies how the empty cells are plotted be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Empty cells are not plotted. |
| 0x01 | Empty cells are plotted as zero. |
| 0x02 | Empty cells are plotted as interpolated. |

**reserved2 (1 byte):**  MUST be zero, and MUST be ignored.

### 2.4.262 SIIndex

The **SIIndex** record is part of a group of records which specify the data of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). This particular record indicates the type of data contained in the [Number](#Section_a40c74c63df44e819a4385521cc92c0a) records following it.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| numIndex | | | | | | | | | | | | | | | |

**numIndex (2 bytes):**  An unsigned integer that specifies the type of the data records contained by the Number records following it. MUST be a value from the following table:

| Value | Number Records Following It Contain |
| --- | --- |
| 0x0001 | [Series](#Section_527ce4dfc9f84e50a314d4b07519593c) values or vertical values (for scatter or bubble [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5)) |
| 0x0002 | [**Category labels**](#gt_f357eb23-3045-4017-87d0-3946b2980a72) or horizontal values (for scatter or bubble chart groups) |
| 0x0003 | [**Bubble sizes**](#gt_3a0cf938-5b61-4460-bdbb-3540d84d4180) |

### 2.4.263 Sort

The **Sort** record specifies the information used to [**sort**](#gt_95f9d655-2668-4f39-889e-9d4040d05880) values contained in a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | iOrder | | | | | F | reserved1 | | | | | cchKey1 | | | | | | | | cchKey2 | | | | | | | |
| cchKey3 | | | | | | | | stKey1 (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stKey2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stKey3 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | |

**A - fCol (1 bit):** A bit that specifies whether to sort by columns or rows. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Sort rows from top to bottom. |
| 1 | Sort columns from [**logical left**](#gt_ccc2ab6c-db9b-4c67-9b95-21ce79e7358d) to right. |

**B - fKey1Dsc (1 bit):** A bit that specifies whether **stKey1** sorts in [**descending order**](#gt_f6de77a5-8743-4d03-813a-fa5e4d7c9fe8). MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Sort in ascending order. |
| 1 | Sort in descending order. |

**C - fKey2Dsc (1 bit):** A bit that specifies whether **stKey2** sorts in descending order. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Sort in ascending order. |
| 1 | Sort in descending order. |

**D - fKey3Dsc (1 bit):** A bit that specifies whether **stKey3** sorts in descending order. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Sort in ascending order. |
| 1 | Sort in descending order. |

**E - fCaseSensitive (1 bit):** A bit that specifies whether the sort is case-sensitive. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The sort is not case-sensitive. |
| 1 | The sort is case-sensitive. |

**iOrder (5 bits):** A signed integer that specifies the zero-based index of the [**custom list**](#gt_92d2bb3a-2615-4bf8-b87f-887302d4c40c) that specifies the [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7). The set of custom lists is based on the current user's environment.

For more information about how the set of custom lists is determined see [[MSFT-XL2000]](https://go.microsoft.com/fwlink/?LinkId=119104).

**F - fAltMethod (1 bit):** A bit that specifies whether to use [**phonetic information**](#gt_b60c7bf3-21f1-481f-806f-812461e98742) when sorting. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Do not use phonetic information when sorting. |
| 1 | Use phonetic information when sorting. |

**reserved1 (5 bits):** MUST be zero, and MUST be ignored.

**cchKey1 (1 byte):** An unsigned integer that specifies the length of **stKey1**.

**cchKey2 (1 byte):** An unsigned integer that specifies the length of **stKey2**.

**cchKey3 (1 byte):** An unsigned integer that specifies the length of **stKey3**.

**stKey1 (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the string for the first sort key. MUST exist if and only if **cchKey1** is greater than 0.

**stKey2 (variable):** An XLUnicodeStringNoCch structure that specifies the string for the second sort key. MUST exist if and only if **cchKey2** is greater than 0.

**stKey3 (variable):** An XLUnicodeStringNoCch structure that specifies the string for the third sort key. MUST exist if and only if **cchKey3** is greater than 0.

**reserved2 (1 byte):** MUST be zero, and MUST be ignored.

### 2.4.264 SortData

The **SortData** record specifies data used for sorting a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | sfp | | | unused | | | | | | | | | | rfx (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cconditions | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | idParent | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | sortCond12Array (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0895.

**A - fCol (1 bit):** A bit that specifies whether to [**sort**](#gt_95f9d655-2668-4f39-889e-9d4040d05880) by columns or rows. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Sort by rows. |
| 0x1 | Sort by columns. |

**B - fCaseSensitive (1 bit):** A bit that specifies whether to use a case-sensitive sorting method. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The sort is not case-sensitive. |
| 0x1 | The sort is case-sensitive. |

**C - fAltMethod (1 bit):** A bit that specifies whether to use a sorting method other than character order, such as [**stroke order**](#gt_6d6a1f46-4502-44ab-ba14-07b78c9f0a54) or [**Mandarin phonetic symbols**](#gt_1c4c06fb-6eaf-4c13-a975-f014e49a5f3a). MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The sort uses character order. |
| 0x1 | The sort uses a method other than character order. |

**sfp (3 bits):** An unsigned integer that specifies the type of the object that contains the sort field. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The sort field is contained in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). |
| 0x1 | The sort field is contained in a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7). |
| 0x2 | The sort field is contained in an [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35). |
| 0x3 | The sort field is contained in a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289). |

**unused (10 bits):** Undefined and MUST be ignored.

**rfx (16 bytes):** An [RFX](#Section_b417d7526e9f47129554dbb17c2f7e80) structure that specifies the range to sort.

**cconditions (4 bytes):** An unsigned integer that specifies the count of [**sort conditions**](#gt_198a56e7-6045-43cf-8acd-793eab3647c1). This record MUST be followed by one [ContinueFrt12](#Section_e6527fe5f420420fad3fe5a242d04eee) record for each sort condition.

**idParent (4 bytes):** An unsigned integer that specifies the identifier of the object that contains the sort field, if the **sfp** field is 0x1 or 0x3. If the **sfp** field is equal to 0x1, the value of this field MUST be equal to the **idList** field of the associated [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047). If the **sfp** field is equal to 0x3, the value of this field MUST be equal to the zero-based index of the associated query table ([Qsi](#Section_262f630c4e9a4cbda2e81bb96a4fc8b3)) in the Qsi records in the current substream. If the **sfp** field is equal to 0x0 or 0x2, this is undefined and MUST be ignored.

**sortCond12Array (variable):** An array of [SortCond12](#Section_aead0d48db9045009e5638cb2b259622) structures that specifies the sort conditions.

### 2.4.265 SST

The **SST** record specifies string constants.

Each string constant in this record has one or more references in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe), with the goal of improving performance in opening and saving the file. The [LabelSst](#Section_3f52609d816f44a7aad1e0fe2abccebd) record specifies how to make a reference to a string in this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cstTotal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cstUnique | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cstTotal (4 bytes):**  A signed integer that specifies the total number of references in the workbook to the strings in the shared string table. MUST be greater than or equal to 0.

**cstUnique (4 bytes):**  A signed integer that specifies the number of unique strings in the shared string table. MUST be greater than or equal to 0.

**rgb (variable):** An array of [XLUnicodeRichExtendedString](#Section_173d9f51e5d343da8de2be7f22e119b9) structures. Records in this array are unique.

### 2.4.266 StartBlock

The **StartBlock** record specifies the beginning of a collection of records. [Future records](#Section_b660b67822684414839ed1ae9a4e4e85) contained in this collection specify saved features to allow applications that do not support the feature to preserve the information. This record MUST have a matching [EndBlock](#Section_f1e06d16dd094706bc4982b3ee9ed638) record. StartBlock andEndBlock pairs can be nested. Up to 100 levels of blocks can be nested.

Prior to writing a [chart-specific future record](#Section_0d96d51a09bd44ddbb691541de053776), which is a [record](#Section_170e90ce87d747589331dcf14cd72388) with a record number greater than or equal to 2048 and less than or equal to 2303, according to [Record Enumeration](#Section_7c84e174e96f45e0b23fa5e81f8b5def), StartBlock records MUST be written according to the following rules:

 A StartBlock record MUST NOT be written if the record is preceded by a [StartObject](#Section_2f7fb73d86f64f3d8f1c3b757ea8c0f6) record but not preceded by the matching [EndObject](#Section_bb3ce42b14974ce2b58d973549813772) record. That is, StartBlock and EndBlock pairs MUST NOT belong to any collection defined by StartObject and EndObject.

 If there does not exist a StartBlock record with **iObjectKind** equal to 0x000D without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x000D MUST be written.

 If the chart-specific future record exists in the sequence of records that conforms to the [DAT](#section_732ff614d939416bb7c76d983471ff11) rule, and there does not exist a StartBlock record with **iObjectKind** equal to 0x0006 without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x0006 MUST be written. If a StartBlock record is written because of rule number 2, then this StartBlock record MUST be written immediately after that record.

 If the chart-specific future record is in a [series](#Section_527ce4dfc9f84e50a314d4b07519593c), and there does not exist a StartBlock record with **iObjectKind** equal to 0x000C without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x000C and **iObjectInstance1** equal tothe number of series prior to this series in the current [Sheet](#Section_2c90d75bc92645aa8ff29d4483f51831) MUST be written. If any StartBlock records are written because of rule number 2 or 3, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record exists in the sequence of records that conforms to the SS rule, and there does not exist a StartBlock record with **iObjectKind** equal to 0x000E without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x000E, **iObjectContext** equal to the **yi** field of the [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e) record in the current SS rule, and **iObjectInstance1** equal to the **xi** field of the DataFormat record in the current SS rule MUST be written. If any StartBlock records are written because of rule number 2, 3, or 4, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is in a series, and is part of a collection defined by a [Begin](#Section_52d0d2c76cc540c4adf3aea158411ef3) and [End](#Section_abe8fd1db6a847b8864052ba75a76f5c) pair written immediately after a [LegendException](#Section_8c4e0829c6ee4b34b8affb95f9d70c86) record, and there does not exist a StartBlock record with **iObjectKind** equal to 0x000A without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x000A and **iObjectInstance1** equal tothe **iss** field of the LegendException record in the series MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, or 5, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is in an [axis group](#Section_578b739742624944b5a67ee6d4d3bb55). and there does not exist a StartBlock record with **iObjectKind** equal to 0x0000 without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x0000 and **iObjectInstance1** equal to the **iax** fieldof the [AxisParent](#Section_5948f3079c624304ae7331bdecd36f9f) record of the axis group MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, or 6, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is in a [Chart Group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), and there does not exist a StartBlock record with **iObjectKind** equal to 0x0005 without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x0005 and **iObjectInstance1** equal to the **iax** field of the AxisParent record of the axis group MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, or 7, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is in an [axis](#Section_4117f73aa0f348d89c0f65864918ffb3), and there does not exist a StartBlock record with **iObjectKind** equal to 0x0004 without a matching EndBlock record, then:

 If the chart-specific future record exists in the sequence of records that conforms to the IVAXIS rule, then a corresponding StartBlock record with **iObjectKind** equal to 0x0004 and **iObjectInstance1** equal to0x0000 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, or 8, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record exists in the sequence of records that conforms to the SERIESAXIS rule, then a corresponding StartBlock record with **iObjectKind** equal to 0x0004 and **iObjectInstance1** equal to0x0002 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, or 8, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record exists in the sequence of records that conforms to the DVAXIS rule, and **wType** of the [Axis](#Section_33155f3a9afe44a493d178af188f77f6) record in the sequence of records that conforms to the DVAXIS rule is equal to 0, then a corresponding StartBlock record with **iObjectKind** equal to 0x0004 and **iObjectInstance1** equal to0x0001 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, or 8, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record exists in the sequence of records that conforms to the DVAXIS rule, and **wType** of the Axis record in the sequence of records that conforms to the DVAXIS rule is equal to 1, then a corresponding StartBlock record with **iObjectKind** equal to 0x0004 and **iObjectInstance1** equal to0x0003 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, or 8, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record exists in the sequence of records that conforms to the DROPBAR rule, and there does not exist a StartBlock record with **iObjectKind** equal to 0x000F without a matching EndBlock record, then a corresponding StartBlock record with **iObjectKind** equal to 0x000F and **iObjectInstance1** equal toone less than the number of [DropBar](#Section_898e82b2b4534180881a2b9df9eeb0eb) records written prior to the chart-specific future record in the current Chart Group MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, or 9, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is in a [legend](#Section_1832229b7d1945f488d455e9c07466f0) and there does not exist a StartBlock record with **iObjectKind** equal to 0x0009 without a matching EndBlock record, then:

 If the chart-specific future record is in a chart group, then a corresponding StartBlock record with **iObjectKind** equal to 0x0009 and **iObjectContext** equal to0x0001MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, or 10, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is not in a chart group, then a corresponding StartBlock record with **iObjectKind** equal to 0x0009 and **iObjectContext** equal to0x0000MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, or 10, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record is in an [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a), and there does not exist a StartBlock record with **iObjectKind** equal to 0x0002 without a matching EndBlock record, then:

 If the chart-specific future record exists in the sequence of records that conforms to the DFTTEXT rule of a chart group, and the **id** fieldof the [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) record in the sequence of records that conforms to the DFTTEXT rule is greater than or equal to 0x0002, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002, **iObjectContext** equal to 0x0002, and **iObjectInstance1** equal to 0xFFFF MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11, then this StartBlock record MUST be written immediately after those records. Else,

 If the chart-specific future record exists in the sequence of records that conforms to the DFTTEXT rule of a chart group, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002, **iObjectContext** equal to 0x0002, and **iObjectInstance1** equal to the **id** field of the DefaultText record in the sequence of records that conforms to the DFTTEXT rule MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11, then this StartBlock record MUST be written immediately after those records. Else,

 If the **wLinkVar1** of the [ObjectLink](#Section_50f2d49d1e5f416b866f057e0ab23ba9) record of the attached label is equal to 0x0003, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002, **iObjectContext** equal to 0x0004 and **iObjectInstance1** equal to 0x0000 MUST be written. If any StartBlock records are written because of rules number 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11, then this StartBlock record MUST be written immediately after those records. Else,

 If the **wLinkVar1** of the ObjectLink record of the attached label is equal to 0x0002, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002, **iObjectContext** equal to 0x0004 and **iObjectInstance1** equal to 0x0001 MUST be written. If any StartBlock records are written because of rules number 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11, then this StartBlock record MUST be written immediately after those records. Else,

 If the **wLinkVar1** of the ObjectLink record of the attached label is equal to 0x0007, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002, **iObjectContext** equal to 0x0004, and **iObjectInstance1** equal to 0x0002 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11, then this StartBlock record MUST be written immediately after those records. Else,

 If the chart-specific future record is in the first attached label of a chart sheet, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002 and **iObjectContext** equal to 0x0000 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11, then this StartBlock record MUST be written immediately after those records. Else,

 If the chart-specific future record is not in the first attached label of a chart sheet, then a corresponding StartBlock record with **iObjectKind** equal to 0x0002 and **iObjectContext** equal to 0x0005, **iObjectInstance1** equal to **wLinkVar1** of the ObjectLink record of the attached label and **iObjectInstance2** equal to **wLinkVar2** of the ObjectLink record of the attached label MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, or 11, then this StartBlock record MUST be written immediately after those records.

 If the chart-specific future record exists in the sequence of records that conforms to the FRAME rule, and there does not exist a StartBlock record with **iObjectKind** equal to 0x0007 without a matching EndBlock record, then:

 If the chart-specific future record is in an attached label or legend, then a corresponding StartBlock record with **iObjectKind** equal to 0x0007, **iObjectContext** equal to 0x0000, and **iObjectInstance1** equal to 0x0000 MUST be written. If any StartBlock records are written because of rules number 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, then this StartBlock record MUST be written immediately after those records. Else,

 If the chart-specific future record exists in the sequence of records that conforms to the AXES rule, then a corresponding StartBlock record with **iObjectKind** equal to 0x0007, **iObjectContext** equal to 0x0001, and **iObjectInstance1** equal to 0x0000 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, then this StartBlock record MUST be written immediately after those records. Else,

 If the chart-specific future record is in a Sheet, then a corresponding StartBlock record with **iObjectKind** equal to 0x0007, **iObjectContext** equal to 0x0002, and **iObjectInstance1** equal to 0x0000 MUST be written. If any StartBlock records are written because of rule number 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, then this StartBlock record MUST be written immediately after those records.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iObjectKind | | | | | | | | | | | | | | | | iObjectContext | | | | | | | | | | | | | | | |
| iObjectInstance1 | | | | | | | | | | | | | | | | iObjectInstance2 | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0852.

**iObjectKind (2 bytes):**  An unsigned integer that specifies the type of object that is encompassed by the block. MUST be a value from the following table:

| Value | Object Type |
| --- | --- |
| 0x0000 | Axis group |
| 0x0002 | Attached label record |
| 0x0004 | Axis |
| 0x0005 | Chart group |
| 0x0006 | [Dat](#Section_9405c76f5e904146a7894910a5f58534) record |
| 0x0007 | Frame |
| 0x0009 | Legend |
| 0x000A | LegendException record |
| 0x000C | Series |
| 0x000D | Sheet |
| 0x000E | DataFormat record |
| 0x000F | DropBar record |

**iObjectContext (2 bytes):**  An unsigned integer that specifies the context of the object. This value further specifies the object specified in **iObjectKind**. MUST be a value from the following table:

| iObjectKind | iObjectContext | iObjectInstance1 | iObjectInstance2 | Description of Future Record Type Contents |
| --- | --- | --- | --- | --- |
| 0x0000 (Axis group) | 0x0000 | 0x0000 | 0x0000 | Primary axis group of the current [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). |
| 0x0000  (Axis group) | 0x0000 | 0x0001 | 0x0000 | Secondary axis group of the current chart. |
| 0x0002  (AttachedLabel) | 0x0000 | 0x0000 | 0x0000 | Chart title of the current chart. |
| 0x0002  (AttachedLabel) | 0x0002 | 0x0000 | 0x0000 | Default [data labels](#Section_cac7f43a3af142f58ff2814c2870427f) in the chart that are not displayed as a percentage of the sum of all [data points](#Section_9c986ad250d44fa1a157063ac5c971a0), and that do not contain values. |
| 0x0002  (AttachedLabel) | 0x0002 | 0x0001 | 0x0000 | Default data labels that contain values or percentage values. |
| 0x0002  (AttachedLabel) | 0x0002 | 0xFFFF | 0x0000 | Default for all text in the chart. |
| 0x0002  (AttachedLabel) | 0x0004 | 0x0000 | 0x0000 | **A**: The title formatting [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record of the Category axis or horizontal value axis on a scatter or bubble chart group. |
| 0x0002  (AttachedLabel) | 0x0004 | 0x0001 | 0x0000 | **B**: The title formatting Text record of value axis or vertical value axis on a scatter or bubble chart group. A chart MUST NOT have both **A** and **B**. |
| 0x0002  (AttachedLabel) | 0x0004 | 0x0002 | 0x0000 | **C**: The title formatting Text record of the series axis. A chart MUST NOT have both **B** and **C.** |
| 0x0002  (AttachedLabel) | 0x0005 | Data Point Index | Series Index | Data labels for data points in visible series, identified by the zero-based index of the [Series](#Section_d6eec0192d634c1e8080442af941b462) record of the current chart and the zero-based index of the [AttachedLabel](#Section_5ffc1bdab83b4d53a8604cf54f24cd75) record of the current series. |
| 0x0002 (AttachedLabel) | 0x0005 | 0xFFFF | Series Index | Default data labels for a given series, identified by the zero-based index of the Series record of the current chart. |
| 0x0004 (Axis) | 0x0000 | 0x0000 | 0x0000 | Category axis or fill effect of the walls of the current chart. |
| 0x0004 (Axis) | 0x0000 | 0x0001 | 0x0000 | Value axis or fill effect of the walls of the current chart. |
| 0x0004 (Axis) | 0x0000 | 0x0002 | 0x0000 | Series axis. |
| 0x0004 (Axis) | 0x0000 | 0x0003 | 0x0000 | Horizontal value axis for scatter chart group. |
| 0x0005 (Chart group) | 0x0000 | 0x0000 | 0x0000 | Chart group of the primary axis group. |
| 0x0005 (Chart group) | 0x0000 | 0x0001 | 0x0000 | Chart group of the secondary axis group. |
| 0x0006 (Dat) | 0x0000 | 0x0000 | 0x0000 | [Data table](#Section_69938f61d2e94da3af87e154edcb0d98) definition. |
| 0x0007 (Frame) | 0x0000 | 0x0000 | 0x0000 | [Frame](#Section_0cb3e202342740b4b93b277c0bd977ff) of the current CHARTFORMATS, LD, AXES, and ATTACHEDLABEL in the collection. |
| 0x0007 (Frame) | 0x0001 | 0x0000 | 0x0000 | Frame of the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). |
| 0x0007 (Frame) | 0x0002 | 0x0000 | 0x0000 | Frame of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)) |
| 0x0009 (Legend) | 0x0000 | 0x0000 | 0x0000 | Legend of the data table. |
| 0x0009 (Legend) | 0x0001 | 0x0000 | 0x0000 | Legend of the chart. |
| 0x000A (LegendException) | 0x0000 | 0xFFFF | 0x0000 | Default legend formatting exception information for entries in the current legend. |
| 0x000A (LegendException) | 0x0000 | Series Index | 0x0000 | Legend formatting exception information for a series index entry in the current legend, identified by the zero-based index of the Series record of the current chart. |
| 0x000C (Series) | 0x0000 | Series Index | 0x0000 | Series of the current chart, identified by the zero-based index of the Series record of the current chart. |
| 0x000D ([Chart](#Section_8f56b001f57445e0932f84cf30408323)) | 0x0000 | 0x0000 | 0x0000 | Current chart. |
| 0x000E (DataFormat) | Series Index | 0xFFFF | 0x0000 | Default formatting for all data points of a given series identified by the zero-based index of the Series record of the current chart. |
| 0x000E (DataFormat) | Series Index | DataFormat Index | 0x0000 | Formatting of a given data point identified by the zero-based index of the Series record of the current chart and the zero-based index of the DataFormat record of the current chart. |
| 0x000F (DropBar) | 0x0000 | 0x0000 | 0x0000 | [**Up bar**](#gt_24acb31a-39aa-4a44-829b-c18e1767a4ac) of the current chart. |
| 0x000F (DropBar) | 0x0000 | 0x0001 | 0x0000 | [**Down bar**](#gt_d8bcbdc9-46a4-44e5-b184-40c565e4dd07) of the current chart. |

**iObjectInstance1 (2 bytes):**  An unsigned integer that specifies additional information about the context of the object, together with **iObjectContext**, **iObjectInstance2,** and **iObjectKind**. This field MUST equal one of the values specified in the previous [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) under the **iObjectContext** field.

**iObjectInstance2 (2 bytes):**  An unsigned integer that specifies more information about the object context, together with **iObjectContext**, **iObjectInstance1**, and **iObjectKind.** This field MUST equal one of the values specified in the previous table under the **iObjectContext** field.

### 2.4.267 StartObject

The **StartObject** record specifies the beginning of a collection of [Future Record Type](#Section_b660b67822684414839ed1ae9a4e4e85) records as defined by the [Chart Sheet Substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a feature saved as a Future Record Type such that an application that does not support the feature can preserve it. This record MUST have a matching [EndObject](#Section_bb3ce42b14974ce2b58d973549813772) record. StartObject andEndObject pairs can be nested. Up to 100 levels of blocks can be nested.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iObjectKind | | | | | | | | | | | | | | | | iObjectContext | | | | | | | | | | | | | | | |
| iObjectInstance1 | | | | | | | | | | | | | | | | iObjectInstance2 | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0854.

**iObjectKind (2 bytes):**  An unsigned integer that specifies the kind of object that is encompassed by the block. MUST be a value from the following table:

| Value | Object Type Encompassed By the Block | Description of Future Record Type Contents |
| --- | --- | --- |
| 0x0010 | A sequence of records that conforms to the ATTACHEDLABEL rule is encompassed by the block. | [**Display units**](#gt_7d807b62-cff1-4e03-a73f-840844345b83) labels of the current [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). |
| 0x0011 | A sequence of records that conforms to \*([Font](#Section_291a910ccb694799875ea201845d4fd1) [[Fbi](#Section_f3d70b00be314223b3ec717dfab54ec1)]) is encompassed by the block, as specified by the FONTLIST rule. | [**Font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) cache for a given application version. The block contains fonts for only those records introduced in the specified application version. |
| 0x0012 | A [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) record followed by a sequence of records that conforms to the ATTACHEDLABEL rule is encompassed by the block when in a sequence of records that conforms to the DFTTEXT rule.  A sequence of records that conforms to the ATTACHEDLABEL rule is encompassed by the block when in a sequence of records that conforms to the CHARTFOMATS rule. | An extended [data label](#Section_cac7f43a3af142f58ff2814c2870427f). |

**iObjectContext (2 bytes):**  An unsigned integer that specifies the object context. MUST be 0x0000.

**iObjectInstance1 (2 bytes):**  An unsigned integer that specifies additional information about the context of the object, together with **iObjectContext**, **iObjectInstance2**, and **iObjectKind**. This field MUST equal 0x0000 if **iObjectKind** is equal to 0x0010 or 0x0012. MUST be a value from the following table if **iObjectKind** is equal to 0x0011:

| iObjectInstance1 | Application Version |
| --- | --- |
| 0x0008 | Specifies the application version.[<120>](#Appendix_A_120" \o "Product behavior note 120) |
| 0x0009 | Specifies the application version.[<121>](#Appendix_A_121" \o "Product behavior note 121) |
| 0x000A | Specifies the application version.[<122>](#Appendix_A_122" \o "Product behavior note 122) |
| 0x000B | Specifies the application version.[<123>](#Appendix_A_123" \o "Product behavior note 123) |
| 0x000C | Specifies the application version.[<124>](#Appendix_A_124" \o "Product behavior note 124) |
| 0x000E | Specifies the application version.[<125>](#Appendix_A_125" \o "Product behavior note 125) |
| 0x000F | Specifies the application version.[<126>](#Appendix_A_126" \o "Product behavior note 126) |

**iObjectInstance2 (2 bytes):**  An unsigned integer that specifies more information about the object context, together with **iObjectContext**, **iObjectInstance1** and **iObjectKind.** This field MUST equal 0x0000.

### 2.4.268 String

The **String** record specifies the string value of a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| string (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**string (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the string value of a formula (section 2.2.2). The value of **string.cch** MUST be less than or equal to 32767.

### 2.4.269 Style

The **Style** record specifies a [cell style](#Section_f9425d3f127545be8389bf80f65b56b7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ixfe | | | | | | | | | | | | A | | | B | builtInData (optional) | | | | | | | | | | | | | | | |
| user (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ixfe (12 bits):**  An unsigned integer that specifies the zero-based index of the [cell style XF](#Section_3d5348ded9df4c31b1fd9f9377273152) in the collection of [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). See [XFIndex](#Section_0b683865eeee4621a3d8b18d20a2afd9) for more information about the organization of XF records in the file.

**A - unused (3 bits):**  Undefined and MUST be ignored.

**B - fBuiltIn (1 bit):**  A bit that specifies whether the cell style is built-in.

**builtInData (2 bytes):**  An optional [BuiltInStyle](#Section_ff60de5e7d8a42b790563250e22019ec) structure that specifies the built-in cell style properties. MUST exist if and only if **fBuiltIn** is 1. The value of **builtInData.istyBuiltIn** MUST be less than or equal to 0x09.

**user (variable):**  An optional [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the user-defined cell style. MUST exist if and only if **fBuiltIn** is 0. The number of characters in this string SHOULD be greater than or equal to 1 and MUST be less than or equal to 255.[<127>](#Appendix_A_127" \o "Product behavior note 127)

### 2.4.270 StyleExt

The **StyleExt** record specifies additional information for a [cell style](#Section_f9425d3f127545be8389bf80f65b56b7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | reserved | | | | | iCategory | | | | | | | | builtInData | | | | | | | | | | | | | | | |
| stName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xfProps (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0892.

**A - fBuiltIn (1 bit):**  A bit that specifies if this is a built-in cell style. If the value is 1, this is a built-in cell style. This value MUST match the **fBuiltIn** field of the preceding [Style](#Section_13bec5ebe6ec4dc192350e7f9e5426a1) record.

**B - fHidden (1 bit):**  A bit that specifies whether the cell style is not displayed in the user interface.

**C - fCustom (1 bit):**  A bit that specifies whether the built-in cell style was modified by the user and thus has a custom definition. If this field is equal to 1, then **fBuiltIn** MUST equal 1.

**reserved (5 bits):**  MUST be zero and MUST be ignored.

**iCategory (1 byte):**  An unsigned integer that specifies which [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) that this style belongs to. MUST be one of the values from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Custom style |
| 0x01 | Good, bad, neutral style |
| 0x02 | Data model style |
| 0x03 | Title and heading style |
| 0x04 | Themed cell style |
| 0x05 | [**Number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) style |

**builtInData (2 bytes):**  A [BuiltInStyle](#Section_ff60de5e7d8a42b790563250e22019ec)structure that specifies the built-in cell style properties. If **fBuiltIn** is 0, this field MUST be 0xFFFF and MUST be ignored. If **fBuiltIn** is 1, this field MUST match the **builtInData** field of the preceding Style record.

**stName (variable):**  An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) structure that specifies the name of the style to extend. MUST be less than or equal to 255 characters in length. If **fBuiltIn** is 0, the name specified by this field MUST match the name specified by the **user** field of the preceding Style record.

**xfProps (variable):**  An [XFProps](#Section_bf4f3634ed2d4207b18ba23dd6b3d565) structure that specifies the formatting properties.

### 2.4.271 SupBook

The **SupBook** record specifies a [supporting link](#Section_cc5920ba01074d92bbdfc12ca986f31f) and specifies the beginning of a collection of records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies the contents of an [external workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc), [DDE data source](#Section_b11538fba8244cc3bf8834a1cf5f3559), or [OLE data source](#Section_2318e95632614d72a28e412392b8c919).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ctab | | | | | | | | | | | | | | | | cch | | | | | | | | | | | | | | | |
| virtPath (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgst (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ctab (2 bytes):**  An undefined field, a reserved field, or an unsigned integer that specifies the number of [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) in a referenced external workbook. The type and meaning of this field is dependent on the type of supporting link specified by the **cch** and **virtPath** fields, and is defined in the following table:

| Type of supporting link specified by cch and virtPath | Meaning |
| --- | --- |
| Self-referencing | Undefined and MUST be ignored. |
| Same-sheet referencing  DDE [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) referencing  OLE data source referencing | Reserved. MUST be 0x0000. |
| Add-in referencing | Reserved. MUST be 0x0001. |
| External workbook referencing | An unsigned integer that specifies the count of sheets in the referenced external workbook. |
| Unused | An unsigned integer that specifies the count of sheets in the external workbook formerly referenced by this supporting link, if this supporting link was an external workbook referencing type, when used. Otherwise, this value MUST be 0x0000. |

**cch (2 bytes):** An unsigned integer that specifies a type of supporting link or specifies the length of the string in **virtPath**. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0401 | This record specifies a self-referencing supporting link. |
| 0x3A01 | This record specifies an add-in referencing type of supporting link. The names of all [**add-in functions**](#gt_19f0478a-919a-4951-b8c0-f9900a1ddd3e) implemented by [**XLL**](#gt_3d6e3f45-91e7-46d5-871c-0b2fde20b5f5), or [**COM**](#gt_ef2ebebc-1760-407a-9ace-af48f9050e02) automation [**add-ins**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6) that are referenced by formulas in this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe), MUST be specified in the [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) records that follow this record. |
| 0x0001 to 0x00ff (inclusive) | The type of supporting link specified by this record is specified by **virtPath**. This value is the count of characters in **virtPath**. |

**virtPath (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the type of supporting link and, if applicable, the target of that supporting link. This field MUST exist if and only if the value of **cch** is between 0x0001 and 0x00ff (inclusive). The length of the string in this field MUST be equal to **cch**. The contents of this field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| A single character of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) value 0x20 (SPACE) | This record specifies an unused supporting link. This supporting link MUST NOT be used by any [external reference consumers](#Section_70b28c8b29cb4aff89f5d6023c28fbf6). |
| A single character of Unicode value 0x00 (NULL) | This record specifies a same-sheet referencing type of supporting link. |
| A string that conforms to the OLE-link rule, as specified in [VirtualPath](#Section_480c3d2a19d24396964cc16cbe9d1270) | This record specifies a DDE data source referencing or an OLE data source referencing type of supporting link. The value of this field specifies the target of the supporting link. |
| A string that conforms to the virt-path rule, but does not conform to the ole-link rule, as specified in VirtualPath | This record specifies an external workbook referencing type of supporting link. The value of this field specifies the path and file name of the external workbook. |

**rgst (variable):**  An array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structures that specify sheet names in the external workbook. This field MUST exist if and only if the supporting link type specified by **cch** and **virtPath** is external workbook referencing or unused. If this field exists, the number of elements in this array MUST be equal to **ctab.** The contents and meaning of this array are defined in the following table:

| Type of supporting link | rgst value |
| --- | --- |
| External workbook referencing | An array of XLUnicodeString structures that specify the sheet names in the external workbook. Each element in this array MUST conform to the restrictions set on the **stName** field of the [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) record. |
| Unused | An array of XLUnicodeString structures that provide placeholders for any [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) references to sheets in this unused supporting link. Each element in this array MUST be a string that contains a single character of Unicode value 0x20 (SPACE). |

### 2.4.272 Surf

The **Surf** record specifies that the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) is a surface chart group and specifies the chart group attributes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | reserved | | | | | | | | | | | | | |

**A - fFillSurface (1 bit):**  A bit that specifies whether the surface chart group is wireframe or has a [**fill**](#gt_215c1c51-d5ef-46af-8596-d7ef63c1fe89). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Surface chart group is wireframe. |
| 1 | Surface chart group has a fill. |

**B - f3DPhongShade (1 bit):**  A bit that specifies whether [**3-D Phong shading**](#gt_f97b18d4-bf3e-4e80-bd1c-4f58aba7c43b) is displayed.

**reserved (14 bits):**  MUST be zero, and MUST be ignored.

### 2.4.273 SXAddl Records

#### 2.4.273.1 Continue\_SxaddlSxString

The **Continue\_SxaddlSxString** record specifies a continuation of the [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) in the preceding [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) record. If the string specified by the SXAddl\_SXString is longer than 255 characters, the first 255 characters of the string exist in the SXAddl\_SXString in the preceding SXAddl record. Subsequent 255 character segments exist in one or more Continue\_SxaddlSxString records that exist after the SXAddl record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stContinue (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of the **hdr.sxc** field MUST equal the value of the **hdr.sxc** field of the preceding SXAddl record and the **hdr.sxd** field MUST equal the value of the **hdr.sxd** field of the preceding SXAddl record.

**stContinue (variable):** An SXAddl\_SXString structure that specifies the next segment of the string.

#### 2.4.273.2 SXAddl

The **SXAddl** record specifies additional information for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e), or [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289). The current [class](#Section_3450b26af2b247dd982c6b9eb2d448b0) and full type of this record are specified by the **hdr** field which determines the contents of the **data** field. See [Usage of SXAddl records](#Section_db61fa8bdb7b4e1c99615c2f3ed1c369) for more information.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | data (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure that specifies header information for an SXAddl record.

**data (variable):** A variable-size field that contains data specific to the full record type of the SXAddl record.

#### 2.4.273.3 SXAddl\_SXCAutoSort\_SXDEnd

The **SXAddl\_SXCAutoSort\_SXDEnd** record specifies the end of an [SXCAutoSort class](#Section_212512d2c740431f838b7ec651364e2f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x12 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.4 SXAddl\_SXCAutoSort\_SXDId

The **SXAddl\_SXCAutoSort\_SXDId** record specifies information for [pivot field sorting](#Section_6a008d4253834e13a1d06d8ee5d93b76) for an [SXCAutoSort class](#Section_212512d2c740431f838b7ec651364e2f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | reserved1 | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x12 and the value of **hdr.sxd** MUST equal 0x00.

**A - fAscendSort (1 bit):** A bit that specifies whether the [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7) is ascending or descending. The value MUST be one of the values from the following table:

| Value | Description |
| --- | --- |
| 0 | Sort order is descending. |
| 1 | Sort order is ascending. |

**reserved1 (31 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.5 SXAddl\_SXCCache\_SXDEnd

The **SXAddl\_SXCCache\_SXDEnd** record specifies the end of an [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x03 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.6 SXAddl\_SXCCache\_SXDId

The **SXAddl\_SXCCache\_SXDId** record specifies how an [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7) is associated with other records for a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | idCache | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x03 and the value of **hdr.sxd** MUST equal 0x00.

**idCache (4 bytes):** An unsigned integer that specifies the PivotCache [**stream**](#gt_f3529cd8-50da-4f36-aa0b-66af455edbb6) associated with this SxcCache class. MUST be equal to the **idStm** field of the [SXStreamID](#Section_a4dc3f5438904e35aad080a16b4b4cff) record of the PivotCache stream associated with this SxcCache class.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.7 SXAddl\_SXCCache\_SXDInfo12

The **SXAddl\_SXCCache\_SXDInfo12** record specifies information for a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) for an [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | reserved1 | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x03 and the value of **hdr.sxd** MUST equal 0x41.

**A - fSheetData (1 bit):** MUST be zero, and MUST be ignored.

**B - fSrvSupportAttribDrill (1 bit):**  A bit that specifies whether the [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) of the PivotCache supports attribute drilldown. MUST be ignored if the data source is not [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f).

**C - fSrvSupportSubQuery (1 bit):** A bit that specifies whether the data source of the PivotCache supports the MDX SUBSELECT statement. MUST be ignored if the data source is not OLAP.

**reserved1 (29 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.8 SXAddl\_SXCCache\_SXDInvRefreshReal

The **SXAddl\_SXCCache\_SXDInvRefreshReal** record specifies properties related to [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) for an [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | reserved1 | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x03 and the value of **hdr.sxd** MUST equal 0x34.

**A - fEnableRefresh (1 bit):** A bit that specifies whether refresh is enabled for the PivotCache.

**B - fInvalid (1 bit):** A bit that specifies whether the [cache records](#Section_fe6e4ca0a9b646a4898124e4b61a770a) are not valid. If the value is 1, the cache records MUST be ignored. See cache record for more information.

**reserved1 (30 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.9 SXAddl\_SXCCache\_SXDVer10Info

The **SXAddl\_SXCCache\_SXDVer10Info** record specifies information for a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) for an [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| citmGhostMax | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bVerCacheLastRefresh | | | | | | | | bVerCacheRefreshableMin | | | | | | | | numDateCopy | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x03 and the value of **hdr.sxd** MUST equal 0x02.

**reserved1 (6 bytes):** MUST be zero, and MUST be ignored.

**citmGhostMax (4 bytes):** A signed integer that specifies the number of unused [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) to allow before discarding unused cache items. MUST[<128>](#Appendix_A_128" \o "Product behavior note 128) be greater than or equal to -1 and less than or equal to 1048576. If this value is -1, the number of unused cache items retained by the application is optimized to balance memory usage on the system and future usage of cache items.

**bVerCacheLastRefresh (1 byte):** A [DataFunctionalityLevel](#Section_e2661c5bd55247a697ee7c72ad88be4b) type that specifies the [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) that the PivotCache was last refreshed with. MUST be 0xFF or one of the values of the DataFunctionalityLevel type. If this value is equal to 0xFF, the data functionality level is not set.

**bVerCacheRefreshableMin (1 byte):** A DataFunctionalityLevel type that specifies the lowest data functionality level the application is allowed to [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) the PivotCache with. MUST be 0xFF or one of the values of the DataFunctionalityLevel type. If this value is equal to 0xFF, the data functionality level is not set.

**numDateCopy (8 bytes):** A [DateAsNum](#Section_f8099a22ecdf407ea1ef2f38cb5d211e) structure that specifies the date and time when the PivotCache was last refreshed.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.10 SXAddl\_SXCCache\_SXDVerSXMacro

The **SXAddl\_SXCCache\_SXDVerSXMacro** record specifies the [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) of the application that created the [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) for an [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwVer | | | | | | | | reserved1 | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x03 and the value of **hdr.sxd** MUST equal 0x18.

**dwVer (1 byte):** A [DataFunctionalityLevel](#Section_e2661c5bd55247a697ee7c72ad88be4b) type that specifies the data functionality level that the PivotCache was created with.

**reserved1 (1 byte):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.11 SXAddl\_SXCCache\_SXDVerUpdInv

The **SXAddl\_SXCCache\_SXDVerUpdInv** record specifies the record-handling behavior for following records of the [SXCCache class](#Section_1681856cae2d4f64b8cc40d2702754e7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**data (12 bytes):** An [SXAddl\_SXDVerUpdInv](#Section_90e5e073114748dc814a8a30b10c2513) structure. The value of **data.hdr.sxc** MUST equal 0x03 and the value of **data.hdr.sxd** MUST equal 0x01. The value of **data.dwVersionInvalidates** MUST equal 0x0002 or 0x00FF.

If the value of **data.dwVersionInvalidates** is not 0x00FF and is greater than or equal to the value of the **bVerCacheLastRefresh** field of the [SXAddl\_SXCCache\_SXDVer10Info](#Section_38d95aa179c14ea697b37e460ff9a61c) record of this SXCCache class, the following records of this SXCCache class (including nested classes or until another SXAddl\_SXCCache\_SXDVerUpdInv record is encountered) MUST be ignored.

#### 2.4.273.12 SXAddl\_SXCCacheField\_SXDCaption

The **SXAddl\_SXCCacheField\_SXDCaption** record specifies the caption of a [cache field](#Section_6497eb794042445780e75959c9f0583c) for an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103). This record exists only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b) and the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than 2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stCaption (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x2F.

**stCaption (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the caption of the cache field. The number of characters in the string MUST be less than or equal to 255.

#### 2.4.273.13 SXAddl\_SXCCacheField\_SXDEnd

The **SXAddl\_SXCCacheField\_SXDEnd** record specifies the end of an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.14 SXAddl\_SXCCacheField\_SXDId

The **SXAddl\_SXCCacheField\_SXDId** record specifies how an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103) is associated with other records for a [cache field](#Section_6497eb794042445780e75959c9f0583c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stSourceName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x00.

**stSourceName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the cache field to which this SxcCacheField class applies. The number of characters in the string MUST be less than or equal to 255. The corresponding [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record is the SXFDB record with its **stFieldName** field equal to the value of this field. If there exists no such SXFDB record, then this SxcCacheField class MUST be ignored.

#### 2.4.273.15 SXAddl\_SXCCacheField\_SXDIfdbMempropMap

The **SXAddl\_SXCCacheField\_SXDIfdbMempropMap** record specifies the indexes of the [member properties](#Section_e5db3a66677f43db8fb038584797c95f) for the [cache field](#Section_6497eb794042445780e75959c9f0583c) for an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103). This record exists only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b) and the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than 2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgMap (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x30.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

**rgMap (variable):** An array of 2-byte unsigned integers. The array MUST NOT be empty. Each element in the array specifies a cache field index, as specified by Cache Fields. The referenced cache field is associated with a member property as specified in member properties. The **isxtl** field of the [SXVDTEx](#Section_1dcf2beeca2c4c3abd4278bc22c3043d) record of the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) associated with the referenced cache field MUST be equal to 0x00007FFF or equal to **isxtl** of the SXVDTEx record of the pivot field associated with this cache field. The **ihdb** field of the [SXAddl\_SXCCacheField\_SXDProperty](#Section_60f8c6f400b24c92a48f5801ae952872) record associated with the referenced cache field MUST be equal to the **isxth** field of SXVDTEx record of the pivot field associated with this cache field. The size of the array MUST be equal to the **ifdbMemProp** field inthe [SXAddl\_SXCCacheField\_SXDIfdbMpMapCount](#Section_2c0324ea60f54fe2a8ff02cba81bec58) record in this [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) collection. The value of each element in the array MUST be less than the number of cache fields in this [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) as specified by the cfdbdb field of the [SXDB](#Section_f0e04937a8cf4a1c891bea1fa4b85fdc) record for this PivotCache.

#### 2.4.273.16 SXAddl\_SXCCacheField\_SXDIfdbMpMapCount

The **SXAddl\_SXCCacheField\_SXDIfdbMpMapCount** record specifies the number of [member properties](#Section_e5db3a66677f43db8fb038584797c95f) for the [cache field](#Section_6497eb794042445780e75959c9f0583c), for an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103). This record exists only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b) and the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than 2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ifdbMemProp | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x31.

**ifdbMemProp (4 bytes):** An unsigned integer that specifies the number of elements in the array specified by the **rgMap** field of the [SXAddl\_SXCCacheField\_SXDIfdbMempropMap](#Section_b60cba0e29cc485fa3b73371b418423b) record that follows this record. MUST be greater than 0 and less than the number of cache fields in this [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e).

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.17 SXAddl\_SXCCacheField\_SXDProperty

The **SXAddl\_SXCCacheField\_SXDProperty** record specifies the hierarchy information of the [cache field](#Section_6497eb794042445780e75959c9f0583c) for an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103). This record exists only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b), the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than 2, and this cache field is associated with a [member property](#Section_e5db3a66677f43db8fb038584797c95f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ihdb | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x05.

**ihdb (4 bytes):** An unsigned integer that specifies a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) index. The pivot hierarchy index specifies which pivot hierarchy this cache field is part of.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.18 SXAddl\_SXCCacheField\_SXDPropName

The **SXAddl\_SXCCacheField\_SXDPropName** record specifies the name of a [member property](#Section_e5db3a66677f43db8fb038584797c95f) of the associated [cache field](#Section_6497eb794042445780e75959c9f0583c) for an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103). This record exists only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b), the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than 2, and this cache field is associated with a member property.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stPropName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x40.

**stPropName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the member property associated with this cache field. The length of the string MUST be greater than 0 and less than 32768.

#### 2.4.273.19 SXAddl\_SXCCacheField\_SXDSxrmitmCount

The **SXAddl\_SXCCacheField\_SXDSxrmitmCount** record specifies the number of [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) records in this [cache field](#Section_6497eb794042445780e75959c9f0583c) for an [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103). This record exists only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b) and the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than 2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | citm | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x04 and the value of **hdr.sxd** MUST equal 0x2D.

**citm (4 bytes):** An unsigned integer that specifies the number of cache item records. The value MUST be greater than or equal to 0 and less than or equal to 1048576. The number of [SXADDLCACHEITEM](#section_ca4c174887294a93abb94602b3a01fb1) collections that follows this record MUST match this value.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.20 SXAddl\_SXCCacheItem\_SXDEnd

The **SXAddl\_SXCCacheItem\_SXDEnd** record specifies the end of a collection of [SxcCacheItem classes](#Section_23b4298b5a8e4357b2c07c2ea90d91c5) for the [SxcCacheField class](#Section_102acda2fb58485d9a40a37d0a219103).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x09 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.21 SXAddl\_SXCCacheItem\_SXDId

The **SXAddl\_SXCCacheItem\_SXDId** record specifies how an [SxcCacheItem class](#Section_23b4298b5a8e4357b2c07c2ea90d91c5) is associated with other records for a [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0). The records of this class exist if and only if this is an [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b), the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than or equal to 3, the **fAllAtoms** field of the [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record of this [cache field](#Section_6497eb794042445780e75959c9f0583c) is equal to 1, and the **catm** field of that SXFDB record is greater than 0.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwItem | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x09 and the value of **hdr.sxd** MUST equal 0x00.

**dwItem (4 bytes):** An unsigned integer that specifies the cache item index that this SxcCacheItem class applies to.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.22 SXAddl\_SXCCacheItem\_SXDItmMpMapCount

The **SXAddl\_SXCCacheItem\_SXDItmMpMapCount** record specifies the number of [member property](#Section_e5db3a66677f43db8fb038584797c95f) mappings for this [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0), for an [SxcCacheItem class](#Section_23b4298b5a8e4357b2c07c2ea90d91c5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cMemProps | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x09 and the value of **hdr.sxd** MUST equal 0x33.

**cMemProps (4 bytes):**  An unsigned integer that specifies the number of member property mappings for this cache item.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.23 SXAddl\_SXCCacheItem\_SXDItmMpropMap

The **SXAddl\_SXCCacheItem\_SXDItmMpropMap** record specifies the mapping of the [member properties](#Section_e5db3a66677f43db8fb038584797c95f) for this [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0), for an [SxcCacheItem class](#Section_23b4298b5a8e4357b2c07c2ea90d91c5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgMemProps (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x09 and the value of **hdr.sxd** MUST equal 0x32.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

**rgMemProps (variable):** An array of 4-byte signed integers. Each element of this array specifies a cache item index, as specified by Cache Items, in the [cache field](#Section_6497eb794042445780e75959c9f0583c) associated with that element. For a given element, the associated cache field is the cache field specified by the element with the same index in the **rgMap** array of the preceding [SXAddl\_SXCCacheField\_SXDIfdbMempropMap](#Section_b60cba0e29cc485fa3b73371b418423b) record. Each referenced cache item specifies a member property value.

A value of -1 specifies no cache item. Each element in this array MUST be greater than or equal to -1.

#### 2.4.273.24 SXAddl\_SXCCacheItem\_SXDSxrmitmDisp

The **SXAddl\_SXCCacheItem\_SXDSxrmitmDisp** record specifies the display name of this [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) for an [SxcCacheItem class](#Section_23b4298b5a8e4357b2c07c2ea90d91c5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stDisplay (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x09 and the value of **hdr.sxd** MUST equal 0x2E.

**stDisplay (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the display name of this cache item.

#### 2.4.273.25 SXAddl\_SXCField\_SXDEnd

The **SXAddl\_SXCField\_SXDEnd** record specifies the end of an [SxcField class](#Section_51de615365d949198b2a537779e0a9f7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x01 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.26 SXAddl\_SXCField\_SXDId

The **SXAddl\_SXCField\_SXDId** record specifies how an [SxcField class](#Section_51de615365d949198b2a537779e0a9f7) is associated with other records for a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x01 and the value of **hdr.sxd** MUST equal 0x00.

**stName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the pivot field to which this SxcField class applies. The corresponding [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record, of the associated [cache field](#Section_6497eb794042445780e75959c9f0583c) of this pivot field, is the SXFDB record with its **stFieldName** field equal to the value of this field. If there exists no such SXFDB record, then this SxcField class MUST be ignored.

#### 2.4.273.27 SXAddl\_SXCField\_SXDVer10Info

The **SXAddl\_SXCField\_SXDVer10Info** record specifies additional properties of the [PivotTable fields](#Section_1edf7f2294084945b2de56526c14fca5) for an [SxcField class](#Section_51de615365d949198b2a537779e0a9f7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | reserved1 | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x01 and the value of **hdr.sxd** MUST equal 0x02.

**A - fHideDD (1 bit):** A bit that specifies whether the per pivot field drop-down user interface is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) for the pivot field.

**reserved1 (31 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.28 SXAddl\_SXCField12\_SXDAutoshow

The **SXAddl\_SXCField12\_SXDAutoshow** record specifies the number of items for [simple filters](#Section_d662b8d1d1234fc5bac05fd76cdf0ff0) in the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) for an [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | citmAutoShow | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x17 and the value of **hdr.sxd** MUST equal 0x37.

**citmAutoShow (4 bytes):** An unsigned integer that specifies the number of items for simple filters. The value MUST be greater than or equal to 1 and less than or equal to 0x7FFFFFFF.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.29 SXAddl\_SXCField12\_SXDEnd

The **SXAddl\_SXCField12\_SXDEnd** record specifies the end of an [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x17 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.30 SXAddl\_SXCField12\_SXDId

The **SXAddl\_SXCField12\_SXDId** record specifies how this [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85) is associated with other records for a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x17 and the value of **hdr.sxd** MUST equal 0x00.

**stName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the pivot field to which this SXCField12 class applies. The corresponding [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record, of the associated [cache field](#Section_6497eb794042445780e75959c9f0583c) of this pivot field, is the SXFDB record with its **stFieldName** field equal to the value of this field. If there exists no such SXFDB record, then this SXCField12 class MUST be ignored.

#### 2.4.273.31 SXAddl\_SXCField12\_SXDISXTH

The **SXAddl\_SXCField12\_SXDISXTH** record specifies a particular [Pivot Hierarchy](#Section_54818c671590494084e0c3ff8b433c33) to which this [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) is associated for an [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | isxth | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x17 and the value of **hdr.sxd** MUST equal 0x1C.

**isxth (4 bytes):** An unsigned integer that specifies a pivot hierarchy index that specifies the pivot hierarchy to which this pivot field is associated. See [Association of Pivot Hierarchies and Pivot Fields and Cache Fields](#Section_01a66b9be4a24396b55c28d6207fd28f) for more information.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.32 SXAddl\_SXCField12\_SXDMemberCaption

The **SXAddl\_SXCField12\_SXDMemberCaption** record specifies the name of the [member property](#Section_e5db3a66677f43db8fb038584797c95f) used as a caption for the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5), for an [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stMemberPropertyCaptionUnique (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x17 and the value of **hdr.sxd** MUST equal 0x11.

**stMemberPropertyCaptionUnique (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the unique name of the member property used as a caption for the pivot field. MUST be ignored if the value of **fUseMemPropCaption** in[SXAddl\_SXCField12\_SXDVer12Info](#Section_f7f523c98b2d4eea993b80f272c83a30) is not equal to 1.

#### 2.4.273.33 SXAddl\_SXCField12\_SXDVer12Info

The **SXAddl\_SXCField12\_SXDVer12Info** record specifies additional properties of a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) for an [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | D | E | F | reserved2 | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x17 and the value of **hdr.sxd** MUST equal 0x19.

**A - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**B - fHiddenLvl (1 bit):** A bit that specifies whether the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) pivot field is a [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) level. The value is ignored if it is not an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f).

**C - fUseMemPropCaption (1 bit):** A bit that specifies whether the [member property](#Section_e5db3a66677f43db8fb038584797c95f) is used as a caption for the pivot field. If it is set and there is a [SXAddl\_SXCField12\_SXDMemberCaption](#Section_549a05915771454699749271cfd387b3) record in this SXCField12 class, then the value from the member property specified by SXAddl\_SXCField12\_SXDMemberCaption is used as captions for the [pivot items](#Section_58891cc5dd9b4293a97831070779524f) of this pivot field.

**D - fCompact (1 bit):** A bit that specifies where the next pivot field is displayed in the [PivotTable layout](#Section_2f81b5b422d546778ec53c5dc1ad80d4).

| Value | Meaning |
| --- | --- |
| 0x0 | The pivot field is displayed in the next column on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). |
| 0x1 | The pivot field is displayed in the same column on the sheet. |

**E - fNotAutoSortDft (1 bit):** A bit that specifies whether, during the next sort operation that is done on this pivot field, the pivot items are sorted or whether the sort condition is remembered and reapplied on subsequent recalculation of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). A value of 1 specifies that pivot items are to be sorted.

**F - fFilterInclusive (1 bit):** A bit that specifies whether any [manual filter](#Section_b0b282651e334c86ad030f5693c1d1e4) applied to this pivot field specifies pivot items that are included or excluded. If this pivot field is associated with a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), this value MUST equal the **fFilterInclusive** field on the [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f) record that specifies the pivot hierarchy that this pivot field is associated with. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Any manual filter applied to this pivot field specifies pivot items that are excluded. |
| 0x1 | Any manual filter applied to this pivot field specifies pivot items that are included. |

**reserved2 (26 bits):** MUST be zero, and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.34 SXAddl\_SXCField12\_SXDVerUpdInv

The **SXAddl\_SXCField12\_SXDVerUpdInv** record specifies the record handling behavior for following records of the [SXCField12 class](#Section_4bd42ced53544e2ea2665ea9f7787a85).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**data (12 bytes):** An [SXAddl\_SXDVerUpdInv](#Section_90e5e073114748dc814a8a30b10c2513) structure. The value of **data.hdr.sxc** MUST equal 0x17 and the value of **data.hdr.sxd** MUST equal 0x01. The value of **data.dwVersionInvalidates** MUST equal 0x0002 or 0x00FF.

If the value of **data.dwVersionInvalidates** is not equal to 0x00FF and is greater than or equal to the value of the **VerSxLastUpdated** field of the [QsiSXTag](#Section_3bb6727096504455944daa8e21dbb19f) record of this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), the following records of this SXCField12 class, including nested classes or until another SXAddl\_SXCField12\_SXDVerUpdInv record is encountered, MUST be ignored.

#### 2.4.273.35 SXAddl\_SXCGroup\_SXDEnd

The **SXAddl\_SXCGroup\_SXDEnd** record specifies the end of an [SxcGroup class](#Section_664bdb47dfb148b69cbd2d9b6bc48600).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x08 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.36 SXAddl\_SXCGroup\_SXDGrpInfo

The **SXAddl\_SXCGroup\_SXDGrpInfo** record specifies information about an [OLAP grouping](#Section_1e04807706d14d4f961ecacb50a12a3d) for an [SxcGroup class](#Section_664bdb47dfb148b69cbd2d9b6bc48600).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | | C | D | reserved2 | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| stUniqueName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stCaption (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stParentUniqueName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iGroupNum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x08 and the value of **hdr.sxd** MUST equal 0x07.

**A - unused1 (1 bit):** Undefined and MUST be ignored.

**B - reserved1 (2 bits):** MUST be zero, and MUST be ignored.

**C - unused2 (1 bit):** Undefined and MUST be ignored.

**D - fHasNoParent (1 bit):** A bit that specifies whether the **stParentUniqueName** fielddoes notexist.

**reserved2 (27 bits):** MUST be zero, and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**stUniqueName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the fully qualified unique name of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) group. The length of this field MUST be less than or equal to 255 characters.

**stCaption (variable):** An XLUnicodeString structure that specifies the caption (display name) of the OLAP group. The length of this field MUST be less than or equal to 255 characters.

**stParentUniqueName (variable):** An optional XLUnicodeString structure that specifies an [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32), which is the parent of the [**members (2)**](#gt_5d78ca78-a9b1-4791-8126-bf9494304b11) of this group in the OLAP [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7). This field exists if and only if the value of **fHasNoParent** is zero. The length of this field MUST be less than or equal to 255 characters.

**iGroupNum (4 bytes):** A signed integer that specifies a unique identifier for this OLAP group within the OLAP grouping level containing it. MUST be greater than zero.

#### 2.4.273.37 SXAddl\_SXCGroup\_SXDId

The **SXAddl\_SXCGroup\_SXDId** record specifies information about an [OLAP grouping](#Section_1e04807706d14d4f961ecacb50a12a3d) for an [SxcGroup class](#Section_664bdb47dfb148b69cbd2d9b6bc48600).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x08 and the value of **hdr.sxd** MUST equal 0x00.

**stName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) group. MUST contain less than or equal to 255 characters.

#### 2.4.273.38 SXAddl\_SXCGroup\_SXDMember

The **SXAddl\_SXCGroup\_SXDMember** record specifies an [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) or the name of a group in the subsequent [**OLAP level**](#gt_00e48261-dfd3-4f32-b53f-91e2344d6168) that is part of this [OLAP grouping](#Section_1e04807706d14d4f961ecacb50a12a3d) for an [SxcGroup class](#Section_664bdb47dfb148b69cbd2d9b6bc48600).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | reserved1 | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| stUnique (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x08 and the value of **hdr.sxd** MUST equal 0x08.

**A - unused1 (1 bit):** Undefined and MUST be ignored.

**B - fGroup (1 bit):** A bit that specifies whether this record specifies the name of a group in the subsequent OLAP level.

| Value | Meaning |
| --- | --- |
| 0 | This record specifies an OLAP member. |
| 1 | This record specifies the name of a group in the subsequent OLAP level. |

**C - unused2 (1 bit):** Undefined and MUST be ignored.

**reserved1 (29 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

**stUnique (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of an OLAP member or the name of a group in the subsequent OLAP level. If the value of **fGroup** is 0, this is an MDX unique name of an OLAP member. If the value of **fGroup** is 1, this is a group name and it MUST match the **stName** field in one of the [SXAddl\_SXCGroup\_SXDId](#Section_347f9d1820d4407cb61bbeefa6464c94) records for the subsequent OLAP level. The length of this field MUST be less than or equal to 255 characters.

#### 2.4.273.39 SXAddl\_SXCGrpLevel\_SXDEnd

The **SXAddl\_SXCGrpLevel\_SXDEnd** record specifies the end of an [SxcGrpLevel class](#Section_86689e7b9d264225b6be580f86cea53e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x07 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.40 SXAddl\_SXCGrpLevel\_SXDGrpLevelInfo

The **SXAddl\_SXCGrpLevel\_SXDGrpLevelInfo** record specifies information about an [OLAP group](#Section_1e04807706d14d4f961ecacb50a12a3d) for an [SxcGrpLevel class](#Section_86689e7b9d264225b6be580f86cea53e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | reserved2 | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| stLevelName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x08 and the value of **hdr.sxd** MUST equal 0x06.

**A - fGroupLevel (1 bit):** A bit that specifies whether this is a user-defined group level. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The record specifies a group level that corresponds to the source [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7) level. |
| 1 | The record specifies a user-defined group level. |

**B - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**C - fCustomRollup (1 bit):** A bit that specifies whether the OLAP group level has [**custom rollup**](#gt_2748adff-afd3-4c5d-8095-ec69348c0a89).

**reserved2 (29 bits):** MUST be zero, and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**stLevelName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the display name of the OLAP group level. The length of this field MUST be less than or equal to 255 characters.

#### 2.4.273.41 SXAddl\_SXCGrpLevel\_SXDId

The **SXAddl\_SXCGrpLevel\_SXDId** record specifies information about an [OLAP group](#Section_1e04807706d14d4f961ecacb50a12a3d), for an [SxcGrpLevel class](#Section_86689e7b9d264225b6be580f86cea53e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stUnique (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x07 and the value of **hdr.sxd** MUST equal 0x00.

**stUnique (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) that specifies the unique name of the OLAP group level.

#### 2.4.273.42 SXAddl\_SXCHierarchy\_SXDDisplayFolder

The **SXAddl\_SXCHierarchy\_SXDDisplayFolder** record specifies the name for the [**display folder**](#gt_6571ebdb-265a-40a1-807b-2aac2b5697d8) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) for an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stDisplayFolder (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x25.

**stDisplayFolder (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) that specifies the name of the pivot hierarchy display folder.

The length of this field MUST be greater than or equal to zero characters and less than or equal to 65535 characters.

#### 2.4.273.43 SXAddl\_SXCHierarchy\_SXDEnd

The **SXAddl\_SXCHierarchy\_SXDEnd** record specifies the end of an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.44 SXAddl\_SXCHierarchy\_SXDFilterMember

The **SXAddl\_SXCHierarchy\_SXDFilterMember** record specifies [**OLAP members**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) used in [OLAP page filtering](#Section_e04e871619234e2db02a270894d6be73) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) for an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) is greater than or equal to 3.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | reserved2 | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| cItems | | | | | | | | | | | | | | | | rgStPageItems (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x09.

**A - reserved1 (1 bit):** MUST be 1 and MUST be ignored.

**B - fMultFiltHavePlex (1 bit):** A bit that specifies whether multiple OLAP members in this pivot hierarchy are selected in the OLAP page filtering. If the value of this field is 0, **cItems** and **rgStPageItems** MUST be ignored.

**reserved2 (30 bits):** MUST be zero, and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**cItems (2 bytes):** An unsigned integer that specifies the number of elements in **rgStPageItems**. MUST be greater than 0 if **fMultFiltHavePlex** is 1.

**rgStPageItems (variable):** An array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671). Each element specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of an OLAP member selected in the OLAP page filtering. The number of elements in the array is specified by **cItems**. The length of each element MUST be greater than zero characters and less than or equal to 255 characters.

#### 2.4.273.45 SXAddl\_SXCHierarchy\_SXDFilterMember12

The **SXAddl\_SXCHierarchy\_SXDFilterMember12** record specifies an [OLAP manual filter](#Section_bd4665ebb56a44e690b9ceaf7ec55389) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | isxtl | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| cItems | | | | | | | | | | | | | | | | rgStMembers (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x3F.

**isxtl (4 bytes):** An unsigned integer that specifies the zero-based ordinal of the [**OLAP level**](#gt_00e48261-dfd3-4f32-b53f-91e2344d6168) in the pivot hierarchy that the OLAP manual filter applies to. MUST be greater than or equal to 0.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**cItems (2 bytes):** An unsigned integer that specifies the number of items in **rgStMembers**.

**rgStMembers (variable):** An array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671). Each element specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of an [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) selected in the OLAP manual filter. The number of elements in the array is specified by **cItems**. The length of each element MUST be greater than zero characters and less than or equal to 255 characters.

#### 2.4.273.46 SXAddl\_SXCHierarchy\_SXDIconSet

The **SXAddl\_SXCHierarchy\_SXDIconSet** record specifies the [**icon set**](#gt_15e781d5-cddc-4852-b031-1ebc6b601ca9) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwIconset | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x20.

**dwIconset (4 bytes):** An unsigned integer that specifies the icon set.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Default |
| 0x0001 | 3-arrow ascending |
| 0x0002 | 3-arrow descending |
| 0x0003 | 5-arrow ascending |
| 0x0004 | 5-arrow descending |
| 0x0005 | 5-arrow gray ascending |
| 0x0006 | Traffic lights |
| 0x0007 | Traffic lights 2 |
| 0x0008 | Quarters ascending |
| 0x0009 | Quarters descending |
| 0x000A | Signs |
| 0x000B | Symbols |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.47 SXAddl\_SXCHierarchy\_SXDId

The **SXAddl\_SXCHierarchy\_SXDId** record specifies how an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d) is associated with other records for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stHierUnq (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x00.

**stHierUnq (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) that specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the corresponding pivot hierarchy to which this SxcHierarchy class applies. The corresponding [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f), of the pivot hierarchy in the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), is the SXTH record with its **stUnique** field equal to the value of this field.

If there exists no such SXTH record, then this SxcHierarchy class MUST be ignored.

The length of this field MUST be greater than zero characters and less than or equal to 255 characters.

#### 2.4.273.48 SXAddl\_SXCHierarchy\_SXDInfo12

The **SXAddl\_SXCHierarchy\_SXDInfo12** record specifies additional properties for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | D | E | reserved1 | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x41.

**A - fUnbalancedRealKnown (1 bit):** A bit that specifies whether **fUnbalancedReal** is valid. MUST be 0 if the pivot hierarchy is grouped.

**B - fUnbalancedReal (1 bit):** A bit that specifies whether the pivot hierarchy is balanced or unbalanced. If the value is 1 and **fUnbalancedRealKnown** is 1, the pivot hierarchy is unbalanced. If the value is 0 and **fUnbalancedRealKnown** is 1, the pivot hierarchy is balanced. If **fUnbalancedRealKnown** is 0 the value is undefined.

**C - fUnbalancedGroupKnown (1 bit):** A bit that specifies whether **fUnbalancedGroup** is valid. MUST be 0 if the pivot hierarchy is not grouped.

**D - fUnbalancedGroup (1 bit):** A bit that specifies whether the [OLAP group](#Section_1e04807706d14d4f961ecacb50a12a3d) pivot hierarchy is balanced or unbalanced. If the value is 1 and **fUnbalancedGroupKnown** is 1, the pivot hierarchy is unbalanced. If the value is 0 and **fUnbalancedGroupKnown** is 1, the pivot hierarchy is balanced. If **fUnbalancedGroupKnown** is 0 the value is undefined.

**E - fHidden (1 bit):** A bit that specifies whether the [**OLAP hierarchy**](#gt_1e0ca171-3095-4e3c-9c69-65148df00a9c) corresponding to this pivot hierarchy is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd).

**reserved1 (27 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.49 SXAddl\_SXCHierarchy\_SXDKPIGoal

The **SXAddl\_SXCHierarchy\_SXDKPIGoal** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) goal [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stKPIGoal (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x28.

**stKPIGoal (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the KPI goal measure.

The length of this field MUST be greater than or equal to zero characters and less than or equal to 32767 characters.

#### 2.4.273.50 SXAddl\_SXCHierarchy\_SXDKPIStatus

The **SXAddl\_SXCHierarchy\_SXDKPIStatus** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) status [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stKPIStatus (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x29.

**stKPIStatus (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the KPI status measure.

The length of this field MUST be greater than or equal to zero characters and less than or equal to 32767 characters.

#### 2.4.273.51 SXAddl\_SXCHierarchy\_SXDKPITime

The **SXAddl\_SXCHierarchy\_SXDKPITime** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) time [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stKPITime (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x2C.

**stKPITime (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the KPI time [**Multidimensional Expressions (MDX)**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f).

The length of this field MUST be greater than or equal to zero characters and less than or equal to 32767 characters.

#### 2.4.273.52 SXAddl\_SXCHierarchy\_SXDKPITrend

The **SXAddl\_SXCHierarchy\_SXDKPITrend** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) trend [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stKPITrend (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x2A.

**stKPITrend (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the KPI trend measure.

The length of this field MUST be greater than or equal to zero characters and less than or equal to 32767 characters.

#### 2.4.273.53 SXAddl\_SXCHierarchy\_SXDKPIValue

The **SXAddl\_SXCHierarchy\_SXDKPIValue** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) value [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stKPIValue (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x27.

**stKPIValue (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the KPI value measure.

The length of this field MUST be greater than zero characters and less than or equal to 32767 characters.

#### 2.4.273.54 SXAddl\_SXCHierarchy\_SXDKPIWeight

The **SXAddl\_SXCHierarchy\_SXDKPIWeight** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) weight [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stKPIWeight (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x2B.

**stKPIWeight (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the KPI weight [**Multidimensional Expressions (MDX)**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f).

The length of this field MUST be greater than or equal to zero characters and less than or equal to 32767 characters.

#### 2.4.273.55 SXAddl\_SXCHierarchy\_SXDMeasureGrp

The **SXAddl\_SXCHierarchy\_SXDMeasureGrp** record specifies the name of the [**OLAP measure group**](#gt_a14d2b2b-03ca-40e2-a237-3d1a53f87261) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stMeasureGroup (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x24.

**stMeasureGroup (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the OLAP measure group.

The length of this field MUST be greater than or equal to zero characters and less than or equal to 65535 characters.

#### 2.4.273.56 SXAddl\_SXCHierarchy\_SXDParentKPI

The **SXAddl\_SXCHierarchy\_SXDParentKPI** record specifies the name of the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) parent [**KPI**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record MUST NOT exist if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stParentKPI (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x26.

**stParentKPI (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the parent KPI.

The length of this field MUST be greater than or equal to zero characters and less than or equal to 65535 characters.

#### 2.4.273.57 SXAddl\_SXCHierarchy\_SXDProperty

The **SXAddl\_SXCHierarchy\_SXDProperty** record specifies a [member property](#Section_e5db3a66677f43db8fb038584797c95f) of a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). The member property is displayed if the [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) is recalculated and the pivot hierarchy is either on the [row axis](#Section_3f46e7207706400cba9473cb829f869a) as specified by the **sxaxis.sxaxisRw** field of [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f) or on the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) as specified by the **sxaxis.sxaxisCol** field of SXTH.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | reserved1 | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| cchProperty | | | | | | | | | | | | | | | | stProperty (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchLevelUnq | | | | | | | | | | | | | | | | ichPropName | | | | | | | | | | | | | | | |
| cchPropName | | | | | | | | | | | | | | | | isxtl | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x05.

**A - fDisplayInReport (1 bit):** A bit that specifies whether this member property is displayed in the row axis or in the column axis, if this member property is associated with a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5).

**B - fDisplayInTip (1 bit):** A bit that specifies whether this member property is displayed in a [**ToolTip**](#gt_5100b5cd-9168-4f0c-a088-a143921b8640).

**C - fDisplayInCaption (1 bit):** A bit that specifies whether this member property is used as a caption for [pivot items](#Section_58891cc5dd9b4293a97831070779524f) in the pivot field that is in this pivot hierarchy and is specified by the [SXVDTex](#Section_1dcf2beeca2c4c3abd4278bc22c3043d) record with an isxtl field equal to the value of the isxtl field of this record. MUST be 0 if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) is less than 3.

**reserved1 (29 bits):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

**cchProperty (2 bytes):** An unsigned integer that specifies the length in characters of **stProperty**.

The value MUST be greater than or equal to five characters and less than or equal to 255 characters.

**stProperty (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of this member property. If a [cache field](#Section_6497eb794042445780e75959c9f0583c) has a matching value in the **stFieldName** field of [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe), then the cache field is a member property cache field and is associated with this pivot hierarchy.

The length is specified in **cchProperty**.

**cchLevelUnq (2 bytes):** An unsigned integer that specifies the length in characters of the [**OLAP level**](#gt_00e48261-dfd3-4f32-b53f-91e2344d6168) MDX unique name of the cache pivot hierarchy in **stProperty**. The OLAP level MDX unique name comes before the member property name in **stProperty**. For example, if the value for **stProperty** equals "[Store].[Store Name].[Store Manager]", then **cchLevelUnq** equals 20. This refers to "[Store].[Store Name]".

If the PivotCache functionality level of the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) is 3, then this value is undefined and MUST be ignored.

**ichPropName (2 bytes):** An unsigned integer that specifies the zero-based index of the character where the property name portion begins in **stProperty**. For example, if the value for **stProperty** equals "[Store].[Store Name].[Store Manager]", **ichPropName** equals 22. This refers to the starting character of "Store Manager".

If the PivotCache functionality level of the associated PivotCache is 3, then this value is undefined and MUST be ignored.

**cchPropName (2 bytes):** An unsigned integer that specifies the length in characters of the name portion of **stProperty**. For example, if the value for **stProperty** equals "[Store].[Store Name].[Store Manager]", **cchPropName** equals 13. This refers to the length of "Store Manager".

If the PivotCache functionality level of the associated PivotCache is 3, then this value is undefined and MUST be ignored.

**isxtl (2 bytes):** A signed integer that specifies the zero-based index of the OLAP level in the pivot hierarchy that this property applies to. The value MUST be greater than or equal to -1.

#### 2.4.273.58 SXAddl\_SXCHierarchy\_SXDSXSetParentUnique

The **SXAddl\_SXCHierarchy\_SXDSXSetParentUnique** record specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of the parent [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) for an [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d). This record exists only if this pivot hierarchy is a [named set](#Section_c7f4e861a4e846b28279670fc6edcf6f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stHierUnique (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x1D.

**stHierUnique (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the MDX unique name of the parent pivot hierarchy. The length of this field MUST be greater than zero characters and less than or equal to 32767 characters.

#### 2.4.273.59 SXAddl\_SXCHierarchy\_SXDUserCaption

The **SXAddl\_SXCHierarchy\_SXDUserCaption** record specifies the user-defined caption for a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33), for a [SxcHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stCaption (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x02 and the value of **hdr.sxd** MUST equal 0x1F.

**stCaption (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the user-defined caption of this pivot hierarchy. The length of this field MUST be greater than zero characters and less than or equal to 255 characters.

#### 2.4.273.60 SXAddl\_SXCHierarchy\_SXDVerUpdInv

The **SXAddl\_SXCHierarchy\_SXDVerUpdInv** record specifies the record-handling behavior for records of the [SXCHierarchy class](#Section_6167aeb40d774815b3218d3f117c438d).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**data (12 bytes):** An [SXAddl\_SXDVerUpdInv](#Section_90e5e073114748dc814a8a30b10c2513). The value of **data.hdr.sxc** MUST equal 0x02 and the value of **data.hdr.sxd** MUST equal 0x01.

If the value of **data.dwVersionInvalidates** is not 0x00FF and is greater than or equal to the value of the **VerSxLastUpdated** field of the [QsiSXTag](#Section_3bb6727096504455944daa8e21dbb19f) record of this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), then all the records and nested records of this SXCHierarchy class MUST be ignored until another SXAddl\_SXCHierarchy\_SXDVerUpdInv record is encountered.

#### 2.4.273.61 SXAddl\_SXCQsi\_SXDEnd

The **SXAddl\_SXCQsi\_SXDEnd** record specifies the end of a [SxcQsi class](#Section_953f8be387154b688af387eef7855f27).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x05 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.62 SXAddl\_SXCQsi\_SXDId

The **SXAddl\_SXCQsi\_SXDId** record specifies how a [SxcQsi class](#Section_953f8be387154b688af387eef7855f27) is associated with other records for a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x05 and the value of **hdr.sxd** MUST equal 0x00.

**stName (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the query table. If the **stName** field equals the **rgchName** field of a [Qsi](#Section_262f630c4e9a4cbda2e81bb96a4fc8b3) record in this [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream, then this SxcQsi class applies to the query table that the Qsi record is associated with. Otherwise, this SxcQsi class MUST be ignored.

#### 2.4.273.63 SXAddl\_SXCQuery\_SXDEnd

The **SXAddl\_SXCQuery\_SXDEnd** record specifies the end of a [SxcQuery class](#Section_78ae192deccb4971bc9b33e46f7ab527).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x07 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.64 SXAddl\_SXCQuery\_SXDReconnCond

The **SXAddl\_SXCQuery\_SXDReconnCond** record specifies the [**reconnect condition**](#gt_4a37eb9c-89fb-4159-a709-e8180672a287) for an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9), for a [SxcQuery class](#Section_78ae192deccb4971bc9b33e46f7ab527).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rccDBQuery | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x06 and the value of **hdr.sxd** MUST equal 0x07.

**rccDBQuery (4 bytes):** An unsigned integer that specifies the reconnect condition for the database [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2). MUST be a value from the following table:

| Value | Reconnect condition |
| --- | --- |
| 0x00000000 | Retrieve external connection information as required. When [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) is refreshed from the external connection, use the existing external connection information; if the external data [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) from the external connection fails, then retrieve updated external connection information, if available, from the [external connection file](#Section_6b0123b3be2248e19f57249f87425640). |
| 0x00000001 | Retrieve external connection information. When external data is refreshed from the external connection, retrieve updated external connection information from the external connection file, if available, and use that instead of the existing external connection information. In this case, the external data refresh fails if the external connection file is unavailable. |
| 0x0000000 | Never retrieve external connection information. Never get updated external connection information from the external connection file even if it is available and even if the existing external connection information is not valid. |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.65 SXAddl\_SXCQuery\_SXDSrcConnFile

The **SXAddl\_SXCQuery\_SXDSrcConnFile** record specifies the [external connection file](#Section_6b0123b3be2248e19f57249f87425640) for an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9), for a [SxcQuery class](#Section_78ae192deccb4971bc9b33e46f7ab527).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stSourceConnectionFile (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x06 and the value of **hdr.sxd** MUST equal 0x06.

**stSourceConnectionFile (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) that specifies the external connection file for the database [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2). The total count of characters of the string MUST be less than or equal to 65535.

#### 2.4.273.66 SXAddl\_SXCQuery\_SXDSrcDataFile

The **SXAddl\_SXCQuery\_SXDSrcDataFile** record specifies the [**source data**](#gt_ac56a86c-7f2f-4d8b-a4c0-d6c7df3e72e0) file for an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9), for a [SxcQuery class](#Section_78ae192deccb4971bc9b33e46f7ab527).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stSourceDataFile (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x06 and the value of **hdr.sxd** MUST equal 0x05.

**stSourceDataFile (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the source data file for the database [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2). The total count of characters of the string MUST be less than or equal to 65535.

#### 2.4.273.67 SXAddl\_SXCQuery\_SXDXMLSource

The **SXAddl\_SXCQuery\_SXDXMLSource** record specifies the [**Uniform Resource Locator (URL)**](#gt_433a4fb7-ef84-46b0-ab65-905f5e3a80b1), used to display an edit dialog for an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9), for a [SxcQuery class](#Section_78ae192deccb4971bc9b33e46f7ab527).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stURL (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure The value of **hdr.sxc** MUST equal 0x06 and the value of **hdr.sxd** MUST equal 0x04.

**stURL (variable):** An [XLUnicodeStringSegmentedSXAddl](#Section_18afd49069014d3da8de38898a3724a0) that specifies the URL used to display an edit dialog.

#### 2.4.273.68 SXAddl\_SXCSXCondFmt\_SXDEnd

The **SXAddl\_SXCXCondFmt\_SXDEnd** record specifies the end of a [SXCSXCondFmt class](#Section_59cc4e9903ad43f395985be87afdcc92).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1B and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.69 SXAddl\_SXCSXCondFmt\_SXDSXCondFmt

The **SXAddl\_SXCXCondFmt\_SXDSXCondFmt** record specifies information for a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule, for a [SXCSXCondFmt class](#Section_59cc4e9903ad43f395985be87afdcc92).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sxcondfmtScope | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sxcondfmtType | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ipriority | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| csxrule | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1B and the value of **hdr.sxd** MUST equal 0x35.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

**sxcondfmtScope (4 bytes):** An unsigned integer that specifies the scope of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) conditional formatting. MUST be a value from the following table:

| Name | Value | Description |
| --- | --- | --- |
| SXCONDFMTSELECTIONSCOPE | 0x00000000 | This conditional formatting is applied to the [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461), as specified by the [SXCSXrule classes](#Section_dd12edef6e8747379bed6f4ceff33127) contained in this SXCSXCondFmt class. |
| SXCONDFMTDATASCOPE | 0x00000001 | This conditional formatting is applied to all cells that display values for the [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679), as specified by the SXCSXrule class contained in this SXCSXCondFmt class. |
| SXCONDFMTFIELDSCOPE | 0x00000002 | This conditional formatting is applied to all cells that display values for the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) intersections, as specified by the SXCSXrule class contained in this SXCSXCondFmt class. |

The value MUST be SXCONDFMTFIELDSCOPE if the value of **sxcondfmtType** is SXCONDFMTTOP10R or SXCONDFMTTOP10C.

If the value is SXCONDFMTDATASCOPE or SXCONDFMTFIELDSCOPE, there MUST be only one SXCSXrule class contained in this SXCSXCondFmt class.

**sxcondfmtType (4 bytes):** An unsigned integer that specifies the type of this PivotTable view conditional formatting. MUST be one of the values from following table:

| Name | Value | Description |
| --- | --- | --- |
| SXCONDFMTTOP10NIL | 0x00000000 | Top N or Bottom N conditional formatting is not evaluated. |
| SXCONDFMTTOP10A | 0x00000001 | Top N or Bottom N conditional formatting is evaluated across the entire scope [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). |
| SXCONDFMTTOP10R | 0x00000002 | Top N or Bottom N conditional formatting is evaluated for each row. |
| SXCONDFMTTOP10C | 0x00000003 | Top N or Bottom N conditional formatting is evaluated for each column. |

The value MUST be equal to SXCONDFMTTOP10NIL or SXCONDFMTTOP10A if the value of **sxcondfmtScope** is SXCONDFMTSELECTIONSCOPE or SXCONDFMTDATASCOPE.

**ipriority (4 bytes):** An unsigned integer that specifies the priority of the PivotTable view conditional formatting. It is used to locate the conditional formatting rule by matching the **ipriority** field of either [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) or the **rgbContent** field which is a [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3) structure in [CFEx](#Section_60d13d2f8eb741bf975c8a1a51ad58b6). MUST be greater than or equal to 1.

**csxrule (4 bytes):** An unsigned integer that specifies the number of SXCSXrule classes contained in this SXCSXCondFmt class. The SXCSXrule classes specify the area that the conditional formatting is applied to.

#### 2.4.273.70 SXAddl\_SXCSXCondFmts\_SXDEnd

The **SXAddl\_SXCXCondFmts\_SXDEnd** record specifies the end of a [SXCSXCondFmts class](#Section_fdd787b53b0e43f888b9c86cb063a54f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1A and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.71 SXAddl\_SXCSXCondFmts\_SXDId

The **SXAddl\_SXCXCondFmts\_SXDId** record specifies information for [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) [conditional formatting](#Section_abb828767c9c4377858fb1a6be7fe8f9) rules, for a [SXCSXCondFmts class](#Section_fdd787b53b0e43f888b9c86cb063a54f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cSxcondfmt | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1A and the value of **hdr.sxd** MUST equal 0x00.

**cSxcondfmt (4 bytes):** A signed integer that specifies the number of [SXCSXCondFmt class](#Section_59cc4e9903ad43f395985be87afdcc92) instances that follow this record. MUST be greater than 0.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.72 SXAddl\_SXCSXDH\_SXDEnd

The **SXAddl\_SXCSXDH\_SXDEnd** record specifies the end of an [SXCSXDH class](#Section_284c3ab876c54d36961f1e0006764807).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x10 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.73 SXAddl\_SXCSXDH\_SXDId

The **SXAddl\_SXCSXDH\_SXDId** record specifies information for an [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**dimension (1)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) for a [SXCSXDH class](#Section_284c3ab876c54d36961f1e0006764807).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwCount | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x10 and the value of **hdr.sxd** MUST equal 0x00.

**dwCount (4 bytes):** An unsigned integer that specifies the number of [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) records of type [SXADDL\_SXCSXDH\_SXDSXDH](#Section_9ae507e01e394d6fb8ae30864da3cc91) that follow this record. The count MUST be greater than zero and less than 0xFFFFFFFF.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.74 SXAddl\_SXCSXDH\_SXDSxdh

The **SXAddl\_SXCSXDH\_SXDSxdh** record specifies a mapping between an [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**dimension (1)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) and a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) for a [SXCSXDH class](#Section_284c3ab876c54d36961f1e0006764807).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| isxth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchDimensionName | | | | | | | | | | | | | | | | cchDimensionUnique | | | | | | | | | | | | | | | |
| cchDimensionCaption | | | | | | | | | | | | | | | | stDimensionName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDimensionUnique (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDimensionCaption (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x10 and the value of **hdr.sxd** MUST equal 0x1A.

**reserved1 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

**isxth (4 bytes):** A signed integer that specifies a reference to a pivot hierarchy. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -2 | This value specifies the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592). |
| 0+ | A pivot hierarchy index, as specified in Pivot Hierarchies, that specifies a pivot hierarchy in the [associated PivotTable view](#Section_855483943345473bb926de5189fd664d) of the [OLAP PivotCache](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b). |

The value MUST be -2 or greater than or equal to zero and less than the number of pivot hierarchy in the associated PivotTable view of the OLAP PivotCache.

**cchDimensionName (2 bytes):**  An unsigned integer that specifies the length, in characters, of the [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) in the **stDimensionName** field. MUST be greater than zero and less than or equal to 0x00FF.

**cchDimensionUnique (2 bytes):** An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch in the **stDimensionUnique** field. MUST be greater than zero and less than or equal to 0x00FF.

**cchDimensionCaption (2 bytes):** An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch in the **stDimensionCaption** field. MUST be greater than zero and less than or equal to 0x00FF.

**stDimensionName (variable):** An XLUnicodeStringNoCch that specifies the name of the OLAP dimension (1). The length is specified in **cchDimensionName**.

**stDimensionUnique (variable):** An XLUnicodeStringNoCch that specifies the fully qualified unique name of the [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7) dimension (1). The length is specified in **cchDimensionUnique**.

**stDimensionCaption (variable):** An XLUnicodeStringNoCch that specifies the caption of the OLAP dimension (1). The length is specified in **cchDimensionCaption**.

#### 2.4.273.75 SXAddl\_SXCSXfilt\_SXDEnd

The **SXAddl\_SXCSXfilt\_SXDEnd** record specifies the end of an [SXCSXfilt class](#Section_22611924dd5649078c7ab385cd2ccdc0).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0D and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.76 SXAddl\_SXCSXfilt\_SXDId

The **SXAddl\_SXCSXfilt\_SXDId** record specifies information for a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f) filter, for an [SXCSXfilt class](#Section_22611924dd5649078c7ab385cd2ccdc0).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0D and the value of **hdr.sxd** MUST equal 0x00.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.77 SXAddl\_SXCSXfilt\_SXDSXfilt

The **SXAddl\_SXCSXfilt\_SXDSXfilt** record specifies information for a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f) filter, for an [SXCSXfilt class](#Section_22611924dd5649078c7ab385cd2ccdc0).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | reserved5 | | | | | | | | | grbitSbt | | | | | | | | | | | | | | | |
| iDim | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isxvd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cisxvi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0D and the value of **hdr.sxd** MUST equal 0x14.

**reserved1 (6 bytes):** MUST be zero, and MUST be ignored.

**A - sxaxisRw (1 bit):** A bit that specifies whether the [row axis](#Section_3f46e7207706400cba9473cb829f869a) is being referred to.

MUST be zero if the value of **sxaxisCol** is 1 or the value of **sxaxisPage** is 1 or the value of **sxaxisData** is 1.

**B - sxaxisCol (1 bit):** A bit that specifies whether the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) is being referred to.

MUST be zero if the value of **sxaxisRw** is 1 or the value of **sxaxisPage** is 1 or the value of **sxaxisData** is 1.

**C - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**D - sxaxisData (1 bit):** A bit that specifies whether the [value axis](#Section_4c5c2daa289746e1854b0ce04209f060) is being referred to.

MUST be zero if the value of **sxaxisRw** is 1 or the value of **sxaxisCol** is 1 or the value of **sxaxisPage** is 1.

**E - fSelected (1 bit):** A bit that specifies whether the header of the [Pivot Field](#Section_1edf7f2294084945b2de56526c14fca5) is included in the PivotTable rule filters.

**F - reserved3 (1 bit):** MUST be zero, and MUST be ignored.

**G - reserved4 (1 bit):** MUST be zero, and MUST be ignored.

**reserved5 (9 bits):** MUST be zero, and MUST be ignored.

**grbitSbt (2 bytes):**  A signed integer that specifies the subtotals for this PivotTable rule filter. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | No subtotals are displayed. |
| 1 | Data value subtotals are displayed. |

**iDim (4 bytes):** A signed integer that specifies the position of the Pivot Field within the axis specified by **sxaxisRw**, **sxaxisCol**, **sxaxisPage**, or **sxaxisData**. MUST be greater than or equal to -1 and less than or equal to 0x0000001F.

**isxvd (4 bytes):**  A signed integer that specifies the Pivot Field that this PivotTable rule filter refers to. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -2 | This PivotTable rule filter refers to the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592). |
| -1 | This PivotTable rule filter does not refer to a pivot field |
| 0 to 255 | This value specifies a pivot field index, as specified in Pivot Fields. The pivot field index specifies which pivot field this PivotTable rule filter refers to. |

If the value is greater than or equal to zero, MUST be less than the number of pivot fields in the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

**cisxvi (4 bytes):** An unsigned integer that specifies the count of [pivot item](#Section_58891cc5dd9b4293a97831070779524f) indexes in the [SXAddl\_SXCSXfilt\_SXDSXItm](#Section_86aafb0ee3aa4864b5177ad3b372abc3) record that follows this record. MUST be greater than or equal to zero. If **isxvd** is -1, MUST be 0.

#### 2.4.273.78 SXAddl\_SXCSXfilt\_SXDSXItm

The **SXAddl\_SXCSXfilt\_SXDSXItm** record specifies an array of [pivot item](#Section_58891cc5dd9b4293a97831070779524f) records of a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f) filter for an [SXCSXfilt class](#Section_22611924dd5649078c7ab385cd2ccdc0).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgIsxvi (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0D and the value of **hdr.sxd** MUST equal 0x15.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

**rgIsxvi (variable):** An array of 2-byte unsigned integers. Each element specifies the pivot item or [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679) index in the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) or [data field](#Section_b4187a6caa2d4a9789bd26f394d67592) specified by the **isxvd** field of the preceding [SXAddl\_SXCSXfilt\_SXDSXfilt](#Section_c3dfcd7c1cbd4fea9140ab36ce97d1c6) record. See PivotTable rule for more information about the references that are used.

The number of items in the array MUST equal the **cisxvi** field of the preceding SXAddl\_SXCSXfilt\_SXDSXfilt record.

The value of each element in **rgIsxvi** MUST be in sorted order such that **rgIsxvi**[item] is less than **rgIsxvi**[item+1] where item is between 0 and the number of elements in **rgIsxvi** – 2.

If the value of the **isxvd** field of the preceding SXAddl\_SXCSXfilt\_SXDSXfilt record is greater than or equal to zero, each item in this array MUST be 0x7FFF (isxviNULL) or greater than or equal to zero plus the number of pivot items in the pivot field specified by the **isxvd** field of the preceding SXAddl\_SXCSXfilt\_SXDSXfilt record.

If the value of the **isxvd** field of the preceding SXAddl\_SXCSXfilt\_SXDSXfilt record is less than zero, each item in this array MUST be greater than or equal to zero and less than the number of data items in the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

#### 2.4.273.79 SXAddl\_SXCSXFilter12\_SXDCaption

The **SXAddl\_SXCSXFilter12\_SXDCaption** record specifies the name of the [advanced filter](#Section_d490d0634e074f0093389812040ebdff) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x2F.

**stName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda).

#### 2.4.273.80 SXAddl\_SXCSXFilter12\_SXDEnd

The **SXAddl\_SXCSXFilter12\_SXDEnd** record specifies the end of an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.81 SXAddl\_SXCSXFilter12\_SXDId

The **SXAddl\_SXCSXFilter12\_SXDId** record specifies information for an [advanced filter](#Section_d490d0634e074f0093389812040ebdff), for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwFilterid | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x00.

**dwFilterid (4 bytes):** An unsigned integer that specifies the unique identifier of this [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda).

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.82 SXAddl\_SXCSXFilter12\_SXDSXFilter

The **SXAddl\_SXCSXFilter12\_SXDSXFilter** record specifies the [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) information of an [advanced filter](#Section_d490d0634e074f0093389812040ebdff) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| isxvd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isxvdMProp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sxft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isxdiMeasure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isxthMeasure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x38.

**reserved1 (4 bytes):** MUST be zero and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero and MUST be ignored.

**isxvd (4 bytes):** An unsigned integer that specifies a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) index as specified in pivot fields. The pivot field index specifies which pivot field this filter applies to. The value MUST be less than the **cDim** field of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

**isxvdMProp (4 bytes):**  A signed integer that specifies the [member property](#Section_e5db3a66677f43db8fb038584797c95f) pivot field on which this advanced filter is based. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | This advanced filter is not defined on a [**member property**](#gt_c7ddc1fa-c564-42c5-b755-aed72a0cb000). |
| Greater than or equal to zero | This value specifies a pivot field index as specified in pivot fields. The pivot field index specifies which pivot field this advanced filter is based on. |

This value MUST be -1 and MUST be ignored if the value of the **sxft** field is less than 0x00000004 or greater than 0x00000011. The value MUST be greater than or equal to -1 and less than the value of the **cDim** field of the SxView record of this PivotTable view.

**sxft (4 bytes):** A [SxFT](#Section_cae322b644eb412ca57e901d27f30020) structure that specifies the advanced filter type. If the value is equal to SXFTCOUNT, SXFTPERCENT, or SXFTSUM, the **cft** field in [SXAddl\_SXCSXFilter12\_SXDXIsFilter](#Section_cd93d0c8bd1c4202b8cae98f16ab0c41) MUST be equal to CFTTOP10.

**unused (4 bytes):** Undefined and MUST be ignored.

**isxdiMeasure (4 bytes):** A signed integer that specifies a [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679) index of the data item on which this advanced filter is based. If this is an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) then isxdiMeasure MUST be -1, if this is a [value filter](#Section_05a1c98e21cd4941979880f4bf301bb2) then isxdiMeasure MUST be greater than or equal to zero and less than the number of [SXDI](#Section_4143b9eec91a443c83e82185e75cb7b5) records in this PivotTable view. Otherwise isxdiMeasure MUST be 0.

**isxthMeasure (4 bytes):** A signed integer that specifies a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) index of the [measure](#Section_4308b88c7f1e42bcb3dd8a1387b69c51) pivot hierarchy on which this advanced filter applies. If this is a non-OLAP PivotTable view then isxthMeasure MUST be -1. If this is a value filter then **isxthMeasure** MUST be greater than or equal to zero and less than the number of [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f) records in this PivotTable view. Otherwise isxthMeasure MUST be 0.

#### 2.4.273.83 SXAddl\_SXCSXFilter12\_SXDSXFilterDesc

The **SXAddl\_SXCSXFilter12\_SXDSXFilterDesc** record specifies the description of an [advanced filter](#Section_d490d0634e074f0093389812040ebdff) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stDescription (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x39.

**stDescription (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the description of the [[PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37)](#Section_a5f57198f2af40b2ba07e4b1836d73f3) [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda).

#### 2.4.273.84 SXAddl\_SXCSXFilter12\_SXDSXFilterValue1

The **SXAddl\_SXCSXFilter12\_SXDSXFilterValue1** record specifies the first value used by the [label filter](#Section_f221b81b892c4b5c91722d4ed17c937c) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154). This record MUST NOT exist if the value of the **sxft** field of the preceding [SXAddl\_SXCSXFilter12\_SXDSXFilter](#Section_ef6b03f6ed464a42a2605f8f3369ba26) record is less than 0x00000004 or greater than 0x00000011.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stValue (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x3A.

**stValue (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the first value used by the label filter.

#### 2.4.273.85 SXAddl\_SXCSXFilter12\_SXDSXFilterValue2

The **SXAddl\_SXCSXFilter12\_SXDSXFilterValue2** record specifies the second value used by the [label filter](#Section_f221b81b892c4b5c91722d4ed17c937c) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154). This record MUST NOT exist if the value of the **sxft** field of the preceding [SXAddl\_SXCSXFilter12\_SXDSXFilter](#Section_ef6b03f6ed464a42a2605f8f3369ba26) record is less than 0x00000004 or greater than 0x00000011.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stValue (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x3B.

**stValue (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the second value used by the label filter.

#### 2.4.273.86 SXAddl\_SXCSXFilter12\_SXDXlsFilter

The **SXAddl\_SXCSXFilter12\_SXDXlsFilter** record specifies information for an [advanced filter](#Section_d490d0634e074f0093389812040ebdff), for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ccriteria | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| data (28 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x3C.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

**cft (4 bytes):** A [**CFT**](#Section_6d7d61ef028347c491edbfa633211940) enumeration that specifies the [**custom filter**](#gt_8593ee2f-c2dd-4793-a684-45fe40c840d2) type. If the **sxft** field in [SXAddl\_SXCSXFilter12\_SXDSXFilter](#Section_ef6b03f6ed464a42a2605f8f3369ba26) is equal to SXFTCOUNT, SXFTPERCENT, or SXFTSUM, this value MUST be CFTTOP10.

**ccriteria (4 bytes):** A signed integer that specifies the number of criteria. MUST be greater than or equal to zero and less than or equal to 2.

**data (28 bytes):** A 28-byte structure that contains the [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) data.

If **cft** equals CFTTOP10 this is an [XlsFilter\_Top10](#Section_6d3a698a23b84d53a17bb1e774e93cc9) structure, otherwise this is an [XlsFilter\_Criteria](#Section_039aa48465ef43999f04db80ca420d98) structure.

#### 2.4.273.87 SXAddl\_SXCSXFilter12\_SXDXlsFilterValue1

The **SXAddl\_SXCSXFilter12\_SXDXlsFilterValue1** record specifies the first value of an [advanced filter](#Section_d490d0634e074f0093389812040ebdff) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stValue (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x3D.

**stValue (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the first value string of the [SXAddl\_SXCSXFilter12\_SXDXlsFilter](#Section_cd93d0c8bd1c4202b8cae98f16ab0c41) [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda).

#### 2.4.273.88 SXAddl\_SXCSXFilter12\_SXDXlsFilterValue2

The **SXAddl\_SXCSXFilter12\_SXDXlsFilterValue2** record specifies the second value of an [advanced filter](#Section_d490d0634e074f0093389812040ebdff) for an [SXCSXFilter12 class](#Section_9b54e335ef8846d28d19dfbfe2078154).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stValue (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1D and the value of **hdr.sxd** MUST equal 0x3E.

**stValue (variable):** A [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the second value of the [SXAddl\_SXCSXFilter12\_SXDXlsFilter](#Section_cd93d0c8bd1c4202b8cae98f16ab0c41) [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda).

#### 2.4.273.89 SXAddl\_SXCSXFilters12\_SXDEnd

The **SXAddl\_SXCSXFilters12\_SXDEnd** record specifies the end of an [SXCSXFilters12 class](#Section_38fb61e517e742219ea43f1e5a665bc2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1C and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.90 SXAddl\_SXCSXFilters12\_SXDId

The **SXAddl\_SXCSXFilters12\_SXDId** record specifies information for [advanced filters](#Section_d490d0634e074f0093389812040ebdff), for an [SXCSXFilters12 class](#Section_38fb61e517e742219ea43f1e5a665bc2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cSxfilter12 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x1C and the value of **hdr.sxd** MUST equal 0x00.

**cSxfilter12 (4 bytes):** An unsigned integer that specifies the count of PivotTable advanced filters in the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.91 SXAddl\_SXCSXMg\_SXDEnd

The **SXAddl\_SXCSXMg\_SXDEnd** record specifies the end of an [SXCSXMg class](#Section_7a80fae6884c401f8ecab68064099425).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x14 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.92 SXAddl\_SXCSXMg\_SXDId

The **SXAddl\_SXCSXMg\_SXDId** record specifies information for an [**OLAP measure group**](#gt_a14d2b2b-03ca-40e2-a237-3d1a53f87261), for an [SXCSXMg class](#Section_7a80fae6884c401f8ecab68064099425).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x14 and the value of **hdr.sxd** MUST equal 0x00.

**stName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the name of the OLAP measure group.

#### 2.4.273.93 SXAddl\_SXCSXMg\_SXDUserCaption

The **SXAddl\_SXCSXMg\_SXDUserCaption** record specifies the display name for the [**OLAP measure group**](#gt_a14d2b2b-03ca-40e2-a237-3d1a53f87261) specified in this [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) record collection.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stUserCaption (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x14 and the value of **hdr.sxd** MUST equal 0x1F.

**stUserCaption (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the display name of the OLAP measure group.

#### 2.4.273.94 SXAddl\_SXCSXMgs\_SXDEnd

The **SXAddl\_SXCSXMgs\_SXDEnd** record specifies the end of an [SxcSXMgs class](#Section_7081e96f74c24e339021305d28e3da1a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x13 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.95 SXAddl\_SXCSXMgs\_SXDId

The **SXAddl\_SXCSXMgs\_SXDId** record specifies information for an [**OLAP measure group**](#gt_a14d2b2b-03ca-40e2-a237-3d1a53f87261) collection, for an [SxcSXMgs class](#Section_7081e96f74c24e339021305d28e3da1a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cmgs | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| cmaps | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x13 and the value of **hdr.sxd** MUST equal 0x00.

**cmgs (4 bytes):** An unsigned integer that specifies the number of OLAP measure groups in the OLAP measure group collection. MUST be equal to the number of [SXCSXMg classes](#Section_7a80fae6884c401f8ecab68064099425) that are nested inside this SxcSXMgs class.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**cmaps (4 bytes):** An unsigned integer that specifies the number of mappings between OLAP measure groups and [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**dimensions (1)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) in the OLAP measure group collection. Each mapping is defined by an [SXAddl\_SXCSXMgs\_SXDMGrpSXDHMap](#Section_cea07034948b4520bd0a20f2498f0f50) record. This value MUST be equal to the number of SXAddl\_SXCSXMgs\_SXDMGrpSXDHMap records that follow this record.

#### 2.4.273.96 SXAddl\_SXCSXMgs\_SXDMGrpSXDHMap

The **SXAddl\_SXCSXMgs\_SXDMGrpSXDHMap** record specifies a mapping between an [**OLAP measure group**](#gt_a14d2b2b-03ca-40e2-a237-3d1a53f87261) and an [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**dimension (1)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) for an [SxcSXMgs class](#Section_7081e96f74c24e339021305d28e3da1a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| iKey | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iVal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x13 and the value of **hdr.sxd** MUST equal 0x23.

**reserved1 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

**iKey (4 bytes):** An unsigned integer that specifies a zero-based index of an [SXCSXMg class](#Section_7a80fae6884c401f8ecab68064099425) in the collection of SXCSXMg classes. The [SXAddl\_SXCSXMg\_SXDId](#Section_48cb495cc5734b1dafb40bee8297103b) record of the referenced SXCSXMg class specifies an OLAP measure group in the [**measure group**](#gt_1f51f60a-8a0f-4b0d-9e7e-80cbd596e164) collection. MUST be less than the value of the **cmgs** field of the [SXAddl\_SXCSXMgs\_SXDId](#Section_3712162df02a442c886a78c6bbe65d95) record of this SxcSXMgs class.

**iVal (4 bytes):** An unsigned integer that specifies a zero-based index of the [SXAddl\_SXCSXDH\_SXDSxdh](#Section_9ae507e01e394d6fb8ae30864da3cc91) record in the collection of SXAddl\_SXCSXDH\_SXDSxdh records in the [SXCSXDH class](#Section_284c3ab876c54d36961f1e0006764807) of the containing [SxcCache class](#Section_1681856cae2d4f64b8cc40d2702754e7) of this record. The referenced record specifies an OLAP dimension (1). MUST be less than the value of the **dwCount** field of the [SXAddl\_SXCSXDH\_SXDId](#Section_4e8af2a8159144208d8bb595e4fe2836) record of the SXCSXDH class.

#### 2.4.273.97 SXAddl\_SXCSXrule\_SXDEnd

The **SXAddl\_SXCSXrule\_SXDEnd** record specifies the end of an [SXCSXrule class](#Section_dd12edef6e8747379bed6f4ceff33127).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0C and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.98 SXAddl\_SXCSXrule\_SXDId

The **SXAddl\_SXCSXrule\_SXDId** record specifies information for a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f), for the [SXCSXrule class](#Section_dd12edef6e8747379bed6f4ceff33127).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0C and the value of **hdr.sxd** MUST equal 0x00.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.99 SXAddl\_SXCSXrule\_SXDSXrule

The **SXAddl\_SXCSXrule\_SXDSXrule** record specifies information for a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f), for an [SXCSXrule class](#Section_dd12edef6e8747379bed6f4ceff33127).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | | | | sxrtype | | | | B | C | D | E | F | G | H | I | J | reserved4 | | | | | | | | | | | | | | |
| K | L | M | N | O | P | reserved6 | | | | | | | | | | irwFirst | | | | | | | | irwLast | | | | | | | |
| icolFirst | | | | | | | | icolLast | | | | | | | | csxfilt | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | iDim | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | isxvd | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x0C and the value of **hdr.sxd** MUST equal 0x13.

**reserved1 (6 bytes):** MUST be zero, and MUST be ignored.

**A - reserved2 (4 bits):** MUST be zero, and MUST be ignored.

**sxrtype (4 bits):**  An unsigned integer that specifies the area of the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) specified by this PivotTable rule. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | This rule applies to no area. |
| 0x1 | This rule applies to [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the [row area](#Section_5594c95e6819461e80706f4b4fdfa091), [column area](#Section_03aced8c25864e83982a1e3551a563d6), or [data area](#Section_237a24905c614931923f7ee856f23c72) of the PivotTable report. |
| 0x2 | This rule applies to the data area of the PivotTable report. |
| 0x3 | This rule applies to the entire PivotTable report. |
| 0x4 | This rule applies to the blank cells at the [**logical top-left**](#gt_88b25c47-61c2-44de-abb0-12ea3348a412) of the PivotTable report. |
| 0x5 | This rule applies to a button shown next to a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) in the PivotTable report. |
| 0x6 | This rule applies to the blank cells at the [**logical top-right**](#gt_90beae65-f411-4252-9b4b-6b539f263415) of the PivotTable report. |

If the value of **isxvd** is not -1, MUST be 0x1 or 0x2 or 0x5.

**B - fPart (1 bit):**  A bit that specifies whether only a portion of the [PivotTable area](#Section_c3139d36c8934b57a44df7b7c13556e5)is included in this rule. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The entire PivotTable area is included in the rule. The **irwFirst**, **irwLast**, **icolFirst**, and **icolLast** fields are undefined and MUST be ignored. |
| 0x1 | A portion of the PivotTable area is included in the rule. The **irwFirst, irwLast, icolFirst,** and **icolLast** fields hold the relative offset into the PivotTable area included in this rule. |

**C - fDataOnly (1 bit):**  A bit that specifies whether only the cells in the data area are included in this PivotTable rule. If **fLabelOnly** is 1 then **fDataOnly** MUST be 0. If **sxrtype** is 0x2, the value of this field value MUST be 1.

**D - fLabelOnly (1 bit):**  A bit that specifies whether only cells in the [page area](#Section_f10ef7d86c044d35a5830d6f2ce92063), row area, or column area are included in this PivotTable rule. If **fDataOnly** is 1 then **fLabelOnly** MUST be 0. If **sxrtype** is 0x5 or 0x6, this value MUST be 1.

**E - fGrandRw (1 bit):**  A bit that specifies whether cells in the [**grand total**](#gt_417eeaf5-caef-4fc3-afe1-048db5482eb7) row are included in this PivotTable rule.

**F - fGrandCol (1 bit):**  A bit that specifies whether cells in the grand total column are included in this PivotTable rule.

**G - fGrandRwSav (1 bit):**  A bit that specifies whether cells in the grand total row are included in this PivotTable rule. MUST be equal to **fGrandRw**.

**H - reserved3 (1 bit):**  MUST be zero, and MUST be ignored.

**I - fGrandColSav (1 bit):**  A bit that specifies whether cells in the grand total column are included in this PivotTable rule. MUST be equal to **fGrandCol**.

**J - fFuzzy (1 bit):**  A bit that specifies whether the [pivot items](#Section_58891cc5dd9b4293a97831070779524f) of the pivot field specified by this rule are treated as subtotals for the purposes of formatting when the pivot field is displayed in outline mode.

**reserved4 (15 bits):** MUST be zero, and MUST be ignored.

**K - unused1 (1 bit):** Undefined, MUST be ignored.

**L - fLineMode (1 bit):**  A bit that specifies whether the area of the PivotTable report specified by this PivotTable rule is displayed in outline mode.

**M - unused2 (1 bit):** Undefined, MUST be ignored.

**N - unused3 (1 bit):** Undefined, MUST be ignored.

**O - reserved5 (1 bit):** MUST be zero, and MUST be ignored.

**P - fDrillOnly (1 bit):** A bit that specifies the [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7) of the PivotTable rule filters specified by **csxfilt**. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | PivotTable rule filters are sorted by Pivot Field index as specified in Pivot Fields. |
| 0x1 | PivotTable rule filters are sorted by position. |

**reserved6 (10 bits):** MUST be zero, and MUST be ignored.

**irwFirst (1 byte):**  A [DRwByteU](#Section_a249732cbf83439897eaa3f09b85c640) structure that specifies the difference between the index of the first row of the range of cells included in this rule and the index of the first row of the PivotTable.

**irwLast (1 byte):** A DRwByteU structure that specifies the difference between the index of the last row of the range of cells included in this rule and the index of the first row of the PivotTable. If **fPart** is 1, MUST be greater than or equal to **irwFirst**.

**icolFirst (1 byte):**  A [DColByteU](#Section_8cdd24cf21c44aa3be02583daee9fd28) structure that specifies the difference between the index of the first column of the range of cells included in this rule and the index of the first column of the PivotTable.

**icolLast (1 byte):**  A DColByteU structure that specifies the difference between the index of the last column of the range of cells included in this rule and the index of the first column of the PivotTable. If **fPart** is 1, MUST be greater than or equal to **icolFirst**.

**csxfilt (4 bytes):** An unsigned integer that specifies the number of [SXAddl\_SXCSXfilt\_SXDId](#Section_07971f8c749546f48d93309b1fb05dbf) records following this record. MUST be greater than or equal to 0. If **sxrtype** is not 0x1 or 0x2, this value MUST be 0.

**iDim (4 bytes):**  An signed integer that specifies the position of the pivot field within the [PivotTable axis](#Section_89db73685e8e4324b592af85e4559e6c) for this PivotTable rule. If **isxvd** is 0xFFFFFFFE or 0xFFFFFFFF this field MUST be ignored. If **isxvd** is between 0x00000000 and 0x000000FF, then the value of **iDim** depends on the value of certain fields in the **sxaxis** structure in **isxvd**. The following table shows the values that **iDim** MUST have given certain values of the specified fields of **isxvd.sxaxis**.

| Value | Meaning |
| --- | --- |
| **isxvd.sxaxis.sxaxisRw** is 1 | The value of **iDim** MUST be greater than 0 and less than the number of pivot fields on the [row axis](#Section_3f46e7207706400cba9473cb829f869a). |
| **isxvd.sxaxis.sxaxisCol** is 1 | The value of **iDim** MUST be greater than 0 and less than the number of pivot fields on the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f). |
| **isxvd.sxaxis.sxaxisPage** is 1 | The value of **iDim** MUST be greater than 0 and less than the number of pivot fields on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7). |
| **isxvd.sxaxis.sxaxisData** is 1 | The value of **iDim** MUST be greater than 0 and less than the number of pivot fields on the [data axis](#Section_4c5c2daa289746e1854b0ce04209f060) |

**isxvd (4 bytes):**  A signed integer that specifies the pivot field this rule refers to. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0xFFFFFFFE | This rule refers to the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592). |
| 0xFFFFFFFF | This rule does not refer to a pivot field. |
| 0x0000000 to 0x000000FF | This value specifies a pivot field index as specified in Pivot Fields. The pivot field index specifies which pivot field this rule refers to. |

MUST be greater than or equal to 0xFFFFFFFE and less than or equal to 0x000000FF. If the value is greater than or equal to 0x00000000, MUST be less than the value of the **cDim** field of the preceding [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b).

#### 2.4.273.100 SXAddl\_SXCView\_SXDCalcMember

The **SXAddl\_SXCView\_SXDCalcMember** record specifies [OLAP calculated members](#Section_e67071408ab5499ca7bab1d8eca85058) properties for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | D | E | | | | F | reserved2 | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| stName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stMDXFormula (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stMemberName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stSourceHierarchy (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stParentUnqiue (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wSolveOrder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x03.

**A - fParentUnique (1 bit):** A bit that specifies whether **stParentUnique** exists. If the value is 1, **stParentUnique** exists. If **fSet** is 1, this field MUST be zero.

**B - fMemberName (1 bit):** A bit that specifies whether **stMemberName** exists. If the value is 1, **stMemberName** exists. If **fSet** is 1, this field MUST be zero; otherwise, this field MUST be 1.

**C - fSourceHier (1 bit):** A bit that specifies whether **stSourceHierarchy** exists. If the value is 1, **stSourceHierarchy** exists. If **fSet** is 1, this field MUST be zero; otherwise, this field MUST be 1.

**D - fLongFormula (1 bit):** A bit that specifies whether the length of the user-specified [**MDX**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f) [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106) that defines the calculation is greater than 255 characters.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Length of the user-specified MDX expression is less than or equal to 255 characters and **stMDXFormula** contains the MDX. |
| 1 | Length of the user-specified MDX expression is greater than 255 characters and the user-specified MDX expression is written to a subsequent [SXAddl\_SXCView\_SXDCalcMemString](#Section_982c65e56e14423c8428be4eaa8cb2cd) record. |

**E - reserved1 (4 bits):** MUST be zero, and MUST be ignored.

**F - fSet (1 bit):** A bit that specifies whether this calculation is for an [**OLAP named set**](#gt_8997311d-6027-4c9f-b739-9a2a00594f28).

**reserved2 (23 bits):** MUST be zero, and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

**stName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of this OLAP calculated member. The length of this field MUST be greater than 0 characters and less than or equal to 255 characters.

**stMDXFormula (variable):** An XLUnicodeString structure that specifies the user-specified MDX expression for this OLAP calculated member. If **fLongFormula** is 1, this field does not exist. If **fLongFormula** is 0, the length of this field MUST be greater than 0 characters and less than or equal to 255 characters.

**stMemberName (variable):** An XLUnicodeString structure that specifies the name of this OLAP calculated member. If **fMemberName** is 0, this field does not exist. If **fMemberName** is 1, the length of this field MUST be less than or equal to 255 characters.

**stSourceHierarchy (variable):** An XLUnicodeString structure that specifies the MDX unique name of the [**OLAP hierarchy**](#gt_1e0ca171-3095-4e3c-9c69-65148df00a9c) that this OLAP calculated member is associated with. If **fSourceHier** is zero this field does not exist. If **fSourceHier** is 1 then the length of this field MUST be less than or equal to 255 characters.

**stParentUnqiue (variable):** An XLUnicodeString structure that specifies the MDX unique name of the parent [**member (2)**](#gt_5d78ca78-a9b1-4791-8126-bf9494304b11) that this OLAP calculated member is associated with. If **fParentUnique** is zero this field does not exist. If **fParentUnique** is 1 then the length of this field MUST be less than or equal to 255 characters.

**wSolveOrder (4 bytes):** An unsigned integer that specifies the calculation order when there are multiple OLAP calculated members. The calculation order goes from lowest **wSolveOrder** value to highest. If the value is zero the calculation order is determined by the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e).

#### 2.4.273.101 SXAddl\_SXCView\_SXDCalcMemString

The **SXAddl\_SXCView\_SXDCalcMemString** record specifies a user-specified [**MDX**](#gt_9b631ff5-dc89-45f0-a1c2-db6981e4804f) [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106) for an [OLAP calculated member](#Section_e67071408ab5499ca7bab1d8eca85058), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3). The other properties of the OLAP calculated member are specified in the preceding [SXAddl\_SXCView\_SXDCalcMember](#Section_ec60a3e765fc4431b322cb8f39595a08) record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stMDXFormula (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x0A.

**stMDXFormula (variable):**  An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the user-specified MDX expression. The length of this field MUST be greater than zero. If the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) of this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) is less than 3, the length of this field MUST be less than 2048 characters; otherwise, the length MUST be less than 32767 characters.

#### 2.4.273.102 SXAddl\_SXCView\_SXDCompactColHdr

The **SXAddl\_SXCView\_SXDCompactColHdr** record specifies the [column area](#Section_03aced8c25864e83982a1e3551a563d6) caption string used in the compact [PivotTable layout](#Section_2f81b5b422d546778ec53c5dc1ad80d4) for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stHeader (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x22.

**stHeader (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the caption displayed in the column area of the compact PivotTable layout. The length MUST be less than or equal to 255 characters.

#### 2.4.273.103 SXAddl\_SXCView\_SXDCompactRwHdr

The **SXAddl\_SXCView\_SXDCompactRwHdr** record specifies the [row area](#Section_5594c95e6819461e80706f4b4fdfa091) caption string used in the compact [PivotTable layout](#Section_2f81b5b422d546778ec53c5dc1ad80d4) for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stHeader (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x21.

**stHeader (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the caption displayed in the row area of the compact PivotTable layout. The length MUST be less than or equal to 255 characters.

#### 2.4.273.104 SXAddl\_SXCView\_SXDEnd

The **SXAddl\_SXCView\_SXDEnd** record specifies the end of an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.105 SXAddl\_SXCView\_SXDId

The **SXAddl\_SXCView\_SXDId** record specifies how an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3) is associated with other records for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x00.

**stName (variable):** An [SXAddl\_SXString](#Section_665ed61e65b04b57aa26b6aba355c268) structure that specifies the [PivotTable view](#Section_a5f57198f2af40b2ba07e4b1836d73f3) that this SxcView class applies to. The corresponding [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of this PivotTable view is the SxView record, in this [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56), with its **stTable** field equal to the value of this field. If there exists no such SxView record then this SxcView class MUST be ignored.

#### 2.4.273.106 SXAddl\_SXCView\_SXDSXPIIvmb

The **SXAddl\_SXCView\_SXDSXPIIvmb** record specifies a mapping between [value metadata](#Section_e78bf5ba22754bad8e6cf4f59644efa6) and a field on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isxpi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ivmb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x36.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

**isxpi (4 bytes):** An unsigned integer that specifies the index of the entry on the page axis. MUST be greater than or equal to zero and less than the value of the **cDimPg** field of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view.

**ivmb (4 bytes):** An unsigned integer that specifies the zero-based index of the [MDB](#Section_8326750414ce425ea1b0497179f9bcbe) record in the sequence of records that conforms to the [MDBLOCK](#section_ca4c174887294a93abb94602b3a01fb1) rule. The referenced MDB specifies the value metadata. MUST be greater than or equal to zero and less than the count of MDB records.

#### 2.4.273.107 SXAddl\_SXCView\_SXDTableStyleClient

The **SXAddl\_SXCView\_SXDTableStyleClient** record specifies [table style](#Section_4ac7212b4aa74ece962526c58224ae80) properties for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | reserved2 | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x1E.

**reserved1 (6 bytes):** MUST be zero, and MUST be ignored.

**A - unused (1 bit):** Undefined and MUST be ignored.

**B - fLastColumn (1 bit):**  A bit that specifies whether any [table style elements](#Section_84f2f67849214e8c83eb10d4fff7e935) (as specified by [TableStyleElement](#Section_5c1d12a901db4471897ae2d2875980c5)) with a **tseType** field equal to 0x00000004 are applied to the [PivotTable view](#Section_a5f57198f2af40b2ba07e4b1836d73f3).

**C - fRowStrips (1 bit):**  A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000005 or 0x00000006 are applied to the PivotTable view.

**D - fColumnStrips (1 bit):**  A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000007 or 0x00000008 are applied to the PivotTable view.

**E - fRowHeaders (1 bit):**  A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000003, 0x00000017, 0x00000018, or 0x00000019 are applied to the PivotTable view.

**F - fColumnHeaders (1 bit):** A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000001, 0x00000014, 0x00000015, or 0x00000016 are applied to the PivotTable view.

**G - fDefaultStyle (1 bit):** A bit that specifies whether to apply the default [TableStyle](#Section_32b77a6330c54885bc94434923002d6d) to the PivotTable view.

**reserved2 (9 bits):** MUST be zero, and MUST be ignored.

**stName (variable):** An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) structure that specifies the name of the TableStyle applied to the PivotTable view. The length MUST be greater than zero and less than or equal to 255 characters.

#### 2.4.273.108 SXAddl\_SXCView\_SXDVer10Info

The **SXAddl\_SXCView\_SXDVer10Info** record specifies information about a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | bVerSxMacro | | | | | | | | A | B | C | D | E | F | G | H |
| I | J | | | unused | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x02.

**bVerSxMacro (1 byte):** A [DataFunctionalityLevel](#Section_e2661c5bd55247a697ee7c72ad88be4b) structure that specifies the [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) that this [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) was created with. SHOULD[<129>](#Appendix_A_129" \o "Product behavior note 129) be less than 3 if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) is less than 3. MUST be greater than or equal to 3 if the PivotCache functionality level of the associated PivotCache is greater than or equal to 3.

**A - fDisplayImmediateItems (1 bit):** A bit that specifies whether [pivot items](#Section_58891cc5dd9b4293a97831070779524f) are displayed in the PivotTable view even when there is no [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) on the [data axis](#Section_4c5c2daa289746e1854b0ce04209f060). If **bVerSxMacro** is greater than or equal to 3 then this value MUST be 1.

**B - fEnableDataEd (1 bit):** A bit that specifies whether the user is allowed to change values in the data axis of the PivotTable view.

**C - fDisableFList (1 bit):** A bit that specifies whether the [**PivotTable field list**](#gt_1760fb56-0c97-4c0d-a077-38338baa7577) is disabled.

**D - fReenterOnLoadOnce (1 bit):** A bit that specifies whether the PivotTable view is recalculated the next time the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is opened.

**E - fNotViewCalculatedMembers (1 bit):** A bit that specifies whether [**OLAP calculated members**](#gt_16cb1b2a-a915-42c1-81ef-fcf221adb0fe) are [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) in the PivotTable view.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | OLAP calculated members are not hidden. |
| 1 | OLAP calculated members are hidden. |

MUST be ignored if the PivotTable view is a non-[OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f).

**F - fNotVisualTotals (1 bit):** A bit that specifies whether [**grand totals**](#gt_417eeaf5-caef-4fc3-afe1-048db5482eb7) and subtotals in an OLAP PivotTable view include the values of hidden [**OLAP members**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32).

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Hidden OLAP members are not included in grand totals and subtotals. |
| 1 | Hidden OLAP members are included in grand totals and subtotals. |

MUST be ignored if the PivotTable view is a non-OLAP PivotTable view.

**G - fPageMultipleItemLabel (1 bit):** A bit that specifies what text is displayed in a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the page area when a non-[**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) has one or more hidden pivot items.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Show text indicating that all items are displayed. |
| 1 | If the data source has one or more hidden pivot items, show text indicating that not all items are displayed, otherwise show text indicating that all items are displayed. |

MUST be ignored if the PivotTable view is an OLAP PivotTable view.

**H - fTensorFillCv (1 bit):** A bit that specifies whether the [**fill color**](#gt_ed1c5310-a27a-4576-883a-f9f3e18ba20a) retrieved from the OLAP data source is used in the PivotTable view.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The fill color from the OLAP data source is not used. |
| 1 | If the data source is OLAP and the fill color is available from the OLAP data source, then the fill color is used. |

MUST be ignored if the PivotTable view is a non-OLAP PivotTable view.

**I - fHideDDData (1 bit):** A bit that specifies whether the control for selecting the pivot items to be displayed in the PivotTable view is hidden.

**J - reserved1 (3 bits):** MUST be zero, and MUST be ignored.

**unused (12 bits):** Undefined, and MUST be ignored.

**reserved2 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.109 SXAddl\_SXCView\_SXDVer12Info

The **SXAddl\_SXCView\_SXDVer12Info** record specifies information for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), for an [SxcView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | D | E | F | G | H | I | J | K | reserved2 | | | | |
| ... | | | | L | M | N | O | cIndentInc | | | | | | | P | reserved3 | | | | | | | | | | | | | | | |

**hdr (6 bytes):**  An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db) structure. The value of **hdr.sxc** MUST equal 0x00 and the value of **hdr.sxd** MUST equal 0x19.

**A - fDefaultCompact (1 bit):** A bit that specifies whether new [pivot fields](#Section_1edf7f2294084945b2de56526c14fca5) added to the [PivotTable view](#Section_a5f57198f2af40b2ba07e4b1836d73f3) are in [**compact axis**](#gt_87303118-9ef7-437d-914a-2ad9964b5e81) mode by default.

**B - fDefaultOutline (1 bit):** A bit that specifies whether new pivot fields added to the PivotTable view are displayed in outline format by default.

**C - fOutlineData (1 bit):** A bit that specifies whether the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592) is displayed in outline format. See [Subtotalling](#Section_427438d9b8e34a5c8b678f158fbf680f) for more information.

**D - fCompactData (1 bit):** A bit that specifies whether the data field is displayed in compact axis mode. See [PivotTable Layout](#Section_2f81b5b422d546778ec53c5dc1ad80d4) for more information.

**E - fNewDropZones (1 bit):** A bit that specifies whether the application allows dragging within the [**PivotTable field list**](#gt_1760fb56-0c97-4c0d-a077-38338baa7577).

**F - fPublished (1 bit):** A bit that specifies whether this PivotTable is marked as having already been [**published**](#gt_8ffc383a-d4f1-4515-a8b5-874d84ab2d2b) to a server-based application. This bit is ignored if the **fPublishedBookItems** field of the [BookExt\_Conditional12](#Section_714e951cff5a48769e01bdfa1b548141) structureis zero.

**G - fTurnOffImmersive (1 bit):** A bit that specifies whether a user interface for manipulating PivotTable options is displayed.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | A user interface for manipulating PivotTable options is displayed. |
| 1 | A user interface for manipulating PivotTable options is not displayed. |

**H - fSingleFilterPerField (1 bit):** A bit that specifies whether this PivotTable can have multiple [**filters**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) per field.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The PivotTable can have many filters per field. |
| 1 | The PivotTable can have a maximum of one filter per field. |

**I - fNonDefaultSortInFlist (1 bit):** A bit that specifies whether PivotTable fields are sorted in the PivotTable field list.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | PivotTable fields are not sorted in the PivotTable field list. |
| 1 | PivotTable fields are sorted in the PivotTable field list. |

**J - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**K - fDontUseCustomLists (1 bit):** A bit that specifies whether to use [**custom lists**](#gt_92d2bb3a-2615-4bf8-b87f-887302d4c40c) when sorting the PivotTable.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Custom lists are used when sorting the PivotTable. |
| 1 | Custom lists are not used when sorting the PivotTable. |

**reserved2 (9 bits):** MUST be zero, and MUST be ignored.

**L - fHideDrillIndicators (1 bit):** A bit that specifies whether the [**expand/collapse buttons**](#gt_6b6cf48b-35ae-4101-86b4-c5d63aca70a6) are [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) in the PivotTable view.

**M - fPrintDrillIndicators (1 bit):** A bit that specifies whether the expand/collapse buttons are printed.

**N - fMemPropsInTips (1 bit):** A bit that specifies whether [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) properties are displayed in [**ToolTips**](#gt_5100b5cd-9168-4f0c-a088-a143921b8640).

**O - fNoPivotTips (1 bit):** A bit that specifies whether ToolTips are displayed on cells in the PivotTable view.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | ToolTips are displayed on cells in the PivotTable view. |
| 1 | ToolTips are not displayed on cells in the PivotTable view. |

**cIndentInc (7 bits):** An unsigned integer that specifies the number of characters to indent row labels by when compact axis mode is used. See PivotTable Layout for more information.

**P - fNoHeaders (1 bit):** A bit that specifies whether field captions are displayed in the PivotTable layout.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Field captions are displayed in the PivotTable layout. |
| 1 | Field captions are not displayed in the PivotTable layout. |

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

#### 2.4.273.110 SXAddl\_SXCView\_SXDVerUpdInv

The **SXAddl\_SXCView\_SXDVerUpdInv** record specifies the record-handling behavior for following records of the [SXCView class](#Section_a17d6dc32db74ec4b3cbeded2b7126c3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**data (12 bytes):** An [SXAddl\_SXDVerUpdInv](#Section_90e5e073114748dc814a8a30b10c2513) structure. The value of **data.hdr.sxc** MUST equal 0x00 and the value of **data.hdr.sxd** MUST equal 0x01. The value of **data.dwVersionInvalidates** MUST equal 0x0002 or 0x00FF.

If the value of **data.dwVersionInvalidates** is not 0x00FF and is greater than or equal to the value of the **VerSxLastUpdated** field of the [QsiSXTag](#Section_3bb6727096504455944daa8e21dbb19f) record of this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), the following records of this SXCView class, including nested classes or until another SXAddl\_SXCView\_SXDVerUpdInv record is encountered, MUST be ignored.

### 2.4.274 SxBool

The **SxBool** record specifies a Boolean [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) or value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| bool | | | | | | | | | | | | | | | |

**bool (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the record value.

### 2.4.275 SXDB

The **SXDB** record specifies [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) properties.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| crdbdb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idstm | | | | | | | | | | | | | | | | A | B | C | D | E | F | unused1 | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | cfdbdb | | | | | | | | | | | | | | | |
| cfdbTot | | | | | | | | | | | | | | | | crdbUsed | | | | | | | | | | | | | | | |
| vsType | | | | | | | | | | | | | | | | cchWho | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**crdbdb (4 bytes):**  A signed integer that specifies the number of [cache records](#Section_fe6e4ca0a9b646a4898124e4b61a770a) for this PivotCache. MUST be greater than or equal to 0. MUST be 0 for [OLAP PivotCaches](#Section_fb16dbf9cbe543b1aaa3f970c5107e7b). MUST be ignored if **fSaveData** is 0.

**idstm (2 bytes):**  An unsigned integer that specifies the stream that contains the data for this PivotCache. MUST be equal to the value of the **idstm** field of the [SXStreamID](#Section_a4dc3f5438904e35aad080a16b4b4cff) record that specifies the PivotCache stream that contains this record.

**A - fSaveData (1 bit):**  A bit that specifies whether cache records exist. MUST be 0 for OLAP PivotCaches.

**B - fInvalid (1 bit):**  A bit that specifies whether the cache records are in the not-valid state. MUST be equal to 1 if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is greater than or equal to 3. MUST be equal to 1 for OLAP PivotCaches. See cache records for more information.

**C - fRefreshOnLoad (1 bit):**  A bit that specifies whether the PivotCache is refreshed on load.

**D - fOptimizeCache (1 bit):**  A bit that specifies whether optimization is applied to the PivotCache to reduce memory usage. MUST be 0 and MUST be ignored for a non-[**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e) PivotCache.

**E - fBackgroundQuery (1 bit):**  A bit that specifies whether the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) used to [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) the PivotCache is executed asynchronously. MUST be ignored if **vsType** not equals 0x0002.

**F - fEnableRefresh (1 bit):**  A bit that specifies whether refresh of the PivotCache is enabled. MUST be equal to 0 if the PivotCache functionality level is greater than or equal to 3. MUST be equal to 0 for OLAP PivotCaches.

**unused1 (10 bits):**  Undefined and MUST be ignored.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**cfdbdb (2 bytes):**  A signed integer that specifies the number of [cache fields](#Section_6497eb794042445780e75959c9f0583c) that corresponds to the [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4). MUST be greater than or equal to 0.

**cfdbTot (2 bytes):**  A signed integer that specifies the number of cache fields in the PivotCache. MUST be greater than or equal to 0.

**crdbUsed (2 bytes):**  An unsigned integer that specifies the number of records used to calculate the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) report. Records excluded by [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) filtering are not included in this value. MUST be 0 for OLAP PivotCaches.

**vsType (2 bytes):**  An unsigned integer that specifies the type of source data. MUST be equal to the value of the **sxvs** field of the [SXVS](#Section_386ddcb0d3f94370b60c2f05b2d371c7) record that follows the SXStreamID record that specifies the PivotCache stream that contains this record.

**cchWho (2 bytes):**  An unsigned integer that specifies the number of characters in **rgb**. MUST be equal to 0xFFFF, or MUST be greater than or equal to 1 and less than or equal to 0x00FF.

**rgb (variable):** An optional [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the user who last refreshed the PivotCache. MUST exist if and only if the value of **cchWho** is not equal to 0xFFFF.  If this field exists, the length MUST equal **cchWho**. The length of this value MUST be less than 256 characters. The name is an application-specific setting that is not necessarily related to the [User Names Stream](#Section_1b98bc4df7c640a088dba99426635acd) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf).

### 2.4.276 SXDBB

The **SXDBB** record specifies the values of all the [cache fields](#Section_6497eb794042445780e75959c9f0583c) that have a **fAllAtoms** field of the [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record equal to 1 and that correspond to [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) entities, as specified by cache fields, for a single [cache record](#Section_fe6e4ca0a9b646a4898124e4b61a770a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| blob (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**blob (variable):** An array of 1-byte and 2-byte unsigned integers that specifies indexes to [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) of cache fields that correspond to source data entities, as specified by cache fields, that have an **fAllAtoms** field of the SXFDB record equal to 1. The order of the indexes specified in the array corresponds to the order of the cache fields as they appear in the [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e). Each unsigned integer specifies a zero-based index of a record in the sequence of records that conforms to the [SRCSXOPER](#section_c5fb3f663ef64308ae3de59244159687) rule of the associated cache field. The referenced record from the SRCSXOPER rule specifies a cache item that specifies a value for the associated cache field. If the **fShortIitms** field of an SXFDB record of the cache field equals 1, the index value for this cache field is stored in this field in two bytes; otherwise, the index value is stored in this field in a single byte.

### 2.4.277 SXDBEx

The **SXDBEx** record specifies additional [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) properties.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| numDate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cSxFormula | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**numDate (8 bytes):**  A [DateAsNum](#Section_f8099a22ecdf407ea1ef2f38cb5d211e) structure that specifies the date and time on which the PivotCache was created or last refreshed.

**cSxFormula (4 bytes):**  An unsigned integer that specifies the count of [SXFormula](#Section_b7c4ebe61ade458fb78ca1d05ada9862) records for this cache.

### 2.4.278 SXDI

The **SXDI** record specifies a [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679) for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| isxvdData | | | | | | | | | | | | | | | | iiftab | | | | | | | | | | | | | | | |
| df | | | | | | | | | | | | | | | | isxvd | | | | | | | | | | | | | | | |
| isxvi | | | | | | | | | | | | | | | | ifmt | | | | | | | | | | | | | | | |
| cchName | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**isxvdData (2 bytes):**  A signed integer that specifies a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) index as specified in Pivot Fields.

If the PivotTable view is a non-[OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f), the values in the [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) associated with the associated [cache field](#Section_6497eb794042445780e75959c9f0583c) of the referenced pivot field are aggregated as specified in this record.

If the PivotTable view is an OLAP PivotTable view, the associated [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) of the referenced pivot field specifies the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**measure**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) for this data item and the **iiftab** field is ignored. See [Association of Pivot Hierarchies and Pivot Fields and Cache Fields](#Section_01a66b9be4a24396b55c28d6207fd28f) to determine the associated pivot hierarchy.

MUST be greater than or equal to zero and less than the value of the **cDim** field of the preceding [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record.

The value of the **sxaxis.sxaxisData** field of the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record of the referenced pivot field MUST be 1.

**iiftab (2 bytes):**  A signed integer that specifies the [**aggregation function**](#gt_f9b44a9d-68c4-4a28-b347-cce9eb5f8845).

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Sum of values |
| 0x0001 | Count of values |
| 0x0002 | Average of values |
| 0x0003 | Max of values |
| 0x0004 | Min of values |
| 0x0005 | Product of values |
| 0x0006 | Count of numbers |
| 0x0007 | Statistical standard deviation (sample) |
| 0x0008 | Statistical standard deviation (population) |
| 0x0009 | Statistical variance (sample) |
| 0x000A | Statistical variance (population) |

**df (2 bytes):**  A signed integer that specifies the calculation used to display the value of this data item.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The data item value is displayed. |
| 0x0001 | Display as the difference between this data item value and the value of the [pivot item](#Section_58891cc5dd9b4293a97831070779524f) specified by **isxvi**. |
| 0x0002 | Display as a percentage of the value of the pivot item specified by **isxvi**. |
| 0x0003 | Display as a percentage difference from the value of the pivot item specified by **isxvi**. |
| 0x0004 | Display as the running total for successive pivot items in the pivot field specified by **isxvd**. |
| 0x0005 | Display as a percentage of the total for the row containing this data item. |
| 0x0006 | Display as a percentage of the total for the column containing this data item. |
| 0x0007 | Display as a percentage of the grand total of the data item. |
| 0x0008 | Calculate the value to display using the following formula:  ((this data item value) \* (grand total of grand totals)) / ((row [**grand total**](#gt_417eeaf5-caef-4fc3-afe1-048db5482eb7)) \* (column grand total)) |

**isxvd (2 bytes):**  A signed integer that specifies a pivot field index as specified in Pivot Fields. The referenced pivot field is used in calculations as specified by the **df** field.

If **df** is 0x0001, 0x0002, 0x0003, or 0x0004 then the value of **isxvd** MUST be greater than or equal to zero and less than the value of the **cDim** field in the preceding SxView record. Otherwise, the value of **isxvd** is undefined and MUST be ignored.

**isxvi (2 bytes):**  A signed integer that specifies the pivot item used by **df**.

If **df** is 0x0001, 0x0002, or 0x0003 then the value of this field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 to 0x7EFE | A pivot item index, as specified by Pivot Items, that specifies a pivot item in the pivot field specified by **isxvd**. MUST be less than the **cItm** field of the Sxvd record of the pivot field specified by **isxvd**. |
| 0x7FFB | The previous pivot item in the pivot field specified by **isxvd**. |
| 0x7FFC | The next pivot item in the pivot field specified by **isxvd.** |

Otherwise, the value is undefined and MUST be ignored.

**ifmt (2 bytes):**  An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) structure that specifies the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) for this item.

**cchName (2 bytes):**  An unsigned integer that specifies the length, in characters, of the [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure in the **stName** field. If the value is 0xFFFF then **stName** does not exist. Otherwise, the value MUST be greater than zero and less than or equal to 0x00FF.

MUST NOT be 0xFFFF when the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is less than 3, or for non-OLAP PivotTable view .

**stName (variable):**  An XLUnicodeStringNoCch structure that specifies the name of this data item. A value that is not NULL specifies that this string is used to override the name in the corresponding cache field.

MUST NOT exist if **cchName** is 0xFFFF. Otherwise, MUST exist and the length MUST equal **cchName**.

If this string is not NULL and the PivotTable view is a non-OLAP PivotTable view, this field MUST be unique within all SXDI records in this [PivotTable view](#Section_a5f57198f2af40b2ba07e4b1836d73f3).

### 2.4.279 SXDtr

The **SXDtr** record specifies a [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) or a value in the [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) that is an instance in time, expressed as a date and time of day.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| yr | | | | | | | | | | | | | | | | mon | | | | | | | | | | | | | | | |
| dom | | | | | | | | hr | | | | | | | | min | | | | | | | | sec | | | | | | | |

**yr (2 bytes):**  An unsigned integer that specifies the year component of the date. MUST be greater than or equal to 1900 and MUST be less than or equal to 9999. If **dom** is 0, **yr** MUST be 1900.

**mon (2 bytes):**  An unsigned integer that specifies the month component of the date. MUST be greater than or equal to 1, and MUST be less than or equal to 12. If **dom** is equal to 0, **mon** MUST be equal to 1.

**dom (1 byte):**  An unsigned integer that specifies the day of month component of the date. MUST be greater than or equal to 0 and MUST be less than or equal to 31.

**hr (1 byte):**  An unsigned integer that specifies the hour component of the time of day. MUST be less than or equal to 23.

**min (1 byte):**  An unsigned integer that specifies the minute component of the time of day. MUST be less than or equal to 59.

**sec (1 byte):**  An unsigned integer that specifies the second component of the time of day. MUST be less than or equal to 59.

### 2.4.280 SxDXF

The **SxDXF** record specifies [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) applied to a [PivotTable area](#Section_c3139d36c8934b57a44df7b7c13556e5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| dxf (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dxf (variable):**  A [DXFN12NoCB](#Section_30d7a5a8b5cf4fb3abc85a90942d7021) structure that specifies the differential formatting.

### 2.4.281 SxErr

The **SxErr** record specifies an error [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) or value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wbe | | | | | | | | | | | | | | | |

**wbe (2 bytes):** An unsigned integer that specifies the error record value. MUST be a value from the following table**[<130>](#Appendix_A_130" \o "Product behavior note 130):**

| Value | Meaning |
| --- | --- |
| 0x00 | #NULL! |
| 0x07 | #DIV/0! |
| 0x0F | #VALUE! |
| 0x17 | #REF! |
| 0x1D | #NAME? |
| 0x24 | #NUM! |
| 0x2A | #N/A |

### 2.4.282 SXEx

The **SXEx** record specifies additional properties of a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) and specifies the beginning of a collection of records as defined by the [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies [**selection**](#gt_8a241461-3c59-45fb-9094-b6692a0c27fe) and formatting properties for the PivotTable view.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| csxformat | | | | | | | | | | | | | | | | cchErrorString | | | | | | | | | | | | | | | |
| cchNullString | | | | | | | | | | | | | | | | cchTag | | | | | | | | | | | | | | | |
| csxselect | | | | | | | | | | | | | | | | crwPage | | | | | | | | | | | | | | | |
| ccolPage | | | | | | | | | | | | | | | | A | cWrapPage | | | | | | | | B | C | reserved2 | | | | |
| D | E | F | G | H | I | J | K | reserved3 | | | | | | | | cchPageFieldStyle | | | | | | | | | | | | | | | |
| cchTableStyle | | | | | | | | | | | | | | | | cchVacateStyle | | | | | | | | | | | | | | | |
| stError (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDisplayNull (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stTag (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stPageFieldStyle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stTableStyle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stVacateStyle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**csxformat (2 bytes):**  An unsigned integer that specifies the number of [SxFormat](#Section_1bf196bf9b3440db8d3787d204b2f8e7) records that follow this record. MUST be less than or equal to 0xFFFF.

**cchErrorString (2 bytes):**  An unsigned integer that specifies the length, in characters, of the [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure in the **stError** field. If the value is 0xFFFF, then **stError** does not exist. MUST be 0xFFFF or MUST be greater than zero and less than or equal to 0x00FF.

**cchNullString (2 bytes):**  An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch structure in the **stDisplayNull** field. If the value is 0xFFFF, then **stDisplayNull** does not exist. MUST be 0xFFFF or MUST be greater than zero and less than or equal to 0x00FF.

**cchTag (2 bytes):**  An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch structure in the **stTag** field. If the value is 0xFFFF, then **stTag** does not exist. MUST be 0xFFFF or MUST be greater than zero and less than or equal to 0x00FF.

**csxselect (2 bytes):**  An unsigned integer that specifies the number of [SxSelect](#Section_9fb92c604b6f49928ef89a5a682a610c) records that follow this record. MUST be less than or equal to 0xFFFF.

**crwPage (2 bytes):**  A [DRw](#Section_22965732283b49b9acd7515de46fdf7a) structure that specifies the number of rows in the page area (see [Location and Body](#Section_7f7d9d76a55041d9ae9f0d8539cc09f8)) of the PivotTable view.

**ccolPage (2 bytes):**  A [DCol](#Section_902a939388ee47059f559fe85f174c6e) structure that specifies the number of columns in the page area (see Location and Body) of the PivotTable view.

**A - fAcrossPageLay (1 bit):**  A bit that specifies how [pivot fields](#Section_1edf7f2294084945b2de56526c14fca5) are laid out in the page area (see Location and Body) when there are multiple pivot fields on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Pivot fields are displayed in the page area from the top to the bottom first, as fields are added, before moving to another column. |
| 0x1 | Pivot fields are displayed in the page area from left to right first, as fields are added, before moving to another row. |

**cWrapPage (8 bits):**  An unsigned integer that specifies the number of pivot fields in the page area (see Location and Body) to display before moving to another row or column, as specified by **fAcrossPageLay**.

MUST be less than or equal to 0xFF. A value of 0 means that no wrap is allowed.

**B - unused (1 bit):**  Undefined and MUST be ignored.

**C - reserved1 (1 bit):** MUST be zero and MUST be ignored.

**reserved2 (5 bits):** MUST be zero and MUST be ignored.

**D - fEnableWizard (1 bit):**  A bit that specifies whether a wizard user interface is displayed to work with the PivotTable view.

**E - fEnableDrilldown (1 bit):**  A bit that specifies whether details can be shown for [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the data area, as specified by [PivotTable Layout](#Section_2f81b5b422d546778ec53c5dc1ad80d4).

**F - fEnableFieldDialog (1 bit):**  A bit that specifies whether a user interface for setting properties of a pivot field can be displayed.

**G - fPreserveFormatting (1 bit):**  A bit that specifies whether formatting is preserved when the PivotTable view is recalculated.

If the value is 1, **csxformat** MUST be 0 and there MUST be no SxFormat records following this record.

**H - fMergeLabels (1 bit):**  A bit that specifies whether empty cells adjacent to the cells displaying [pivot item](#Section_58891cc5dd9b4293a97831070779524f) captions of pivot fields on the [row axis](#Section_3f46e7207706400cba9473cb829f869a) and [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) of the PivotTable view are merged into a single cell with center-aligned text.

**I - fDisplayErrorString (1 bit):**  A bit that specifies whether the PivotTable view displays the custom error string **stError** in cells that contain errors.

**J - fDisplayNullString (1 bit):**  A bit that specifies whether the PivotTable view displays the custom string **stDisplayNull** in cells that contain NULL values.

**K - fSubtotalHiddenPageItems (1 bit):**  A bit that specifies whether hidden pivot items, as specified by [SXVI](#Section_79769ad0d2134e6dbf34fb766907091c) records with the **fHidden** field equal to 1, of a pivot field on the page axis with the **isxvi** field of the corresponding [SXPI\_Item](#Section_d60b13f8534b40f2b40a5c8739ec2b76) structure equal to 0x7FFD are filtered out when calculating the PivotTable view.

MUST be 0 for non-[**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**data sources**](#gt_e091613c-6901-4874-b9b2-27273ead1075) if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) is 3.

**reserved3 (8 bits):** MUST be zero and MUST be ignored.

**cchPageFieldStyle (2 bytes):**  An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch structure in the **stPageFieldStyle** field. If the value is 0xFFFF, then **stPageFieldStyle** does not exist.

MUST be 0xFFFF or MUST be greater than zero and less than or equal to 0x00FF.

**cchTableStyle (2 bytes):**  An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch structure in the **stTableStyle** field. If the value is 0xFFFF, then **stTableStyle** does not exist.

MUST be 0xFFFF or MUST be greater than zero and less than or equal to 0x00FF.

**cchVacateStyle (2 bytes):**  An unsigned integer that specifies the length, in characters, of the XLUnicodeStringNoCch structure in the **stVacateStyle** field. If the value is 0xFFFF, then **stVacateStyle** does not exist.

MUST be 0xFFFF or MUST be greater than zero and less than or equal to 0x00FF.

**stError (variable):**  An XLUnicodeStringNoCch structure that specifies a custom string displayed in cells that contain errors when the value of **fDisplayErrorString** is 1. The length is specified in **cchErrorString**.

This field is optional and MUST NOT exist if **cchErrorString** is 0xFFFF.

**stDisplayNull (variable):**  An XLUnicodeStringNoCch structure that specifies a custom string displayed in cells that contain NULL values when **fDisplayNullString** is 1. The length is specified in **cchNullString**.

This field is optional and MUST NOT exist if **cchNullString** is 0xFFFF.

**stTag (variable):**  An XLUnicodeStringNoCch structure that specifies a custom string saved with the PivotTable view. The length is specified in **cchTag**.

This field is optional and MUST NOT exist if **cchTag** is 0xFFFF.

**stPageFieldStyle (variable):**  An XLUnicodeStringNoCch structure that specifies the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) used in the page area (see Location and Body) of the PivotTable view. The style is specified by the [StyleExt](#Section_88f1dded37b146239b6f9f7eb333f54f) record with its **stName** field equal to this field's value. If **cchPageFieldStyle** is 0xFFFF or less than 1, no style is applied. The length is specified in **cchPageFieldStyle**.

This field is optional and MUST NOT exist if **cchPageFieldStyle** is 0xFFFF.

**stTableStyle (variable):**  An XLUnicodeStringNoCch structure that specifies the style used in the body of the PivotTable view. The style is specified by the StyleExt record with its **stName** field equal to this field's value. If **cchTableStyle** is 0xFFFF or less than 1, no style is applied. The length is specified in **cchTableStyle**.

This field is optional and MUST NOT exist if **cchTableStyle** is 0xFFFF.

**stVacateStyle (variable):**  An XLUnicodeStringNoCch structure that specifies the style applied to cells that become empty when the PivotTable view is recalculated. The style is specified by the StyleExt record with its **stName** field equal to this field's value. If **cchVacateStyle** is 0xFFFF or less than 1, no style is applied. The length is specified in **cchVacateStyle**.

This field is optional and MUST NOT exist if **cchVacateStyle** is 0xFFFF.

### 2.4.283 SXFDB

The **SXFDB** record specifies properties for a [cache field](#Section_6497eb794042445780e75959c9f0583c) within a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | ifdbParent | | | | | | | | | | | | | | | |
| ifdbBase | | | | | | | | | | | | | | | | citmUnq | | | | | | | | | | | | | | | |
| csxoper | | | | | | | | | | | | | | | | cisxoper | | | | | | | | | | | | | | | |
| catm | | | | | | | | | | | | | | | | stFieldName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fAllAtoms (1 bit):** A bit that specifies whether this cache field has a collection of [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0). If **fSomeUnhashed** is equal to 1, this value MUST be equal to 0.

**B - fSomeUnhashed (1 bit):** Undefined, and MUST be ignored. If the **fAllAtoms** field is equal to 1, MUST be equal to 0.

**C - fUsed (1 bit):** Undefined, and MUST be ignored.

**D - fHasParent (1 bit):**  A bit that specifies whether **ifdbParent** specifies a reference to a parent grouping cache field. For more information, see [Grouping](#Section_63e07ed20a764cb08cf446aaf25464c2). If the **fCalculatedField** field is equal to 1, then this field MUST be equal to 0.

**E - fRangeGroup (1 bit):**  A bit that specifies whether this cache field is grouped by using numeric grouping or date grouping, as specified by Grouping. If this field is equal to 1, then this record MUST be followed by a sequence of [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) records, as specified by the [GRPSXOPER](#section_c5fb3f663ef64308ae3de59244159687) rule. The quantity of SXString records is specified by **csxoper**. If this field is equal to 1, then this record MUST be followed by a sequence of records that conforms to the SXRANGE rule that specifies the grouping properties for the ranges of values.

**F - fNumField (1 bit):** A bit that specifies whether the cache items in this cache field contain at least one numeric cache item, as specified by [SXNum](#Section_e16fd21368b54566886499600b002f4d). If **fDateInField** is equal to 1, this field MUST be equal to 0.

**G - unused1 (1 bit):** Undefined and MUST be ignored.

**H - fTextEtcField (1 bit):**  A bit that specifies whether the cache items contain text data. If **fNumField** is 1, this field MUST be ignored.

**I - fnumMinMaxValid (1 bit):**  A bit that specifies whether a valid minimum or maximum value can be computed for the cache field. MUST be equal to 1 if **fDateInField** or **fNumField** is equal to 1.

**J - fShortIitms (1 bit):** A bit that specifies whether there are more than 255 cache items in this cache field. If **catm** is greater than 255, this value MUST be equal to 1; otherwise it MUST be 0.

**K - fNonDates (1 bit):**  A bit that specifies whether the cache items in this cache field contain values that are not time or date values. If this cache field is a grouping cache field, as specified by Grouping, then this field MUST be ignored. Otherwise, if **fDateInField** is equal to 1, then this field MUST be 0.

**L - fDateInField (1 bit):**  A bit that specifies whether the cache items in this cache field contain at least one time or date cache item, as specified by [SXDtr](#Section_5c7ffeb26d504ee4b415ed075f9bf158). If **fNonDates** is equal to 1, then this field MUST be equal to 0.

**M - unused2 (1 bit):** Undefined and MUST be ignored.

**N - fServerBased (1 bit):**  A bit that specifies whether this cache field is a server-based page field when the corresponding [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) is on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37), as specified in [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4).

This value applies only to an [**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e) PivotCache. MUST NOT be equal to 1 if **fCantGetUniqueItems** is equal to 1. If **fCantGetUniqueItems** is equal to 1, then the [ODBC connection](#Section_a8c9314e9f904738a482e97aa5ec2383) cannot provide a list of unique items for the cache field.

MUST be 0 for a cache field in a non-ODBC PivotCache.

**O - fCantGetUniqueItems (1 bit):** A bit that specifies whether a list of unique values for the cache field was not available while refreshing the source data. This field applies only to a PivotCache that uses ODBC source data and is intended to be used in conjunction with optimization features. For example, the application can optimize memory usage when populating PivotCache records if it has a list of unique values for a cache field before all the records are retrieved from the ODBC connection. Or, the application can determine the appropriate setting of **fServerBased** based on this value.

MUST be 0 for fields in a non-ODBC PivotCache.

**P - fCalculatedField (1 bit):** A bit that specifies whether this field is a [calculated field](#Section_4594f2ac815740b381142e77ba8efb7d). The formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) of the calculated field is stored in a directly following [SXFormula](#Section_b7c4ebe61ade458fb78ca1d05ada9862) record. If **fHasParent** is equal to 1, this field MUST be equal to 0.

**ifdbParent (2 bytes):** An unsigned integer that specifies the cache field index, as specified by Cache Fields, of the grouping cache field for this cache field. MUST be greater than or equal to 0x0000 and less than the **cfdbTot** field of the [SXDB](#Section_f0e04937a8cf4a1c891bea1fa4b85fdc) record of this PivotCache. If **fHasParent** is equal to 0, then this field MUST be ignored. If **fHasParent** is equal to 1, and **fRangeGroup** is equal to 1, and the **iByType** field of the [SXRng](#Section_6f43f7d653fb4e2fa35a07b7dc56fa8f) record of this cache field is greater than 0, then the **fRangeGroup** of the SXFDB record of the cache field specified by **ifdbParent** MUST be 1 and the **iByType** field of the SXRng record of the cache field specified by **ifdbParent** MUST be greater than the **iByType** field of the SXRng record of this cache field.

**ifdbBase (2 bytes):** An unsigned integer that specifies the cache field index, as specified by Cache Fields, of the base cache field, as specified by Grouping, for the cache field specified by this record. MUST be greater than or equal to 0x0000 and less than the value of the **cfdbdb** field of the SXDB record of this PivotCache. If the cache field specified by this record is not a grouping cache field, then this field MUST be ignored.

**citmUnq (2 bytes):**  Undefined and MUST be ignored.

**csxoper (2 bytes):**  An unsigned integer that specifies the number of cache items in this cache field when this cache field is a grouping cache field, as specified by Grouping. There MUST be an equivalent number of sequences of records that conform to the GRPSXOPER rule following this record that specify the cache items. If the **fRangeGroup** field and the **fCalculatedField** field are equal to 0 and this cache field corresponds to a source data entity, this field MUST be equal to 0. If the **fRangeGroup** field is equal to 1, this value MUST be greater than or equal to 1.

**cisxoper (2 bytes):** An unsigned integer that specifies the number of cache items in the base cache field that are grouped by this cache field. There MUST be an equivalent number of [SxIsxoper](#Section_1847f42114de45f19663010ed231894b) records following this record that specify which cache item in this cache field groups each of the cache items in the base cache field. For more information, see Grouping.

**catm (2 bytes):**  An unsigned integer that specifies the number of cache items in the collection sequences of records that conform to the SRCSXOPER rule in this cache field. If **fAllAtoms** is 0, then this field MUST be equal to 0x0000. If this cache field corresponds to source data entities then there MUST be an equal number of SRCSXOPER rules in this cache field.

**stFieldName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the cache field. MUST be less than or equal to 255 characters long.

### 2.4.284 SXFDBType

The **SXFDBType** record specifies the type of data contained in this [cache field](#Section_6497eb794042445780e75959c9f0583c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| wTypeSql | | | | | | | | | | | | | | | |

**wTypeSql (2 bytes):** An [ODBCType](#Section_e6f9dc20275f42d991952a1c68536166) structure that specifies the [**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e) data type as returned by the ODBC provider of the data in this cache field.

### 2.4.285 SxFilt

The **SxFilt** record specifies information for a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f) filter.

See [SxRule](#Section_1f7e8f8c74ff4a6587476faf9b4c58a9) for more information about [PivotTable views](#Section_09410dfbaac84a719ecf177ffba12c37) that this record applies to.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | | iDim | | | | | | | | | | isxvd | | | | | | | | | | F | G | H | | | |
| grbitSbt | | | | | | | | | | | | | | | | cisxvi | | | | | | | | | | | | | | | |

**A - sxaxisRw (1 bit):**  A bit that specifies whether this [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) refers to the [row axis](#Section_3f46e7207706400cba9473cb829f869a). MUST be zero if **sxaxisCol** is 1, if **sxaxisPage** is 1, or if **sxaxisData** is 1.

**B - sxaxisCol (1 bit):**  A bit that specifies whether this filter refers to the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f). MUST be zero if **sxaxisRw** is 1, if **sxaxisPage** is 1, or if **sxaxisData** is 1.

**C - sxaxisPage (1 bit):**  A bit that specifies whether this filter refers to the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7). MUST be zero if **sxaxisRw** is 1, if **sxaxisCol** is 1, or if **sxaxisData** is 1.

**D - sxaxisData (1 bit):**  A bit that specifies whether this filter refers to the [value axis](#Section_4c5c2daa289746e1854b0ce04209f060). MUST be zero if **sxaxisRw** is 1, if **sxaxisCol** is 1, or if **sxaxisPage** is 1.

**E - reserved1 (2 bits):** MUST be zero, and MUST be ignored.

**iDim (10 bits):** A signed integer that specifies the zero-based position of the [PivotTable field](#Section_1edf7f2294084945b2de56526c14fca5) within the [PivotTable axis](#Section_89db73685e8e4324b592af85e4559e6c) specified by **sxAxis**. MUST be greater than or equal to 0 and less than or equal to 31.

**isxvd (10 bits):**  A signed integer that specifies the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592), pivot field, or [cache field](#Section_6497eb794042445780e75959c9f0583c) that this filter refers to. MUST be greater than or equal to 0 and less than or equal to 255 or equal to -2. MUST be a value from the following table:

| Value | Value of the fCacheBased field of the preceding SxRule record | Meaning |
| --- | --- | --- |
| -2 | MUST be 0 | Specifies that this rule refers to the data field. |
| A value greater than or equal to zero | 0 | Specifies a pivot field index as specified by pivot fields. The pivot field index specifies which pivot field is referenced by this filter. |
| A value greater than or equal to zero | 1 | Specifies a cache field index as specified by cache fields. The cache field index specifies which cache field is referenced by this filter. |

**F - fSelected (1 bit):** A bit that specifies whether the header of the PivotTable field this filter refers to is included in the PivotTable rule that this record belongs to.

**G - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**H - reserved3 (4 bits):** MUST be zero, and MUST be ignored.

**grbitSbt (2 bytes):** A signed integer that specifies the set of subtotals used in this filter. MUST be one of the following bits, or a combination of the following bits. DEFAULT MUST be combined only with DATA, BLANK, or both.

| Bits | Meaning |
| --- | --- |
| 0x0001 | DATA |
| 0x0002 | DEFAULT |
| 0x0004 | SUM |
| 0x0008 | COUNTA |
| 0x0010 | AVERAGE |
| 0x0020 | MAX |
| 0x0040 | MIN |
| 0x0080 | PRODUCT |
| 0x0100 | COUNT |
| 0x0200 | STDEV |
| 0x0400 | STDEVP |
| 0x0800 | VAR |
| 0x1000 | VARP |
| 0x4000 | BLANK |

**cisxvi (2 bytes):** An unsigned integer that specifies the number of indexes in the [SxItm](#Section_40dd493b575549b69a051fc6bdecbf4c) record that follows this record.

### 2.4.286 SxFmla

The **SxFmla** record specifies a [PivotParsedFormula](#Section_df9803bc04a94e06a4dd463976073e33) and specifies the beginning of a collection of records as defined by the [pivot cache](#Section_c5fb3f663ef64308ae3de59244159687) storage [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) [calculated field](#Section_4594f2ac815740b381142e77ba8efb7d) or [calculated item](#Section_6c6b3e3d22354a609f5b1c902ee0a50b) formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| formula (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**formula (variable):** A PivotParsedFormula structure that specifies the formula.

### 2.4.287 SxFormat

The **SxFormat** record specifies the beginning of a collection of records as defined by the [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies the [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) and specifies a [PivotRule](#Section_ce60432dda944422929fcf3f6a0a206f) that specifies the area of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) to apply the formatting to.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rlType | | | | reserved | | | | | | | | | | | | cbData | | | | | | | | | | | | | | | |

**rlType (4 bits):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether formatting was applied to the PivotTable view. MUST be a value from the following table:

| Value | Description |
| --- | --- |
| 0x0000 | The formatting was cleared. |
| 0x0001 | The formatting was applied. |

**reserved (12 bits):** MUST be zero, and MUST be ignored

**cbData (2 bytes):** An unsigned integer that specifies the number of bytes in the [SxDXF](#Section_2a8a126ca0bb4ba59ef125e7420aec58) record that follows this record. MUST be zero if **rlType** is zero. If this field is zero then zero SxDXF records MUST follow this record.

### 2.4.288 SXFormula

The **SXFormula** record specifies the [cache field](#Section_6497eb794042445780e75959c9f0583c) that a [calculated item](#Section_6c6b3e3d22354a609f5b1c902ee0a50b) formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) applies to. The calculated item formula is stored in the last [SxFmla](#Section_d327ce82d6584fcc927bd3f4edcc0232) record preceding this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | | ifdb | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**ifdb (2 bytes):**  A signed integer that specifies the cache field index as specified in Cache Fields. The cache field index specifies which cache field the calculated item formula applies to. MUST be greater than or equal to -1. If the value is -1, the calculated item formula applies to all cache fields. If the cache field is a source field, the value MUST be equal to the value of **isxvd** in the last [SxRule](#Section_1f7e8f8c74ff4a6587476faf9b4c58a9) record preceding this record.

### 2.4.289 SXInt

The **SXInt** record specifies a number in the [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| num | | | | | | | | | | | | | | | |

**num (2 bytes):**  A signed integer that specifies a number in the PivotCache.

### 2.4.290 SxIsxoper

The **SxIsxoper** record specifies the mapping between [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) in a [cache field](#Section_6497eb794042445780e75959c9f0583c) and cache items in a grouping cache field for discrete grouping, as specified by [Grouping](#Section_63e07ed20a764cb08cf446aaf25464c2). The grouping cache field is specified by the [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record preceding this record. The value of the **fRangeGroup** field of the SXFDB record MUST be 0 and the value of the **csxoper** field of the SXFDB record MUST be greater than 0. This record immediately follows the collection of records that specifies cache item values for the SXFDB record as defined in the [PivotCache Storage](#Section_c5fb3f663ef64308ae3de59244159687) part [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgSxIsxoper (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgSxIsxoper (variable):** An array of 2-byte unsigned integers. Each element of the array corresponds to a cache item in the cache field being grouped by the grouping cache field. The value of each element specifies the index of the cache item, as specified by Cache Items, in the grouping cache field that the cache item in the cache field is grouped under.

The count of elements in the array MUST be equal to the value of the **cisxoper** field of the SXFDB record preceding this record and is identical to the number of cache items in the cache field being grouped. The value of each element MUST be less than the total number of cache items in the grouping cache field.

### 2.4.291 SxItm

The **SxItm** record specifies references to [pivot items](#Section_58891cc5dd9b4293a97831070779524f), [data items](#Section_b51aa7b309b34aa78cb4964ad24d1679), or [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) as part of a [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f) filter.

If this record exists, the **cisxvi** field of the preceding [SxFilt](#Section_c7274a7468334fcebf62d4d4091e243d) MUST be greater than 0.

See [SxRule](#Section_1f7e8f8c74ff4a6587476faf9b4c58a9) for more information about [PivotTable views](#Section_09410dfbaac84a719ecf177ffba12c37) that this record applies to.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgisxvi (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgisxvi (variable):** An array of 2-byte unsigned integers that specifies pivot items, data item, or cache items associated with [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) included in the PivotTable rule. The array MUST be sorted in ascending order. The size of the array MUST be equal to the value of the **cisxvi** field of the preceding SxFilt record. Each unsigned 2-byte integer in the array MUST be less than or equal to 32500, or equal to 32767. The value 32767 specifies that there is no associated pivot item, data item, or cache item with the index. For more information, see PivotTable Rules. The meaning of this field is specified in the following table:

| Value of the isxvd field of the preceding  SxFilt record | Value of the fCacheBased field of the preceding SxRule record | Meaning of the index |
| --- | --- | --- |
| -2 | Not used | A data item index that specifies a data item associated with ranges of cells included in the PivotTable rules. MUST be less than the value of the **cDimData** field of the associated [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record. |
| >= 0 | 0 | A pivot item index that specifies a pivot item in the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) specified by the **isxvd** field of the SxFilt record. The referenced pivot item is associated with ranges of cells included in the PivotTable rule. MUST be less than the **cItems** field of the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record. |
| 1 | A cache item index, as specified by cache items, within the [cache field](#Section_6497eb794042445780e75959c9f0583c) specified by the **isxvd** field of the SxFilt record in the current [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e). The referenced cache item is associated with ranges of cells included in the PivotTable rule. MUST be less than the total number of cache items within the cache field associated with the pivot field specified by the **isxvd** field of the SxFilt record. |

### 2.4.292 SxIvd

The **SxIvd** record specifies an array of [SxIvdRw](#Section_1d9d8a26acf84281bbc8816ced4926a7) or [SxIvdCol](#Section_03b867b9584a4e89b0991e90fab1b304).

An array of SxIvdRw specifies all items for the [row axis](#Section_3f46e7207706400cba9473cb829f869a) of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). An array of SxIvdCol specifies all items on [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) of the PivotTable view.

Two or fewer records of this type appear in the file depending on the values of the **cDimRw** and **cDimCol** fields of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view.

If the **cDimRw** and **cDimCol** fields of the SxView record are both greater than zero, then two records of this type appear in the file for the PivotTable view. The first record is an array of SxIvdRw and the second record is an array of SxIvdCol.

If the value of the **cDimRw** field of the SxView record is greater than zero and the value of the **cDimCol** field of the SxView record is equal to zero, then only one record of this type appears in the file for the PivotTable view and it is an array of SxIvdRw.

If the value of the **cDimCol** field of the SxView record is greater than zero and the value of the **cDimRw** field of the SxView record is equal to zero, then only one record of this type appears in the file for the PivotTable view and it is an array of SxIvdCol.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgSxivd (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgSxivd (variable):** An array of SxIvdRw or SxIvdCol items.

If this is an array of SxIvdRw, the count of elements in the array MUST equal the value of the **cDimRw** field of the SxView record.

If this is an array of SxIvdCol, the count of elements in the array MUST equal the value of the **cDimCol** field of the SxView record.

### 2.4.293 SXLI

The **SXLI** record specifies [pivot lines](#Section_76610990666f492791b6d2280f607464) for the [row area](#Section_5594c95e6819461e80706f4b4fdfa091) or [column area](#Section_03aced8c25864e83982a1e3551a563d6) of a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgsxli (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgsxli (variable):** An array of [SXLIItem](#Section_f978b7c5d80f415dbea83922ccbcb723).

Zero or two records of this type appear in the file for each PivotTable view depending on the values of the **cRw** and **cCol** fields of the associated [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record.

If the value of either of the **cRw** or **cCol** fields of the associated SxView is greater than zero, then two records of this type MUST exist in the file for the associated SxView. The first record contains row area pivot lines and the second record contains column area pivot lines.

The count of SXLIItem structures in **rgsxli**, which are row area pivot lines, MUST equal the **cRw** field of SxView.

The count of SXLIItem structures in **rgsxli**, which are column area pivot lines, MUST equal the **cCol** field of SxView.

The associated SxView record is the SxView record of the PivotTable view.

### 2.4.294 SxName

The **SxName** record specifies information used for a [calculated field](#Section_4594f2ac815740b381142e77ba8efb7d) or [calculated item](#Section_6c6b3e3d22354a609f5b1c902ee0a50b) and that specifies the beginning of a collection of records as specified by the [pivot cache](#Section_c5fb3f663ef64308ae3de59244159687) storage [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf).  When used for a calculated field, this record specifies the index of a [cache field](#Section_6497eb794042445780e75959c9f0583c) used in a calculated field formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)).  When used for a calculated item, this record is followed by a collection of [SxPair](#Section_18a89a16eb2a4a7f82767f1b187e83e3) records that specify a [pivot item](#Section_58891cc5dd9b4293a97831070779524f) used in a calculated item formula (section 2.2.2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | unused2 | | | | | | | | | | | | | | ifdb | | | | | | | | | | | | | | | |
| ifn | | | | | | | | | | | | | | | | csxpair | | | | | | | | | | | | | | | |

**A - unused1 (1 bit):** Undefined and MUST be ignored.

**B - fErrName (1 bit):** A bit that specifies whether this record is not valid. MUST be set to 1 if **ifdb** field is set to -1.

**unused2 (14 bits):** Undefined and MUST be ignored.

**ifdb (2 bytes):** A signed integer that specifies a cache field index. The cache field index specifies a cache field used in a calculated field formula. MUST be greater than or equal to -1. MUST be set to -1 if **csxpair** is greater than 0. MUST be set to -1 when the calculated field formula cannot be computed because the cache field used in the formula is removed.

**ifn (2 bytes):** A signed integer that MUST be set to -1.

**csxpair (2 bytes):** An unsigned integer that specifies the count of contiguous SXPair records that follow this record. MUST be less than or equal to 1. MUST be equal to 0 if and only if this record is in a calculated field.

### 2.4.295 SxNil

The **SxNil** record specifies an empty [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) or value.

### 2.4.296 SXNum

The **SXNum** record specifies a numeric [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) or value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| num | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**num (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) structure that specifies the numeric record value.

### 2.4.297 SXPair

The **SXPair** record specifies a reference to a [pivot item](#Section_58891cc5dd9b4293a97831070779524f) used to compute the value of a [calculated item](#Section_6c6b3e3d22354a609f5b1c902ee0a50b) in a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| isxvd | | | | | | | | | | | | | | | | iCache | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | A | B | | C | D | reserved3 | | | | | | | | | | |

**isxvd (2 bytes):**  An unsigned integer that specifies a [cache field](#Section_6497eb794042445780e75959c9f0583c) index. This index specifies a cache field that contains the [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) associated with the pivot item specified by **iCache**.

**iCache (2 bytes):**  A signed integer that specifies a pivot item of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) associated with this record as specified by [Associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4). This pivot item is used in a calculated item formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). If more than one PivotTable view is associated with this record, **iCache** specifies a pivot item for each such PivotTable view.

If the value of **fPhysical** is 0, **iCache** is a cache item index and specifies the pivot item associated with that cache item.

Otherwise, if the value of **fRelative** is 0 or if no pivot item in the visible item collection has a pivot item index smaller than the pivot item index of the current pivot item, **iCache** is a visible item index. Otherwise, the pivot item specified by **iCache** is the pivot item whose visible item index equals the value of **iCache** + 1 + the largest visible item index whose associated pivot item has a pivot item index smaller than the pivot item index of the current pivot item. If this value is less than 0 or greater than or equal to the number of elements in the visible item collection, no pivot item is specified.

The current pivot item is the pivot item in the current [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) that corresponds to the calculated item that contains this record.

The current pivot field is the pivot field of the PivotTable view associated with the cache field specified by **isxvd**.

The visible item collection is the ordered collection of all pivot items specified by the sequence of records that conforms to the [PIVOTVD](#section_f41c06f2905749a18c3fa4a4d211fc56) rule associated with the current pivot field that satisfy the following criteria:

 The value of the **fHidden** field of the [SXVI](#Section_79769ad0d2134e6dbf34fb766907091c) record associated with the pivot item is 0.

 The value of the **fMissing** field of the SXVI record associated with the pivot item is 0 or the value of the **fShowAllItems** field of the SXVI record associated with the current pivot field is 1.

 The value of the **itmType** field of the SXVI record associated with the pivot item is 0.

A visible item index is specified to be the zero-based index of a pivot item in the visible item collection.

**reserved1 (2 bytes):**  MUST be zero, and MUST be ignored.

**A - fFormula (1 bit):**  A bit that specifies whether the item is a calculated item. If **fPhysical** is 1, it MUST have the same value as the **fFormula** field of the SXVI record corresponding to the pivot item specified by **iCache**.

**B - reserved2 (2 bits):**  MUST be zero, and MUST be ignored.

**C - fPhysical (1 bit):**  A bit that specifies whether **iCache** specifies a cache item index.

| Value | Meaning |
| --- | --- |
| 0 | **iCache** specifies a cache item index. |
| 1 | **iCache** does not specify a cache item index. |

**D - fRelative (1 bit):**  A bit that specifies whether the item is referred to by relative position rather than absolute position. If **fPhysical** is 0, **fRelative** MUST be 0 and MUST be ignored. If **fPhysical** is 1, **fRelative** MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Absolute position. |
| 1 | Position relative to the calculated item referring this item. |

**reserved3 (11 bits):**  MUST be zero, and MUST be ignored.

### 2.4.298 SXPI

The **SXPI** record specifies the [pivot fields](#Section_1edf7f2294084945b2de56526c14fca5) and information about filtering on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) of a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

MUST exist if and only if the value of the **cDimPg** field of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view is greater than zero.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgsxpi (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgsxpi (variable):** An array of [SXPI\_Item](#Section_d60b13f8534b40f2b40a5c8739ec2b76)s that specifies the pivot fields and information about filtering on the page axis of a PivotTable view. The number of array elements MUST equal the value of the **cDimPg** field of the SxView record of the PivotTable view.

### 2.4.299 SXPIEx

The **SXPIEx** record specifies [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) extensions to the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) of a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). The number of SXPIEx records MUST equal the number of array elements in the **rgsxpi** field of the [SXPI](#Section_ab19ef2ad06e4dccb6e936c36a6af22f) record. Each SXPIEx record corresponds to the [SXPI\_Item](#Section_d60b13f8534b40f2b40a5c8739ec2b76) at the same position in the **rgsxpi** field of the SXPI record.

For more information, see [OLAP Page Filtering](#Section_e04e871619234e2db02a270894d6be73).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| isxth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stUnique (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDisplay (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x080E.

**isxth (4 bytes):** An unsigned integer that specifies a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) index, as specified in Pivot Hierarchies, of the pivot hierarchy associated with this entry on the page axis. The **sxaxis.sxaxisPage** field of the [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f) record of the pivot hierarchy MUST be 1.

**stUnique (variable):** A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the unique name of the [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) that is used for filtering. The length of the string MUST be less than or equal to 255.

**stDisplay (variable):** A XLUnicodeString structure that specifies the caption of this OLAP member. The length of the string MUST be less than or equal to 255.

### 2.4.300 SXRng

The **SXRng** record specifies properties for numeric grouping or date grouping of [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) in a grouping [cache field](#Section_6497eb794042445780e75959c9f0583c), as specified by [Grouping](#Section_63e07ed20a764cb08cf446aaf25464c2). The values of the **fRangeGroup** and **fCalculatedField** fields of the [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record of this cache field MUST be 1 and 0, respectively.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | | | unused | | | | | | | | | | |

**A - fAutoStart (1 bit):**  A bit that specifies whether the [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) is used to set the starting range value.

| Value | Meaning |
| --- | --- |
| 0 | The starting range value is not recalculated from the source data on the next refresh. |
| 1 | The starting range value is recalculated from the source data on the next refresh. |

**B - fAutoEnd (1 bit):**  A bit that specifies whether the source data is used to set the ending range value.

| Value | Meaning |
| --- | --- |
| 0 | The ending range value is not recalculated from the source data on the next refresh. |
| 1 | The ending range value is recalculated from the source data on the next refresh. |

**C - iByType (3 bits):**  An unsigned integer that specifies the grouping criteria.

If the value of the **fNumField** field of the SXFDB record of this cache field is 1, **iByType** specifies numeric grouping, as specified by Grouping. In this case, **iByType** MUST be 0 and this record MUST be followed by three [SXNum](#Section_e16fd21368b54566886499600b002f4d) records specifying the starting number, the ending number, and the interval size, respectively. Additionally, the ending number MUST be greater than or equal to the starting number.

If the value of the **fNumField** field of the SXFDB record of this cache field is 0, **iByType** specifies date grouping, as specified by Grouping. In this case, **iByType** MUST be greater than 0. Additionally, this record MUST be followed by two [SXDtr](#Section_5c7ffeb26d504ee4b415ed075f9bf158) records followed by one [SXInt](#Section_0c0af3ebb73144c4b46e07b6e7f7150d) record specifying the starting date/time, the ending date/time, and the interval size, respectively. The ending date/time MUST be greater than or equal to the starting date/time. If this cache field corresponds to source data entities, the collection of sequences of records that conform to the [SRCSXOPER](#section_c5fb3f663ef64308ae3de59244159687) rule in this cache field MUST contain only SXDtr and [SxNil](#Section_f06cf2583c584098b390b46d6e28f059) records.

**iByType** MUST be a value from the following table:

| Value | Meaning | Restriction on the value of the catm field of the SXFDB record of this cache field, dictated by the value of iByType. |
| --- | --- | --- |
| 0 | Group by numeric value. | No restriction. |
| 1 | Group by seconds. | MUST be 62. |
| 2 | Group by minutes. | MUST be 62. |
| 3 | Group by hours. | MUST be 26. |
| 4 | Group by days. | MUST be 368. |
| 5 | Group by months. | MUST be 14. |
| 6 | Group by quarters. | MUST be 6. |
| 7 | Group by years. | No restriction. |

**unused (11 bits):**  Undefined and MUST be ignored.

### 2.4.301 SxRule

The **SxRule** record specifies areas or parts of a one or more [PivotTable views](#Section_09410dfbaac84a719ecf177ffba12c37), as specified in [PivotTable rules](#Section_ce60432dda944422929fcf3f6a0a206f), and that specifies the beginning of a collection of [SxFilt](#Section_c7274a7468334fcebf62d4d4091e243d) records as specified by the [Common Productions](#Section_a1b3d8b4744241fd9c57bbd2a6394082) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). Each SxFilt record specifies an individual area or part of the PivotTable view.

If this record occurs as part of the specification of a PivotTable view, references (in this record and in the collection) to [pivot fields](#Section_1edf7f2294084945b2de56526c14fca5), the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592), and [pivot items](#Section_58891cc5dd9b4293a97831070779524f) are instances of those entities in the context of the PivotTable view.

If this record occurs as part of the specification of a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e), references (in this record and the collection) to PivotTable view, pivot fields, the data field, and pivot items are instances of those entities in the context of all the [associated PivotTable views](#Section_855483943345473bb926de5189fd664d) of the PivotCache.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iDim | | | | | | | | isxvd | | | | | | | | A | B | C | D | sxrType | | | | E | F | G | H | I | J | K | L |
| reserved | | | | | | | | | | | | | | | | csxFilt | | | | | | | | | | | | | | | |
| irwFirst (optional) | | | | | | | | irwLast (optional) | | | | | | | | icolFirst (optional) | | | | | | | | icolLast (optional) | | | | | | | |

**iDim (8 bits):** An unsigned integer that specifies the zero-based position of the pivot field specified by **isxvd** within the [PivotTable axis](#Section_89db73685e8e4324b592af85e4559e6c). MUST be greater than or equal to 0 and less than or equal to 255.

**isxvd (8 bits):**  An unsigned integer that specifies the data field, pivot field, or [cache field](#Section_6497eb794042445780e75959c9f0583c) that this rule refers to. MUST be equal to 0xFF if this record is followed by any SxFilt records. MUST be a value from the following table:

| Value | Value of fCacheBased | Meaning |
| --- | --- | --- |
| 0 to 0xFD | 0 | Specifies a pivot field index, as specified by pivot fields, to the pivot field that this rule refers to. |
| 0 to 0xFD | 1 | Specifies a cache field index, as specified by cache fields, to the cache field that this rule refers to. |
| 0xFE | MUST be 0 | Specifies that this rule refers to the data field. |
| 0xFF | 0 | Specifies that the rule is followed by zero or more SxFilt records, which specify the pivot fields that this rule refers to. |
| 0xFF | 1 | Specifies that the rule is followed by zero or more SxFilt records, which specify the cache fields that this rule refers to. |

**A - sxaxisRw (1 bit):** A bit that specifies whether the [row axis](#Section_3f46e7207706400cba9473cb829f869a) is referenced by this record.

MUST be zero if **sxaxisCol** is 1, **sxaxisPage** is 1, or **sxaxisData** is 1.

**B - sxaxisCol (1 bit):** A bit that specifies whether the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) is referenced by this record.

MUST be zero if **sxaxisRw** is 1, **sxaxisPage** is 1, or **sxaxisData** is 1.

**C - sxaxisPage (1 bit):** A bit that specifies whether the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) is referenced by this record.

MUST be zero if **sxaxisRw** is 1, **sxaxisCol** is 1, or **sxaxisData** is 1.

**D - sxaxisData (1 bit):** A bit that specifies whether the [value axis](#Section_4c5c2daa289746e1854b0ce04209f060) is referenced by this record.

MUST be zero if **sxaxisRw** is 1, **sxaxisCol** is 1, or **sxaxisPage** is 1.

**sxrType (4 bits):** An unsigned integer that specifies the PivotTable view area that this rule refers to. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Does not refer to any area. |
| 0x1 | Refers to one or more pivot fields specified by SxFilt records that follow this record. |
| 0x2 | Refers to [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) displaying values of [data items](#Section_b51aa7b309b34aa78cb4964ad24d1679) specified by SxFilt records that follow this record. |
| 0x3 | Refers to the entire PivotTable view. |
| 0x4 | Refers to the cells at the top-left of the PivotTable view, or at the top-right for a [**right-to-left**](#gt_91359688-7863-4e88-b507-f57b3dada5ec) [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). For more information about this area, see [Location and Body](#Section_7f7d9d76a55041d9ae9f0d8539cc09f8). |
| 0x5 | Refers to a cell displaying a pivot field caption.  The pivot field is specified by **isxvd**. |
| 0x6 | Refers to the cells at the top-right of the PivotTable view, or at the top-left for a right-to-left sheet. For more information about this area, see Location and Body. |

This rule is followed by SxFilt records if and only if that value of **sxrType** is equal to 0x1 or 0x2.

**E - fPart (1 bit):** A bit that specifies whether only a portion of the PivotTable view area is included in this rule. If the value equals 1, **irwFirst, irwLast, icolFirst,** and **icolLast** hold the relative location in the PivotTable view area included in this rule.

**F - fDataOnly (1 bit):** A bit that specifies whether only the data cells of the PivotTable view are included in this rule. MUST be 0 if **fLabelOnly** is equal to 1.

**G - fLabelOnly (1 bit):** A bit that specifies whether only the labels of the PivotTable view are included in this rule. MUST be 1 if **sxrType** is equal to 0x5 or 0x6. MUST be 0 if **fDataOnly** is equal to 1.

**H - fGrandRw (1 bit):** A bit that specifies whether the grand total row is included in this rule.

**I - fGrandCol (1 bit):** A bit that specifies whether the grand total column is included in this rule.

**J - fGrandRwSav (1 bit):** A bit that specifies whether the grand total row was included in this PivotTable rule when the PivotTable rule was created.

**K - fCacheBased (1 bit):** A bit that specifies whether **isxvd** specifies a cache field in the PivotCache, or a pivot field or the data field in a PivotTable view.

| Value | Meaning |
| --- | --- |
| 0 | **isxvd** specifies a pivot field or the data field in a PivotTable view. |
| 1 | **isxvd** specifies a cache field in the PivotCache. |

**L - fGrandColSav (1 bit):** A bit that specifies whether the grand total column was included in this PivotTable rule when the PivotTable rule was created.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**csxFilt (2 bytes):** An unsigned integer that specifies the number of SxFilt records following this record. MUST be zero if **sxrType** is neither 0x1 nor 0x2.

**irwFirst (1 byte):**  An optional unsigned integer that specifies the offset of the first row, from the first cell in the PivotTable view area to the first cell in the partial area included in this rule. MUST be less than or equal to 255. This field MUST NOT exist if **fPart** is equal to 0.

**irwLast (1 byte):**  An optional unsigned integer that specifies the offset of the last row, from the first cell in the PivotTable view area to the last cell in the partial area included in this rule. MUST be greater than or equal to **irwFirst** and less than or equal to 255. This field MUST NOT exist if **fPart** is equal to 0.

**icolFirst (1 byte):** An optional unsigned integer that specifies the offset of the first column, from the first cell in the PivotTable view area to the first cell in the partial area included in this rule. MUST be less than or equal to 255. This field MUST NOT exist if **fPart** is equal to 0.

**icolLast (1 byte):** An optional unsigned integer that specifies the offset of the last column, from the first cell in the PivotTable view area to the last cell in the partial area included in this rule. MUST be greater than or equal to **icolFirst** and less than or equal to 255. This field MUST NOT exist if **fPart** is equal to 0.

### 2.4.302 SxSelect

The **SxSelect** record specifies information about [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) report for a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). The selection is stored in the [PivotTable rule](#Section_ce60432dda944422929fcf3f6a0a206f) following this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved1 | | | | | | | | | | | | | | | | pnn | | | | | | | | reserved2 | | | | | | | |
| sxaxisAct | | | | | | | | | | | | | | | | iDimAct | | | | | | | | | | | | | | | |
| iLiStart | | | | | | | | | | | | | | | | iLiAct | | | | | | | | | | | | | | | |
| iLiMin | | | | | | | | | | | | | | | | iLiMax | | | | | | | | | | | | | | | |
| rwClick | | | | | | | | | | | | | | | | colClick | | | | | | | | | | | | | | | |
| rwClickPrev | | | | | | | | | | | | | | | | colClickPrev | | | | | | | | | | | | | | | |
| cClick | | | | | A | B | C | D | E | unused | | | | | |

**reserved1 (2 bytes):** MUST be zero, and MUST be ignored.

**pnn (1 byte):**  A [**PaneType**](#Section_016387b99dac43dfb22634800b3c2198) structure that specifies the [**active pane**](#gt_33f49274-001d-40a3-bcca-f54a93906c29).

**reserved2 (1 byte):** MUST be zero, and MUST be ignored.

**sxaxisAct (2 bytes):** An [SXAxis](#Section_2c4ee792d1444a7884bf68a617edb018) structure that specifies the [PivtotTable Axis](#Section_89db73685e8e4324b592af85e4559e6c) of the PivotTable [**selection**](#gt_8a241461-3c59-45fb-9094-b6692a0c27fe).

The value of the **sxaxisData** field of SXAxis MUST be zero.

**iDimAct (2 bytes):** An unsigned integer that specifies the zero-based field position of the field that is selected within the PivtotTable Axis.

**iLiStart (2 bytes):** An unsigned integer that specifies the zero-based position of the [PivotTable line](#Section_76610990666f492791b6d2280f607464) where the selection operation started. MUST be greater than or equal to the **iLiMin** field and less than or equal to the **iLiMax** field.

**iLiAct (2 bytes):** An unsigned integer that specifies the zero-based position of the PivotTable line that was most recently included in the selection. MUST be greater than or equal to zero and less than or equal to the **iLiMax** field.

**iLiMin (2 bytes):** An unsigned integer that specifies the zero-based position of the minimum PivotTable line that could be included in the selection. MUST be greater than or equal to zero and less than or equal to the **iLiMax** field.

**iLiMax (2 bytes):** An unsigned integer that specifies the zero-based position of the maximum PivotTable line that could be included in the selection. MUST be greater than or equal to zero. MUST be greater than or equal to the **iLiMin** field.

**rwClick (2 bytes):** An [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the row of the cell where the user last clicked for the PivotTable selection.

**colClick (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the column of the cell where the user last clicked for the PivotTable selection.

**rwClickPrev (2 bytes):**  An RwU structure that specifies the row of the cell previously clicked by the user on the PivotTable selection.

**colClickPrev (2 bytes):**  A ColU structure that specifies the column of the cell previously clicked on the PivotTable selection.

**cClick (5 bits):** An unsigned integer that specifies the number of clicks made by the user to refine the current PivotTable selection.

**A - fLabelOnly (1 bit):** A bit that specifies that only cells in the [row area](#Section_5594c95e6819461e80706f4b4fdfa091), [column area](#Section_03aced8c25864e83982a1e3551a563d6), or [page area](#Section_f10ef7d86c044d35a5830d6f2ce92063) are selected.

**B - fDataOnly (1 bit):** A bit that specifies that only cells in the [data area](#Section_237a24905c614931923f7ee856f23c72) are selected.

**C - fToggleDataHeader (1 bit):** A bit that specifies whether the PivotTable selection toggle is enabled. The selection toggle enables a method for the user to select values, labels, or both values and labels.

**D - fSelectionClick (1 bit):**  A bit that specifies whether any selections on the PivotTable were refined by the user.

**E - fExtendable (1 bit):** A bit that specifies whether an additional PivotTable line can be added to the current selection.

**unused (6 bits):** Undefined and MUST be ignored.

### 2.4.303 SXStreamID

The **SXStreamID** record specifies a stream in the [PivotCache storage](#Section_c5fb3f663ef64308ae3de59244159687).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| idStm | | | | | | | | | | | | | | | |

**idStm (2 bytes):** An unsigned integer that specifies a stream in the PivotCache storage. The stream specified is the one that has its name equal to the hexadecimal representation of this field. The four-digit hexadecimal string representation of this field, where each hexadecimal letter digit is a capital letter, MUST be equal to the name of a stream in the PivotCache storage.

### 2.4.304 SXString

The **SXString** record specifies a segment of a string that contains information about a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) or an [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9). When this record occurs in a sequence of records that conforms to the [SRCSXOPER](#section_c5fb3f663ef64308ae3de59244159687) rule or the GRPSXOPER rule, then it specifies a [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0) with a string value.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cch | | | | | | | | | | | | | | | | segment (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cch (2 bytes):** An unsigned integer that specifies the length, in characters, of the [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure in the **segment** field. If **cch** is 0xFFFF, **segment** MUST NOT exist.

**segment (variable):** An XLUnicodeStringNoCch structure that specifies a segment of the string. This exists only if the value of the **cch** field is different than 0xFFFF.

### 2.4.305 SXTbl

The **SXTbl** record stores information about [multiple consolidation ranges](#Section_2535c296b76b4728b52c72fbabaf3047).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cdref | | | | | | | | | | | | | | | | csxtbpg | | | | | | | | | | | | | | | |
| cPages | | | | | | | | | | | | | | | A |

**cdref (2 bytes):** An unsigned integer that specifies the number of multiple consolidation ranges used as [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) for the [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e). MUST be equal to the number of [DConRef](#Section_589885b2fd4e4fcc9c8e37fbf7838716), [DConBin](#Section_d83824fcad44477cbe327da0e694ffcb), or [DConName](#Section_26ceabe5f33a442f9a0fa3def1c47948) records that follow this record.

**csxtbpg (2 bytes):** An unsigned integer that specifies the number of [SxTbpg](#Section_260ed10632ea4ffdb6fc6666208d6631) records that follow this record. MUST be equal to **cdref**.

**cPages (15 bits):**  An unsigned integer that specifies the number of optional [cache fields](#Section_6497eb794042445780e75959c9f0583c) in the PivotCache, as specified by Multiple Consolidation Ranges. MUST be less than or equal to 0x0004.

**A - fAutoPage (1 bit):** A bit that specifies whether there is one automatically created cache field with [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) qualifying each source data [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of the multiple consolidation ranges PivotCache. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The cache fields that qualify the source data ranges are not automatically created. |
| 1 | There is one automatically created cache field with cache items qualifying each source data range of the multiple consolidation ranges PivotCache. Each cache item qualifies one source data range. |

### 2.4.306 SxTbpg

The **SxTbpg** record specifies properties of [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) for a [multiple consolidation ranges](#Section_2535c296b76b4728b52c72fbabaf3047) [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e). There MUST be one SxTbpg record for each source data range. The order of the SxTbpg records corresponds to the order of the [DREF](#section_ca4c174887294a93abb94602b3a01fb1) records that precede this record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rgiitem (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgiitem (variable):** An array of signed 2-byte integers that associates [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) with the range associated with this record. Each element in this array is associated with a [cache field](#Section_6497eb794042445780e75959c9f0583c), as specified in the multiple consolidation ranges overview.

The number of elements in this array MUST be equal to the value of the **cPages** field of the preceding [SXTbl](#Section_39b109da8f3a498fbc2eb75e3d3c2cfc) record and MUST be equal to the number of [SXTBRGIITM](#Section_76b060579d98424c9b3b5e48ccaf0c03) records that follow this record. The *nth* element in this array is associated with the *nth* SXTBRGIITM record that follows this record.

Each element in this array MUST be less than the value of the **cItems** field of the associated SXTBRGIITM. Each element in this array MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | Specifies that a blank cache item is used. |
| Greater than or equal to zero | Specifies the zero-based index of an [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) record in the collection of SXString records directly following the associated SXTBRGIITM record. |

### 2.4.307 SXTBRGIITM

The **SXTBRGIITM** record specifies the beginning of a collection of [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) records as specified by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of SXString records specifies the values corresponding to the [cache items](#Section_bdf43e0d59a04111aec09b0a6d3882a0) for an optional [cache field](#Section_6497eb794042445780e75959c9f0583c) in a [multiple consolidation ranges](#Section_2535c296b76b4728b52c72fbabaf3047) [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cItems | | | | | | | | | | | | | | | |

**cItems (2 bytes):**  An unsigned integer that specifies the number of SXString records that follow this record. MUST be less than or equal to 65534.

### 2.4.308 SXTH

The **SXTH** record specifies properties of a [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | unused3 | | | | | | | | | | | | | | | | | | |
| sxaxis | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| isxvd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| csxvdXl | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | O | P | Q | R | unused4 | | | | | | | | | | | stUnique (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDisplay (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDefault (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stAll (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDimension (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cisxvd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgisxvd (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cHiddenMemberSets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgHiddenMemberSets (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x080D.

**A - fMeasure (1 bit):** A bit that specifies whether this pivot hierarchy is an [**OLAP measure**](#gt_7431c051-4564-4476-ad00-39c66f169118), which means it can be placed only on the [data axis](#Section_4c5c2daa289746e1854b0ce04209f060).

**B - unused1 (1 bit):** Undefined and MUST be ignored.

**C - fOutlineMode (1 bit):** A bit that specifies whether the [pivot fields](#Section_1edf7f2294084945b2de56526c14fca5) representing the levels of this pivot hierarchy have the **fOutline** field of the [SXVDEx](#Section_07ecd5c3e40e44ffbf1a0a473659a5cf) record set to 1 when the pivot fields are first created. See [Subtotalling](#Section_427438d9b8e34a5c8b678f158fbf680f) for more information.

**D - fEnableMultiplePageItems (1 bit):** A bit that specifies whether multiple [**OLAP members**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) can be selected when the pivot hierarchy is on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

**E - fSubtotalAtTop (1 bit):** A bit that specifies whether the pivot fields representing the levels of this pivot hierarchy have the **fSubtotalAtTop** field of the SXVDEx record set to 1 when the pivot fields are first created. See Subtotalling for more information.

**F - fSet (1 bit):** A bit that specifies whether this pivot hierarchy is an [**OLAP named set**](#gt_8997311d-6027-4c9f-b739-9a2a00594f28). MUST be 0 if **fMeasure** is 1.

**G - fDontShowFList (1 bit):** A bit that specifies whether this pivot hierarchy is hidden in the list of pivot fields that can be added to or removed from the PivotTable view.

**H - fAttributeHierarchy (1 bit):** A bit that specifies whether this pivot hierarchy is an [**attribute hierarchy**](#gt_8f75d668-e8c6-4f42-ba44-d90604d3b9dc).

**I - fTimeHierarchy (1 bit):** A bit that specifies whether this pivot hierarchy is a [**time hierarchy**](#gt_1c5d8e4b-5628-41ec-aa9f-95f243e2bed5).

**J - fFilterInclusive (1 bit):** A bit that specifies whether [manual filters](#Section_b0b282651e334c86ad030f5693c1d1e4) applied to this pivot hierarchy are inclusive or exclusive. MUST be a value from the following table:

| **Value** | **Meaning** |
| --- | --- |
| 0 | OLAP members specified in the manual filter are excluded from the PivotTable view along with their descendants. |
| 1 | OLAP members specified in the manual filter are included from the PivotTable view along with their ascendants and descendants. |

For more information, see [OLAP Manual Filters](#Section_bd4665ebb56a44e690b9ceaf7ec55389).

**K - unused2 (1 bit):** Undefined and MUST be ignored.

**L - fKeyAttributeHierarchy (1 bit):** A bit that specifies whether this pivot hierarchy is the key attribute hierarchy in the [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**dimension (1)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c).

**M - fKPI (1 bit):** A bit that specifies whether this pivot hierarchy is a [**key performance indicator (KPI)**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8) [**hierarchy**](#gt_a07fc05d-cdb0-442c-984a-dd3589b9f682).

**unused3 (19 bits):** Undefined and MUST be ignored.

**sxaxis (2 bytes):**  An [SXAxis](#Section_2c4ee792d1444a7884bf68a617edb018) structure that specifies the axis or axes this pivot hierarchy is present on. For more information, see [PivotTable Axes](#Section_89db73685e8e4324b592af85e4559e6c).

 If **sxaxis.sxaxisData** is 1, then **sxaxis.sxaxisRw**, **sxaxis.sxaxisCol**, and **sxaxis.sxaxisPage** MUST be zero.

 If **sxaxis.sxaxisRw** is 1, then **sxaxis.sxaxisCol** and **sxaxis.sxaxisPage** MUST be zero.

 If **sxaxis.sxaxisCol** is 1, **sxaxis.sxaxisPage** MUST be zero.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**isxvd (4 bytes):** A signed integer that specifies a pivot field index as specified by Pivot Fields. The pivot field index specifies the associated pivot field for this pivot hierarchy.

If the value of **sxaxis.sxaxisPage** is 1 or the value of **sxaxis.sxaxisData** is 1, then the value of this field MUST be greater than or equal to 0 and MUST be less than the value of the **cDim** field of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view, and the value of **cisxvd** MUST be 0. Also, the **sxaxis** field of the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record of the referenced pivot field MUST be equal to the **sxaxis** field of this record.

If both **sxaxis.sxaxisPage** and **sxaxis.sxaxisData** are equal to 0, the value of this field MUST be ignored.

**csxvdXl (4 bytes):** A signed integer that specifies the number of pivot fields in the PivotTable view on PivotTable axes for this pivot hierarchy. MUST be greater than or equal to 0.

If **sxaxis.sxaxisPage** is 1 or **sxaxis.sxaxisData** is 1, then the value of this field MUST be 1.

If **sxaxis.sxaxisPage** is 0, **sxaxis.sxaxisData** is 0, **sxaxis.sxaxisRw** is 0 and **sxaxis.sxaxisCol** is 0, the value of this field MUST be 0.

If **sxaxis.sxaxisRw** is 1 or **sxaxis.sxaxisCol** is 1, the restrictions on the value of this field vary depending on the value of the **stAll** string, as specified in the following table:

| stAll | Value of csxvdXl |
| --- | --- |
| Empty | MUST be equal to the value of **cisxvd** |
| Not empty | MUST be equal to **cisxvd** – 1 |

**N - fDragToRow (1 bit):** A bit that specifies whether this pivot hierarchy can be placed on the [row axis](#Section_3f46e7207706400cba9473cb829f869a) of the PivotTable view. MUST be 0 if **fMeasure** is 1.

**O - fDragToColumn (1 bit):** A bit that specifies whether this pivot hierarchy can be placed on the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) of the PivotTable view. MUST be 0 if **fMeasure** is 1.

**P - fDragToPage (1 bit):** A bit that specifies whether this pivot hierarchy can be placed on the page axis of the PivotTable view. MUST be 0 if **fMeasure** is 1.

**Q - fDragToData (1 bit):** A bit that specifies whether this pivot hierarchy can be placed on the data axis of the PivotTable view.

**R - fDragToHide (1 bit):** A bit that specifies whether this pivot hierarchy can be removed from the PivotTable view.

**unused4 (11 bits):** Undefined and MUST be ignored.

**stUnique (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the [**MDX unique name**](#gt_d5d555be-1be8-4d7b-b16e-0b04bc337b3b) of this pivot hierarchy. The length of the string MUST be greater than zero and less than or equal to 255.

**stDisplay (variable):** An XLUnicodeString structure that specifies the display name of this pivot hierarchy. The length of the string MUST be greater than zero and less than or equal to 255.

**stDefault (variable):** An XLUnicodeString structure that specifies the MDX unique name of the default [**member (2)**](#gt_5d78ca78-a9b1-4791-8126-bf9494304b11) of this pivot hierarchy. The length of the string MUST be less than or equal to 255.

**stAll (variable):** An XLUnicodeString structure that specifies the unique name of the [**ALL**](#gt_cffb889a-4468-44be-9817-24bbac1adfe3) member (2) of this pivot hierarchy. The length of the string MUST be less than or equal to 255. A length of zero specifies that there is no ALL member (2) of this pivot hierarchy.

**stDimension (variable):** An XLUnicodeString structure that specifies the unique name of the OLAP dimension (1) to which this pivot hierarchy belongs, unless the length of the string is zero. The length of the string MUST be less than or equal to 255. If **fMeasure** is 1, the length of the string MUST be zero.

**cisxvd (4 bytes):** An unsigned integer that specifies the number of elements in **rgisxvd**. MUST be zero If **sxaxis.sxaxisRw** is 0 and **sxaxis.sxaxisCol** is 0.

**rgisxvd (variable):** An array of 4-byte signed integers that specify the pivot fields associated with this pivot hierarchy. Each array element MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | No pivot field is referenced. |
| Greater than or equal to zero | A pivot field index, as specified by pivot fields, that specifies a pivot field that is associated with this pivot hierarchy. The referenced pivot field MUST have an **sxaxis** field equal to the value of the **sxaxis** field of this record. |

This field is arranged such that the *n*th element in the array is a reference to the Sxvd record that has a related [SXVDTEx](#Section_1dcf2beeca2c4c3abd4278bc22c3043d) record that has a value of *n* for its **isxtl** field. If there is no such SXVDTEx for the *n*th element, the value of the *n*th element MUST be equal to -1.

**cHiddenMemberSets (4 bytes):** An unsigned integer that specifies the deepest one-based level in the pivot hierarchy that has OLAP members [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) from the PivotTable view. If the value of **cisxvd** is greater than 0, then the value of this fieldalso specifies the number of elements in **rgHiddenMemberSets**. If the value of **fFilterInclusive** is 1, then the value of this field MUST be 0.

**rgHiddenMemberSets (variable):** An array of [HiddenMemberSet](#Section_07db4dae72be4b48801130b7218bcebf) structures that specifies which of the OLAP members in the pivot hierarchy are hidden from the PivotTable view through manual filtering at each level of the pivot hierarchy. The index of each member (2) in the array corresponds to a level in the pivot hierarchy, beginning with index 0. MUST exist if and only if **cHiddenMemberSets** is greater than 0 and **cisxvd** is greater than 0.

### 2.4.309 Sxvd

The **Sxvd** record specifies [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) properties and that specifies the beginning of a collection of records as defined in the [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). This collection of records specifies details for a pivot field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| sxaxis | | | | | | | | | | | | | | | | cSub | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | | | | cItm | | | | | | | | | | | | | | | |
| cchName | | | | | | | | | | | | | | | | stName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**sxaxis (2 bytes):**  An [SXAxis](#Section_2c4ee792d1444a7884bf68a617edb018) structure that specifies the [PivotTable axis](#Section_89db73685e8e4324b592af85e4559e6c) that this pivot field is on. If the **sxaxis.sxaxisData** field equals 1, there MUST be a corresponding [SXDI](#Section_4143b9eec91a443c83e82185e75cb7b5) record with an **isxvd** field that specifies this Sxvd record.

**cSub (2 bytes):**  An unsigned integer that specifies the number of subtotal functions used for this pivot field. MUST equal the count of subtotal fields of this record whose value is 1. The subtotal fields of this record are **fDefault**, **fSum**, **fCounta**, **fAverage**, **fMax**, **fMin**, **fProduct**, **fCount**, **fStdev**, **fStdevp**, **fVariance**, and **fVariancep**. For more information, see [Subtotalling](#Section_427438d9b8e34a5c8b678f158fbf680f).

**A - fDefault (1 bit):**  A bit that specifies whether the default subtotal [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) is applied. The default subtotal is separately determined for each [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679). If the **fDefault** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one [SXVI](#Section_79769ad0d2134e6dbf34fb766907091c) record with the **itmType** field of the SXVI record equal to 1. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The default subtotal function is not applied. |
| 1 | The default subtotal function is applied. |

**B - fSum (1 bit):**  A bit that specifies whether the sum subtotal function is displayed. If the **fDefault** field equals 1, this value MUST be zero. If the **fSum** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 2. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The sum subtotal function is not displayed. |
| 1 | The sum subtotal function is displayed. |

**C - fCounta (1 bit):**  A bit that specifies whether the count subtotal function is displayed. If the **fDefault** field equals 1, this value MUST be zero. If the **fCounta** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 3. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The count subtotal function is not displayed. |
| 1 | The count subtotal function is displayed. |

**D - fAverage (1 bit):**  A bit that specifies whether the average subtotal function is displayed. If the **fDefault** field equals 1, this value MUST be zero. If the **fAverage** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 4. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The average subtotal function is not displayed. |
| 1 | The average subtotal function is displayed. |

**E - fMax (1 bit):**  A bit that specifies whether the max subtotal function is displayed. If the **fDefault** field equals 1, this value MUST be zero. If the **fMax** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 5. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The max subtotal function is not displayed. |
| 1 | The max subtotal function is displayed. |

**F - fMin (1 bit):**  A bit that specifies whether the min subtotal function is displayed. If the **fDefault** field equals 1, this value MUST be zero. If the **fMin** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 6. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The min subtotal function is not displayed. |
| 1 | The min subtotal function is displayed. |

**G - fProduct (1 bit):**  A bit that specifies whether the product subtotal function is displayed. If the **fDefault** field is 1, this value MUST be zero. If the **fProduct** field is 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 7. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The product subtotal function is not displayed. |
| 1 | The product subtotal function is displayed. |

**H - fCount (1 bit):**  A bit that specifies whether the count numbers subtotal function is displayed. If the **fDefault** field is 1, this value MUST be zero. If the **fCount** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 8. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The count numbers subtotal function is not displayed. |
| 1 | The count numbers subtotal function is displayed. |

**I - fStdev (1 bit):**  A bit that specifies whether the standard deviation subtotal function is displayed. If the **fDefault** field is 1, this value MUST be zero. If the **fStdev** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 9. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The standard deviation subtotal function is not displayed. |
| 1 | The standard deviation subtotal function is displayed. |

**J - fStdevp (1 bit):**  A bit that specifies whether the standard deviation population subtotal function is displayed. If the **fDefault** field equals 1, this value MUST be zero. If the **fStdevp** field equals 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 10. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The standard deviation population subtotal function is not displayed. |
| 1 | The standard deviation population subtotal function is displayed. |

**K - fVariance (1 bit):**  A bit that specifies whether the variance subtotal function is displayed. If the **fDefault** field is 1, this value MUST be zero. If the **fVariance** field is 1 and the **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 11. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The variance subtotal function is not displayed. |
| 1 | The variance subtotal function is displayed. |

**L - fVariancep (1 bit):**  A bit that specifies whether the variance population subtotal function is displayed. If the **fDefault** field is 1, the value MUST be zero. If the **fVariancep** field equals 1 and **sxaxis**.**sxaxisRw** field equals 1 or if the **sxaxis**.**sxaxisCol** field equals 1 or if the **sxaxis**.**sxaxisPage** field equals 1, there MUST be one SXVI record with the **itmType** field of the SXVI record equal to 12. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The variance population subtotal function is not displayed. |
| 1 | The variance population subtotal function is displayed. |

**M - reserved (4 bits):** MUST be zero, and MUST be ignored.

**cItm (2 bytes):**  A signed integer that specifies the number of [pivot items](#Section_58891cc5dd9b4293a97831070779524f) for this pivot field. This value MUST match the number of SXVI records following this record and MUST be less than or equal to the following formula:

32500 + the **cSub** field

**cchName (2 bytes):**  An unsigned integer that specifies the length, in characters, of the **stName** field. If the value is 0xFFFF then **stName** is NULL. The value MUST be 0xFFFF or greater than zero and less than or equal to 255.

**stName (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the caption of this pivot field. A non-NULL value specifies that this string is used to override the **stFieldName** field in [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record from the associated [cache field](#Section_6497eb794042445780e75959c9f0583c), as specified in pivot fields. The length is specified in **cchName**. This field exists only if the value of **cchName** is not 0xFFFF. If this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) is not an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) and this string is non-NULL, then **stName** MUST be unique within all Sxvd records in this PivotTable view.

### 2.4.310 SXVDEx

The **SXVDEx** record specifies extended [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) properties.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | reserved3 | | | | | Q | R | S | citmAutoShow | | | | | | | |
| isxdiAutoSort | | | | | | | | | | | | | | | | isxdiAutoShow | | | | | | | | | | | | | | | |
| ifmt | | | | | | | | | | | | | | | | subName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fShowAllItems (1 bit):** A bit that specifies whether to show all [pivot items](#Section_58891cc5dd9b4293a97831070779524f) for this pivot field, including pivot items that do not currently exist in the [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4). The value MUST be 0 for an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that all pivot items are not displayed. |
| 0x1 | Specifies that all pivot items are displayed. |

**B - fDragToRow (1 bit):** A bit that specifies whether this pivot field can be placed on the [row axis](#Section_3f46e7207706400cba9473cb829f869a). This value MUST be ignored for an OLAP PivotTable view. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the user is prevented from placing this pivot field on the row axis. |
| 0x1 | Specifies that the user is not prevented from placing this pivot field on the row axis. |

**C - fDragToColumn (1 bit):** A bit that specifies whether this pivot field can be placed on the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f). This value MUST be ignored for an OLAP PivotTable view. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the user is prevented from placing this pivot field on the column axis. |
| 0x1 | Specifies that the user is not prevented from placing this pivot field on the column axis. |

**D - fDragToPage (1 bit):** A bit that specifies whether this pivot field can be placed on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7). This value MUST be ignored for an OLAP PivotTable view. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the user is prevented from placing this pivot field on the page axis. |
| 0x1 | Specifies that the user is not prevented from placing this pivot field on the page axis. |

**E - fDragToHide (1 bit):**  A bit that specifies whether this pivot field can be removed from the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). This value MUST be ignored for an OLAP PivotTable view. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the user is prevented from removing this pivot field from the PivotTable view. |
| 0x1 | Specifies that the user is not prevented from removing this pivot field from the PivotTable view. |

**F - fNotDragToData (1 bit):** A bit that specifies whether this pivot field can be placed on the [data axis](#Section_4c5c2daa289746e1854b0ce04209f060). This value MUST be ignored for an OLAP PivotTable view. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Specifies that the user is not prevented from placing this pivot field on the data axis. |
| 0x1 | Specifies that the user is prevented from placing this pivot field on the data axis. |

**G - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**H - fServerBased (1 bit):** A bit that specifies whether this pivot field is server-based when on the page axis. For more information, see Source Data. A value of 1 specifies that this pivot field is a server-based pivot field.

MUST be 1 if and only if the value of the **fServerBased** field of the [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record of the associated [cache field](#Section_6497eb794042445780e75959c9f0583c) of this pivot field is 1.

**I - reserved2 (1 bit):** MUST be zero, and MUST be ignored.

**J - fAutoSort (1 bit):** A bit that specifies whether AutoSort will be applied to this pivot field. For more information, see [Pivot Field Sorting](#Section_6a008d4253834e13a1d06d8ee5d93b76).

**K - fAscendSort (1 bit):** A bit that specifies whether any AutoSort applied to this pivot field will [**sort**](#gt_95f9d655-2668-4f39-889e-9d4040d05880) in ascending order. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Sort in descending order. |
| 0x1 | Sort in ascending order. |

**L - fAutoShow (1 bit):** A bit that specifies whether an [**AutoShow**](#gt_42126923-0aed-4547-8761-95a0ce2badde) [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) is applied to this pivot field. For more information, see [Simple Filters](#Section_d662b8d1d1234fc5bac05fd76cdf0ff0).

**M - fTopAutoShow (1 bit):** A bit that specifies whether any AutoShow filter applied to this pivot field shows the top-ranked or bottom-ranked values. For more information, see Simple Filters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Any AutoShow filter applied to this pivot field shows the bottom-ranked values. |
| 0x1 | Any AutoShow filter applied to this pivot field shows the top-ranked values. |

**N - fCalculatedField (1 bit):** A bit that specifies whether this pivot field is a [calculated field](#Section_4594f2ac815740b381142e77ba8efb7d). A value of 1 specifies that this pivot field is a calculated field.

MUST be 1 if and only if the value of the **fCalculatedField** field of the SXFDB record of the cache field associated with this pivot field is 1.

**O - fPageBreaksBetweenItems (1 bit):** A bit that specifies whether a [**page break**](#gt_55584218-fec7-4f6a-8295-e4dbf3b7d871) is inserted after each pivot item when the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) is printed.

**P - fHideNewItems (1 bit):** A bit that specifies whether new pivot items that appear after a [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) are [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) by default. This value MUST be equal to 0 for a non-OLAP PivotTable view.

| Value | Meaning |
| --- | --- |
| 0x0 | New pivot items are shown by default. |
| 0x1 | New pivot items are hidden by default. |

**reserved3 (5 bits):** MUST be zero, and MUST be ignored.

**Q - fOutline (1 bit):** A bit that specifies whether this pivot field is in [**outline**](#gt_d20b50ce-6124-4bda-ba32-5d132016d639) form. For more information, see [PivotTable layout](#Section_2f81b5b422d546778ec53c5dc1ad80d4).

**R - fInsertBlankRow (1 bit):** A bit that specifies whether to insert a blank row after each pivot item.

**S - fSubtotalAtTop (1 bit):** A bit that specifies whether subtotals are displayed at the top of the group when the **fOutline** field is equal to 1. For more information, see PivotTable layout.

**citmAutoShow (8 bits):** An unsigned integer that specifies the number of pivot items to show when the **fAutoShow** field is equal to 1. The value MUST be greater than or equal to 1 and less than or equal to 255.

**isxdiAutoSort (2 bytes):** A signed integer that specifies the [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679) that AutoSort uses when the **fAutoSort** field is equal to 1. If the value of the **fAutoSort** field is one, the value MUST be greater than or equal to zero and less than the count of [SXDI](#Section_4143b9eec91a443c83e82185e75cb7b5) records. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | Specifies that the values of the pivot items themselves are used. |
| Greater than or equal to zero | Specifies a data item index, as specified in Data Items, of the data item that is used. |

**isxdiAutoShow (2 bytes):** A signed integer that specifies the data item that AutoShow ranks by when the **fAutoShow** field is equal to 1. For more information, see Simple Filters. If the value of the **fAutoShow** field is 1, this value MUST be greater than or equal to zero and less than the count of SXDI records. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | AutoShow is not enabled for this pivot field. |
| Greater than or equal to zero | Specifies a data item index, as specified in Data Items, of the data item that is used. |

**ifmt (2 bytes):** An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) structure that specifies the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) of this pivot field.

**subName (variable):** An optional [SXVDEx\_Opt](#Section_3c1134144e9d46228e3ec946d3d03df8) structure that specifies the name of the aggregate [**function**](#gt_bf7cf9ec-4b24-4d58-985a-55d73c69297d) used to calculate this pivot field's subtotals. SHOULD[<131>](#Appendix_A_131" \o "Product behavior note 131) be present.

### 2.4.311 SXVDTEx

The **SXVDTEx** record specifies [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) extensions to a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5). This record MUST NOT exist if this [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) is a non-[OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f).

The pivot field associated with this record is the pivot field with an index that equals the index of this SXVDTEx record in the collection of SXVDTEx records of this PivotTable view.

The count of SXVDTEx records MUST equal the count of pivot fields in the OLAP PivotTable view.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | reserved | | | | | | | | | | isxth | | | | | | | | | | | | | | | |
| isxtl | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| csxvi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgsxvi (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x080F.

**A - fTensorSort (1 bit):** A bit that specifies whether the [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7) is determined by the OLAP [**source data**](#gt_ac56a86c-7f2f-4d8b-a4c0-d6c7df3e72e0). See [Pivot Field Sorting](#Section_6a008d4253834e13a1d06d8ee5d93b76) for more information.

**B - fDrilledLevel (1 bit):** A bit that specifies whether all [pivot items](#Section_58891cc5dd9b4293a97831070779524f) in this pivot field are expanded. See [Collapsing](#Section_1c9375b4cc664783821f6b2b49bac169) for more information.

**C - fItemsDrilledByDefault (1 bit):** A bit that specifies whether this [**attribute hierarchy**](#gt_8f75d668-e8c6-4f42-ba44-d90604d3b9dc) is expanded by default. See Collapsing for more information.

**D - fMemPropDisplayInReport (1 bit):**  A bit that specifies whether this [member property](#Section_e5db3a66677f43db8fb038584797c95f) pivot field is displayed in the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) report. See [row axis](#Section_3f46e7207706400cba9473cb829f869a) or [column axis](#Section_00d9d88b8fa74bf08446584bf651677f) for more information. MUST be 0 if the [PivotCache functionality level](#Section_e0fe44b1caf64739bf8fe51a96cd5ba8) of the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) is less than 3. MUST be ignored if this pivot field is not a member property pivot field.

**E - fMemPropDisplayInTip (1 bit):** A bit that specifies whether this member property pivot field is displayed in a [**ToolTip**](#gt_5100b5cd-9168-4f0c-a088-a143921b8640). MUST be 0 if the PivotCache functionality level of the associated PivotCache is less than 3. MUST be ignored if this pivot field is not a member property pivot field.

**F - fMemPropDisplayInCaption (1 bit):**  A bit that specifies whether to display member property captions from this pivot field, for a pivot field of the associated OLAP levels and associated [pivot hierarchy](#Section_54818c671590494084e0c3ff8b433c33) as this pivot field, instead of the pivot item captions. The pivot field for which to display captions has an [SXAddl\_SXCField12\_SXDMemberCaption](#Section_549a05915771454699749271cfd387b3) record. MUST be 0 if the PivotCache functionality level of the associated PivotCache is less than 3. MUST be ignored if this pivot field is not a member property pivot field.

**reserved (10 bits):** MUST be zero, and MUST be ignored.

**isxth (2 bytes):**  A signed integer that specifies the pivot hierarchy that this pivot field is associated with. See [Association of Pivot Hierarchies and Pivot Fields and Cache Fields](#Section_01a66b9be4a24396b55c28d6207fd28f) for more information. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | This pivot field is not part of a pivot hierarchy. |
| Greater than or equal to zero | This specifies a pivot hierarchy index, as specified in Pivot Hierarchies, that specifies a pivot hierarchy. |

MUST be greater than or equal to -1 and less than the **csxth** field of the [SXViewEx](#Section_27ea06d9f8194694990ec5b507541108) record of the PivotTable view.

**isxtl (4 bytes):** A signed integer that specifies the zero-based index of the OLAP level associated with the pivot hierarchy. If **isxth** specifies a pivot hierarchy that is not an OLAP [**Hierarchy**](#gt_a07fc05d-cdb0-442c-984a-dd3589b9f682), this value MUST be ignored.

**csxvi (4 bytes):** A signed integer that specifies the number of items in the array specified by **rgsxvi**. MUST equal the count of pivot items in this pivot field.

**rgsxvi (variable):** An array of [SXVIFlags](#Section_ea598c0f7a8d4501be1cebc16f8c7a77) that specifies additional properties for the pivot items in this pivot field. Each SXVIFlags in the **rgsxvi** array specifies additional properties of the pivot item with a pivot item index equal to the index of the SXVIFlags element in the **rgsxvi** array.

The number of elements in this array MUST equal **csxvi**.

### 2.4.312 SXVI

The **SXVI** record specifies information about a [pivot item](#Section_58891cc5dd9b4293a97831070779524f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| itmType | | | | | | | | | | | | | | | | A | B | C | D | E | reserved2 | | | | | | | | | | |
| iCache | | | | | | | | | | | | | | | | cchName | | | | | | | | | | | | | | | |
| stName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**itmType (2 bytes):**  A signed integer that specifies the pivot item type. The value MUST be one of the following values:

| Value | Name | Meaning |
| --- | --- | --- |
| 0x0000 | itmtypeData | A data value |
| 0x0001 | itmtypeDEFAULT | Default subtotal for the [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) |
| 0x0002 | itmtypeSUM | Sum of values in the pivot field |
| 0x0003 | itmtypeCOUNTA | Count of values in the pivot field |
| 0x0004 | itmtypeAVERAGE | Average of values in the pivot field |
| 0x0005 | itmtypeMAX | Max of values in the pivot field |
| 0x0006 | itmtypeMIN | Min of values in the pivot field |
| 0x0007 | itmtypePRODUCT | Product of values in the pivot field |
| 0x0008 | itmtypeCOUNT | Count of numbers in the pivot field |
| 0x0009 | itmtypeSTDEV | Statistical standard deviation (estimate) of the pivot field |
| 0x000A | itmtypeSTDEVP | Statistical standard deviation (entire population) of the pivot field |
| 0x000B | itmtypeVAR | Statistical variance (estimate) of the pivot field |
| 0x000C | itmtypeVARP | Statistical variance (entire population) of the pivot field |

**A - fHidden (1 bit):**  A bit that specifies whether this pivot item is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd). For more information, see [Manual Filtering](#Section_b0b282651e334c86ad030f5693c1d1e4).

MUST be zero if **itmType** is not itmtypeData. MUST be zero for [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f).

**B - fHideDetail (1 bit):**  A bit that specifies whether the pivot item detail is collapsed.

MUST be zero for OLAP PivotTable view.

**C - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**D - fFormula (1 bit):**  A bit that specifies whether this pivot item is a [calculated item](#Section_6c6b3e3d22354a609f5b1c902ee0a50b).

This field MUST be zero if any of the following apply:

 **itmType** is not zero.

 This item is in an OLAP PivotTable view.

 The **sxaxisPage** field of **sxaxis** in the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record of the pivot field equals 1 (the associated Sxvd is the last Sxvd record before this record in the stream).

 The **fCalculatedField** field in the [SXVDEx](#Section_07ecd5c3e40e44ffbf1a0a473659a5cf) record of the pivot field equals 1.

 There is not an associated [SXFDB](#Section_e410a60fad0340c7a4fc9e9932339abe) record in the [associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4).

 The **fRangeGroup** field of the SXFDB record, of the associated [cache field](#Section_6497eb794042445780e75959c9f0583c) of the pivot field, equals 1.

 The **fCalculatedField** field of the SXFDB record, of the associated cache field of the pivot field, equals 1.

**E - fMissing (1 bit):**  A bit that specifies if this pivot item does not exist in the [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075).

MUST be zero if **itmType** is not zero. MUST be zero for OLAP PivotTable view.

**reserved2 (11 bits):** MUST be zero, and MUST be ignored.

**iCache (2 bytes):**  A signed integer that specifies a reference to a [cache item](#Section_bdf43e0d59a04111aec09b0a6d3882a0). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | No cache item is referenced. |
| 0+ | A cache item index in the cache field associated with the pivot field, as specified by Cache Items. |

If **itmType** is not zero, a reference to a cache item is not specified and this value MUST be -1. Otherwise, this value MUST be greater than or equal to 0.

**cchName (2 bytes):**  An unsigned integer that specifies the length of the **stName** string. If the value is 0xFFFF then **stName** is NULL. Otherwise, the value MUST be less than or equal to 254.

**stName (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of this pivot item. If not NULL, this is used as the caption of the pivot item instead of the value in the cache item specified by **iCache**. The length of this field is specified in **cchName**. This field exists only if **cchName** is not 0xFFFF. If this is in a non-OLAP PivotTable view and this string is not NULL, it MUST be unique within all SXVI records in associated with the pivot field.

### 2.4.313 SxView

The **SxView** record specifies [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) information and that specifies the beginning of a collection of records as defined by the [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection specifies the remainder of the PivotTable view.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rwFirstHead | | | | | | | | | | | | | | | | rwFirstData | | | | | | | | | | | | | | | |
| colFirstData | | | | | | | | | | | | | | | | iCache | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | sxaxis4Data | | | | | | | | | | | | | | | |
| ipos4Data | | | | | | | | | | | | | | | | cDim | | | | | | | | | | | | | | | |
| cDimRw | | | | | | | | | | | | | | | | cDimCol | | | | | | | | | | | | | | | |
| cDimPg | | | | | | | | | | | | | | | | cDimData | | | | | | | | | | | | | | | |
| cRw | | | | | | | | | | | | | | | | cCol | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | unused2 | | | | | | itblAutoFmt | | | | | | | | | | | | | | | |
| cchTableName | | | | | | | | | | | | | | | | cchDataName | | | | | | | | | | | | | | | |
| stTable (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ref (8 bytes):** A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) report body. For more information, see [Location and Body](#Section_7f7d9d76a55041d9ae9f0d8539cc09f8).

**rwFirstHead (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the first row of the [row area](#Section_5594c95e6819461e80706f4b4fdfa091). MUST be 1 if none of the axes are assigned in this PivotTable view. Otherwise, the value MUST be greater than or equal to **ref.rwFirst**.

**rwFirstData (2 bytes):**  An RwU structure that specifies the first row of the [data area](#Section_237a24905c614931923f7ee856f23c72). MUST be 1 if none of the axes are assigned in this PivotTable view. Otherwise, it MUST be equal to the value as specified by the following formula:

**rwFirstData** = **rwFirstHead** + **cDimCol**

**colFirstData (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the first column of the data area. It MUST be 1 if none of the axes are assigned in this PivotTable view. Otherwise, the value MUST be greater than or equal to **ref.colFirst,** and if the value of **cDimCol** or **cDimData** is not zero, it MUST be less than or equal to **ref.colLast**.

**iCache (2 bytes):**  A signed integer that specifies the zero-based index of an [SXStreamID](#Section_a4dc3f5438904e35aad080a16b4b4cff) record in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). See [Associated PivotCache](#Section_6f60301b107346d3b7ad0041566272a4) for more information. MUST be greater than or equal to zero and less than the number of SXStreamID records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1).

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**sxaxis4Data (2 bytes):**  An [SXAxis](#Section_2c4ee792d1444a7884bf68a617edb018) structure that specifies the default axis for the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592). Either the **sxaxis4Data.sxaxisRw** field MUST be 1 or the **sxaxis4Data.sxaxisCol** field MUST be 1. The **sxaxis4Data.sxaxisPage** field MUST be 0 and the **sxaxis4Data.sxaxisData** field MUST be 0.

**ipos4Data (2 bytes):**  A signed integer that specifies the row or column position for the data field in the PivotTable view. The **sxaxis4Data** field specifies whether this is a row or column position. MUST be greater than or equal to -1 and less than or equal to 0x7FFF. A value of -1 specifies the default position.

**cDim (2 bytes):**  A signed integer that specifies the number of [pivot fields](#Section_1edf7f2294084945b2de56526c14fca5) in the PivotTable view. MUST equal the number of [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) records following this record. MUST equal the number of fields in the associated [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e) specified by **iCache**.

**cDimRw (2 bytes):**  An unsigned integer that specifies the number of fields on the row axis of the PivotTable view. MUST be less than or equal to 0x7FFF. MUST equal the number of array elements in the [SxIvd](#Section_72c54b06c9254140b6dbdf133439e596) record in this PivotTable view that contain row items.

**cDimCol (2 bytes):**  An unsigned integer that specifies the number of fields on the column axis of the PivotTable view. MUST be less than or equal to 0x7FFF. MUST equal the number of array elements in the SxIvd record in this PivotTable view that contain column items.

**cDimPg (2 bytes):**  An unsigned integer that specifies the number of page fields in the PivotTable view. MUST be less than or equal to 0x7FFF. MUST equal the number of array elements in the [SXPI](#Section_ab19ef2ad06e4dccb6e936c36a6af22f) record in this PivotTable view.

**cDimData (2 bytes):**  A signed integer that specifies the number of data fields in the PivotTable view. MUST be greater than or equal to zero and less than or equal to 0x7FFF. MUST equal the number of [SXDI](#Section_4143b9eec91a443c83e82185e75cb7b5) records in this PivotTable view.

**cRw (2 bytes):**  An unsigned integer that specifies the number of [pivot lines](#Section_76610990666f492791b6d2280f607464) in the row area of the PivotTable view. MUST be less than or equal to 0x7FFF. MUST equal the number of array elements in the first [SXLI](#Section_ecd011a31ac1437997888aace5299d40) record in this PivotTable view.

**cCol (2 bytes):**  An unsigned integer that specifies the number of pivot lines in the [column area](#Section_03aced8c25864e83982a1e3551a563d6) of the PivotTable view. MUST equal the number of array elements in the second SXLI record in this PivotTable view.

**A - fRwGrand (1 bit):**  A bit that specifies whether the PivotTable contains grand totals for rows. MUST be 0 if none of the axes have been assigned in this PivotTable view.

**B - fColGrand (1 bit):**  A bit that specifies whether the PivotTable contains grand totals for columns. MUST be 1 if none of the axes are assigned in this PivotTable view.

**C - unused1 (1 bit):**  Undefined and MUST be ignored.

**D - fAutoFormat (1 bit):**  A bit that specifies whether the PivotTable has [**AutoFormat**](#gt_f7e1ea19-1129-4519-a857-008db95c462f) applied.

**E - fAtrNum (1 bit):**  A bit that specifies whether the PivotTable has number AutoFormat applied.

**F - fAtrFnt (1 bit):**  A bit that specifies whether the PivotTable has [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) AutoFormat applied.

**G - fAtrAlc (1 bit):**  A bit that specifies whether the PivotTable has alignment AutoFormat applied.

**H - fAtrBdr (1 bit):**  A bit that specifies whether the PivotTable has [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) AutoFormat applied.

**I - fAtrPat (1 bit):**  A bit that specifies whether the PivotTable has pattern AutoFormat applied.

**J - fAtrProc (1 bit):**  A bit that specifies whether the PivotTable has width/height AutoFormat applied.

**unused2 (6 bits):**  Undefined and MUST be ignored.

**itblAutoFmt (2 bytes):**  An [AutoFmt8](#Section_c43451301af54d2892707082e9f98154) structure that specifies the PivotTable AutoFormat. If the value of **itblAutoFmt** in the associated [SXViewEx9](#Section_0afb49167a5243b6891742c07b8dc954) record is not 1, this field is overridden by the value of **itblAutoFmt** in the associated SXViewEx9.

**cchTableName (2 bytes):**  An unsigned integer that specifies the length, in characters, of **stTable**. MUST be greater than or equal to zero and less than or equal to 0x00FF.

**cchDataName (2 bytes):**  An unsigned integer that specifies the length, in characters of **stData**. MUST be greater than zero and less than or equal to 0x00FE.

**stTable (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the PivotTable. The length of this field is specified by **cchTableName**.

**stData (variable):**  An XLUnicodeStringNoCch structure that specifies the name of the data field. The length of this field is specified by **cchDataName**.

### 2.4.314 SXViewEx

The **SXViewEx** record specifies the beginning of a collection of records as specified in the [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies details about an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| csxth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| csxpi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| csxvdtex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbFuture | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbFuture (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The value of the **frtHeaderOld.rt** field MUST be 0x80C.

**csxth (4 bytes):**  A signed integer that specifies the number of [SXTH](#Section_a1b4c45f245d474da2e2c087b572846f) records following this record. MUST be greater than or equal to 1.

**csxpi (4 bytes):**  A signed integer that specifies the number of [SXPIEx](#Section_bb443ec342004b388f93a4654df874a8) records following the SXTH records. MUST be greater than or equal to zero.

**csxvdtex (4 bytes):**  A signed integer that specifies the number of [SXVDTEx](#Section_1dcf2beeca2c4c3abd4278bc22c3043d) records following the SXPIEx records. MUST be greater than or equal to zero.

**cbFuture (4 bytes):** An unsigned integer that specifies the count of bytes in **rgbFuture**. MUST be greater than or equal to zero and less than or equal to 1024. MUST be equal to the byte count of **rgbFuture**.

**rgbFuture (variable):**  Information from future versions. The byte count MUST equal **cbFuture**.

### 2.4.315 SXViewEx9

The **SXViewEx9** record specifies extensions to the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rt | | | | | | | | | | | | | | | | A | B | reserved2 | | | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | D | E | F | | G | reserved6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| itblAutoFmt | | | | | | | | | | | | | | | | chGrand (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rt (2 bytes):** An unsigned integer that specifies the record type identifier. The value MUST be 0x0810.

**A - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**B - fFrtAlert (1 bit):**  A bit that specifies whether features of this [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) are not supported in earlier versions of the [**BIFF**](#gt_f9965de8-cd18-4e26-a9c6-adfee3d67517).

An application can alert the user of possible problems when saving as an earlier version of the BIFF.

**reserved2 (14 bits):** MUST be zero, and MUST be ignored.

**reserved3 (4 bytes):** MUST be zero, and MUST be ignored.

**C - reserved4 (1 bit):**  MUST be zero, and MUST be ignored.

**D - fPrintTitles (1 bit):**  A bit that specifies whether the print titles for the [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615) are set based on the PivotTable report. The row print titles are set to the pivot item captions on the column axis and the column print titles are set to the pivot item captions on the row axis.

**E - fLineMode (1 bit):**  A bit that specifies whether any [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) is in outline mode. See [Subtotalling](#Section_427438d9b8e34a5c8b678f158fbf680f) for more information.

**F - reserved5 (2 bits):**  MUST be zero, and MUST be ignored.

**G - fRepeatItemsOnEachPrintedPage (1 bit):**  A bit that specifies whether [pivot item](#Section_58891cc5dd9b4293a97831070779524f) captions on the [row axis](#Section_3f46e7207706400cba9473cb829f869a) are repeated on each printed page for pivot fields in tabular form.

**reserved6 (26 bits):**  MUST be zero, and MUST be ignored.

**itblAutoFmt (2 bytes):**  An [AutoFmt8](#Section_c43451301af54d2892707082e9f98154) structure that specifies the PivotTable [**AutoFormat**](#gt_f7e1ea19-1129-4519-a857-008db95c462f). If the value of this field is not 1, this field overrides the **itblAutoFmt** field in the previous [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record.

**chGrand (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671)  structure that specifies a user-entered caption to display for grand totals when the PivotTable is recalculated. The length MUST be less than or equal to 255 characters.

### 2.4.316 SXViewLink

The **SXViewLink** record specifies the name of the source [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) associated with a [Pivot Chart](#Section_bed5fbd356f54997bb54b49f04e734b7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rt | | | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | cch | | | | | | | | stPivotTable (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rt (2 bytes):** An unsigned integer. MUST be 0x0858.

**unused (2 bytes):**  Undefined, and MUST be ignored.

**reserved (2 bytes):**  MUST be zero and MUST be ignored.

**cch (1 byte):**  An unsigned integer that specifies the count of characters of the **stPivotTable** field.

**stPivotTable (variable):**  An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) non-null-terminated, case-sensitive [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) string that specifies the name of the PivotTable view associated with the Pivot Chart. The size of this field in bytes MUST be **cch**.

### 2.4.317 SXVS

The **SXVS** record specifies the type of [source data](#Section_e65bff19ea464f3b9798d8d2db9202b4) used for a [PivotCache](#Section_a8496208d8334015938a56a0e97f9f0e). This record is followed by a sequence of records that specify additional information about the source data.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| sxvs | | | | | | | | | | | | | | | |

**sxvs (2 bytes):**  An unsigned integer that specifies the type of source data used for the PivotCache. The types of records that follow this record are dictated by the value of this field. MUST be a value from the following table:

| **Name** | **Value** | **Meaning** |
| --- | --- | --- |
| SHEET | 0x0001 | Specifies that the source data is a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). This record MUST be followed by a [DConRef](#Section_589885b2fd4e4fcc9c8e37fbf7838716) record that specifies a simple range, or a [DConName](#Section_26ceabe5f33a442f9a0fa3def1c47948) record that specifies a [**named range**](#gt_042582ea-4050-4e5c-a2df-ae39706a19b6), or a [DConBin](#Section_d83824fcad44477cbe327da0e694ffcb) record that specifies a built-in named range. |
| EXTERNAL | 0x0002 | Specifies that external source data is used. This record MUST be followed by a sequence of records beginning with a [DbQuery](#Section_6d819178e06142acae5a7cced9ee3653) record that specifies connection and query information that is used to retrieve [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e). |
| CONSOLIDATION | 0x0004 | Specifies that [multiple consolidation ranges](#Section_2535c296b76b4728b52c72fbabaf3047) are used as the source data. This record MUST be followed by a sequence of records beginning with an [SXTbl](#Section_39b109da8f3a498fbc2eb75e3d3c2cfc) record that specifies information about the multiple consolidation ranges. |
| SCENARIO | 0x0010 | The source data is populated from a temporary internal structure. In this case there is no additional source data information because the raw data does not exist as a permanent structure and the logic to produce it is application-dependent. |

### 2.4.318 Sync

When multiple windows are used to view a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) with synchronous scrolling enabled, the **Sync** record specifies the coordinates of the top-left visible [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) of all windows.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rw | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |

**rw (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the row for the top-left [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) cell of all windows.

**col (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the column for the top-left visible cell of all windows.

### 2.4.319 Table

The **Table** record specifies a [**data table (1)**](#gt_9e13d7ee-50d6-40ae-8789-29ecafe24bd4). This record is preceded by a single [Formula](#Section_8e3c69786c9f4915a82607613204b244) record that defines the first [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the data table (1). Other Formula records that represent the rest of cells in the data table (1) follow later in the file, not necessarily in a contiguous sequence. Formula records that define the cells in the data table (1) MUST have the cell field that is within the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) specified in the **ref** field of this record and MUST have their formula begin with [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7). Also, each cell specified in the **ref** field MUST have a Formula that is part of this table.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ref | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | D | E | F | reserved2 | | | | | | | | | |
| rwInpRw | | | | | | | | | | | | | | | | colInpRw | | | | | | | | | | | | | | | |
| rwInpCol | | | | | | | | | | | | | | | | colInpCol | | | | | | | | | | | | | | | |

**ref (6 bytes):**  A [Ref](#Section_46fb8a73542941a4b74593d2ed62637a) structure that specifies the range of the data table (1). The value of **ref.rwFirst.rw** MUST be greater than or equal to 1. The value of **ref.colFirst.col** MUST be greater than or equal to 1.

**A - fAlwaysCalc (1 bit):**  A bit that specifies whether this data table (1) is recalculated as part of the next recalculation.

**B - reserved1 (1 bit):**  MUST be zero, and MUST be ignored.

**C - fRw (1 bit):**  A bit that specifies whether the [**input cell**](#gt_55b5bfbd-5f13-48d0-92e4-68d0c499b318) of a [**one-variable data table**](#gt_52eadba5-3428-4b54-bb99-e26cbd17c924) is a row input cell or a column input cell. If the value is 1, the input cell for a one-variable data table is a row input cell.

If the value of the **fTbl2** field is 1, the value of **fRw** is undefined and MUST be ignored.

**D - fTbl2 (1 bit):**  A bit that specifies whether the data table (1) is a [**two-variable data table**](#gt_f699cf35-15b3-4efe-af97-391bda3016b0) or a one-variable data table. If the value is 1, the data table (1) is a two-variable data table.

**E - fDeleted1 (1 bit):**  A bit that specifies whether the cell referenced in the input cell specified by the **rwInpRw** and **colInpRw** fields is deleted.

**F - fDeleted2 (1 bit):**  A bit that specifies whether the cell referenced in the input cell specified by the **rwInpCol** and **colInpCol** fields is deleted.

**reserved2 (10 bits):**  MUST be zero, and MUST be ignored.

**rwInpRw (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies either the row of a row input cell or the row of a column input cell. If the value of the **fTbl2** field is 0 and the value of the **fRw** field is 0, the value of **rwInpRw** specifies the row of a column input cell; for any other combination of the **fTbl2** and **fRw** fields, **rwInpRw** specifies the row of a row input cell. If the value of **fDeleted** field is 1, the value of **rwInpRw** MUST be 65535.

If **fTbl2** is 1, the following statement (1) holds.

If **fTbl2** is 0, exactly one of these statements holds:

 **rwInpRw** and **colInpRw** MUST specify a cell outside the bounds specified by **ref.rwFirst** – 1, **ref.rwLast**, **ref.colFirst** – 1, and **ref.colLast**.

 **rwInpRw** and **colInpRw** MUST be equal to **ref.rwFirst** -1 and **ref.colFirst** – 1, respectively.

**colInpRw (2 bytes):**  A [Col\_NegativeOne](#Section_ca17b2ea8dab48a3b63f2af925a64a2f) structure that specifies either the column of a row input cell or the column of a column input cell. If the value of the **fTbl2** field is 0 and the value of **fRw** field is 0, the value of **colInpRw** specifies the column of the column input cell; for any other combination of the **fTbl2** and **fRw** fields, **colInpRw** specifies the column of a row input cell. If the value of the **fDeleted** field is 1, the value of **colInpRw** MUST be -1. If the value of the **fDeleted** field is 0, the value of **colInpRw** MUST be greater than or equal to 0.

**rwInpCol (2 bytes):**  A RwU structure that specifies the row of the column input cell. The restrictions on the value of **rwInpCol** are dictated by the value of the **fTbl2** field and the value of the **fDeleted2** field, as specified in the following table:

| fTbl2 | fDeleted2 | rwInpCol |
| --- | --- | --- |
| 1 | 1 | The value MUST be 65535. |
| 1 | 0 | If the **colInpCol** is a value between **ref.colFirst** – 1 and **ref.colLast** inclusive, **rwInpCol** MUST NOT be a value between **ref.rwFirst** – 1 and **ref.rwLast** inclusive. |
| 0 | 1 or 0 | Undefined and MUST be ignored. |

**colInpCol (2 bytes):**  A Col\_NegativeOne structure that specifies the column of the column input cell. The restrictions on the value of **colInpCol** are dictated by the value of the **fTbl2** field and the value of the **fDeleted2** field, as specified in the following table:

| fTbl2 | fDeleted2 | colInpCol |
| --- | --- | --- |
| 1 | 1 | The value MUST be -1. |
| 1 | 0 | The value MUST be greater than or equal to 0.  If the rwInpCol is a value between **ref.rwFirst** – 1 and **ref.rwLast** inclusive, colInpCol MUST NOT be a value between **ref.colFirst** – 1 and **ref.colLast**, inclusive. |
| 0 | 1 or 0 | Undefined and MUST be ignored. |

### 2.4.320 TableStyle

The **TableStyle** record specifies a user-defined [table style](#Section_4ac7212b4aa74ece962526c58224ae80) and the beginning of a collection of [TableStyleElement](#Section_5c1d12a901db4471897ae2d2875980c5) records as specified by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of TableStyleElement records specifies the properties of the table style.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | reserved2 | | | | | | | | | | | | | ctse | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cchName | | | | | | | | | | | | | | | |
| rgchName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x088F.

**A - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**B - fIsPivot (1 bit):**  A bit that specifies whether the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) can be applied to [PivotTable views](#Section_09410dfbaac84a719ecf177ffba12c37).

**C - fIsTable (1 bit):**  A bit that specifies whether the style can be applied to [**tables**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

**reserved2 (13 bits):** MUST be zero, and MUST be ignored.

**ctse (4 bytes):**  An unsigned integer that specifies the count of TableStyleElement records to follow this record. MUST be less than or equal to 28.

**cchName (2 bytes):**  An unsigned integer that specifies the count of characters in the **rgchName** field. This value MUST be less than or equal to 255 and greater than or equal to 1.

**rgchName (variable):**  An array of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters whose length is specified by **cchName** that specifies the style name.

### 2.4.321 TableStyleElement

The **TableStyleElement** record specifies formatting for one element of a [table style](#Section_4ac7212b4aa74ece962526c58224ae80). Each table style element specifies the formatting to apply to a particular area of a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) or [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) when the table style is applied.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tseType | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| index | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):**  An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x0890.

**tseType (4 bytes):**  An unsigned integer that specifies the area of the table or [PivotTable view](#Section_a5f57198f2af40b2ba07e4b1836d73f3)to which the formatting is applied. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | Whole table. If this table style is applied to a PivotTable view, this formatting type also applies to page field captions and page item captions. |
| 0x00000001 | [**Header row**](#gt_42711baf-2679-445d-a994-0eadd91b1a38). If this table style is applied to a PivotTable view, this formatting type applies to the collection of rows above the [**data region**](#gt_6abb146e-d02e-45aa-a034-b25b23b0dd48). See *S* in the PivotTable Style Diagram. |
| 0x00000002 | [**Total row**](#gt_95e9bcf4-d644-4e96-9070-dbc80b4d1b28). If this table style is applied to a PivotTable view, this formatting type applies to the [**grand total**](#gt_417eeaf5-caef-4fc3-afe1-048db5482eb7) row. See *N* in the PivotTable Style Diagram. |
| 0x00000003 | First column. If this table style is applied to a PivotTable view, this formatting type applies to the row label area, which can span multiple columns. See *R* in the PivotTable Style Diagram. |
| 0x00000004 | Last column. If this table style is applied to a PivotTable view, this formatting type applies to the grand total column. See *A* in the PivotTable Style Diagram. |
| 0x00000005 | Row [**stripe band**](#gt_8c31265f-bec6-4a86-90cf-6139819a34d1) 1 |
| 0x00000006 | Row stripe band 2 |
| 0x00000007 | Column stripe band 1 |
| 0x00000008 | Column stripe band 2 |
| 0x00000009 | First [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) of Header row. If this table style is applied to a PivotTable view, this formatting type applies to cells contained in area intersected by the header row and first column. |
| 0x0000000A | Last cell of header row. MUST be ignored if this table style is applied to a PivotTable view. |
| 0x0000000B | First cell of Total row. MUST be ignored if this table style is applied to a PivotTable view. |
| 0x0000000C | Last cell of Total row. MUST be ignored if this table style is applied to a PivotTable view. |
| 0x0000000D | Outermost [**subtotal columns**](#gt_1916aca3-9be3-4739-b439-b4c77e8dc40c) in a PivotTable view, specified by the columns displaying subtotals for the first [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record in the [PIVOTVD](#section_f41c06f2905749a18c3fa4a4d211fc56) collection where the **sxaxis** field of the Sxvd record specifies the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f). See *B* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x0000000E | Alternating even subtotal columns in a PivotTable view, specified by the columns displaying subtotals for Sxvd records for which the zero-based index in the PIVOTVD collection is an odd number, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the column axis. See *C* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x0000000F | Alternating odd subtotal columns in a PivotTable view, specified by the columns displaying subtotals for Sxvd records for which the zero-based index in the PIVOTVD collection is an even number greater than zero, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the column axis. See *D* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000010 | Outermost subtotal rows in a PivotTable view, specified by the rows displaying subtotals for the first Sxvd record in the PIVOTVD collection where the **sxaxis** field of the Sxvd record specifies the [row axis](#Section_3f46e7207706400cba9473cb829f869a). See *M* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000011 | Alternating even subtotal rows in a PivotTable view, specified by the rows displaying subtotals for Sxvd records for which the zero-based index in the PIVOTVD collection is an odd number, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the row axis. See *K* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000012 | Alternating odd subtotal rows in a PivotTable view, specified by the rows displaying subtotals for Sxvd records for which the zero-based index in the PIVOTVD collection is an even number greater than zero, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the row axis. See *J* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000013 | Empty rows after each subtotal row. See *L* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000014 | Outermost column subheadings in a PivotTable view, specified by the columns displaying [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) captions for the first Sxvd record in the PIVOTVD collection where the **sxaxis** field of the Sxvd record specifies the column axis. See *O* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000015 | Alternating even column subheadings in a PivotTable view, specified by the column columns displaying pivot field captions for Sxvd records for which the zero-based index in the PIVOTVD collection is an odd number, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the column axis. See *P* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000016 | Alternating odd column subheadings in a PivotTable view, specified by the columns displaying pivot field captions for Sxvd records for which the zero-based index in the PIVOTVD collection is an even number greater than zero, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the column axis. See *Q* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000017 | Outermost row subheadings in a PivotTable view, specified by the rows displaying pivot field captions for the first Sxvd record in the PIVOTVD collection where the **sxaxis** field of the Sxvd record specifies the row axis. See *G* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000018 | Alternating even row subheadings in a PivotTable view, specified by the rows displaying pivot field captions for Sxvd records for which the zero-based index in the PIVOTVD collection is an odd number, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the row axis. See *H* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x00000019 | Alternating odd row subheadings in a PivotTable view, specified by the rows displaying pivot field captions for Sxvd records for which the zero-based index in the PIVOTVD collection is an even number greater than zero, omitting Sxvd records where the **sxaxis** field of the Sxvd record does not specify the row axis. See *I* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x0000001A | Page field captions in a PivotTable view, specified by the cells displaying pivot field captions for the Sxvd records in the PIVOTVD collection where the **sxaxis** field of the Sxvd record specifies the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7). See *F* in the PivotTable Style Diagram. Used only for PivotTables. |
| 0x0000001B | Page item captions in a PivotTable view, specified by the cells displaying [pivot item](#Section_58891cc5dd9b4293a97831070779524f) captions for the Sxvd records in the PIVOTVD collection where the **sxaxis** field of the Sxvd record specifies the page axis. See *E* in the PivotTable Style Diagram. Used only for PivotTables. |

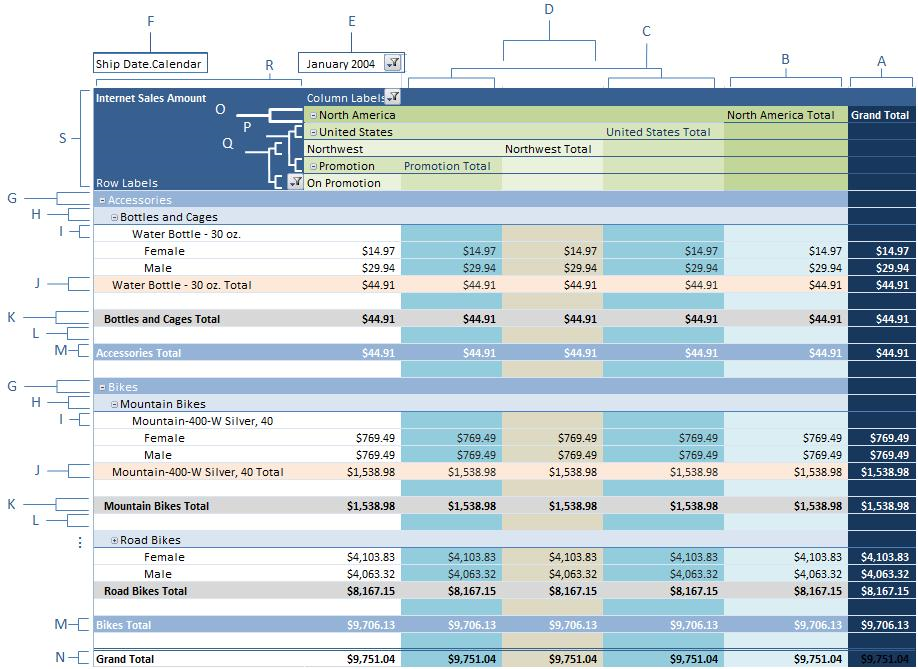


Figure 18: PivotTable-style diagram

**size (4 bytes):**  An unsigned integer that specifies the number of rows or columns to include in a single stripe band. MUST be ignored when the value of **tseType** does not equal 0x00000005, 0x00000006, 0x00000007, or 0x00000008. MUST be greater than or equal to 1 and less than or equal to 9.

**index (4 bytes):**  A [DXFId](#Section_16e1a74f3ad340afb5f39f931536d8d9) structure that specifies the [DXF](#Section_ea2a96e15ec343d08b979fa0b7e9fc27) record that contains the [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) properties for this element.

### 2.4.322 TableStyles

The **TableStyles** record specifies the default [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) and [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) [table styles](#Section_4ac7212b4aa74ece962526c58224ae80) and specifies the beginning of a collection of [TableStyle](#Section_32b77a6330c54885bc94434923002d6d) records as defined by the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of TableStyle records specifies user-defined table styles.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchDefTableStyle | | | | | | | | | | | | | | | | cchDefPivotStyle | | | | | | | | | | | | | | | |
| rgchDefTableStyle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchDefPivotStyle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x088E.

**cts (4 bytes):**  An unsigned integer that specifies the total number of table styles in this document. This is the sum of the standard built-in table styles and all of the custom table styles. This value MUST be greater than or equal to 144 (the number of built-in table styles).

**cchDefTableStyle (2 bytes):**  An unsigned integer that specifies the count of characters in the **rgchDefTableStyle** field. This value MUST be less than or equal to 255.

**cchDefPivotStyle (2 bytes):**  An unsigned integer that specifies the count of characters in the **rgchDefPivotStyle** field. This value MUST be less than or equal to 255.

**rgchDefTableStyle (variable):**  An array of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters whose length is specified by **cchDefTableStyle** that specifies the name of the default table style.

**rgchDefPivotStyle (variable):**  An array of Unicode characters whose length is specified by **cchDefPivotStyle** that specifies the name of the default PivotTable [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633).

### 2.4.323 Template

The **Template** record is an empty record that specifies whether the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is a [**template**](#gt_159ca22f-c24d-4c6d-b08a-3d4c4c923953). If this record is present, the workbook is a template.

### 2.4.324 Text

The **Text** record specifies the properties of an [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a) and specifies the beginning of a collection of records as defined by the [chart sheet](#Section_732ff614d939416bb7c76d983471ff11) substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). This collection of records specifies an attached label.

The **fShowKey**, **fShowValue**, **fShowLabelAndPerc**, **fShowPercent**, **fShowBubbleSizes**, and **fShowLabel** fields MUST equal 0 and MUST be ignored if the current attached label does not contain an [ObjectLink](#Section_50f2d49d1e5f416b866f057e0ab23ba9) record that satisfies the following conditions:

 The **wLinkObj** field of the ObjectLink record equals 0x0004.

 The **wLinkVar1** field of the ObjectLink record references a [series](#Section_527ce4dfc9f84e50a314d4b07519593c).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| at | | | | | | | | vat | | | | | | | | wBkgMode | | | | | | | | | | | | | | | |
| rgbText | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dx | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | | | J | K | L | M | N | icvText | | | | | | | | | | | | | | | |
| dlp | | | | unused3 | | | | | | | | | | O | | trot | | | | | | | | | | | | | | | |

**at (1 byte):** An unsigned integer that specifies the [**horizontal alignment**](#gt_f0e60ca8-51d5-4553-9126-3d89a4d08f90) of the text. MUST be a value from the following table:

| Value | Alignment |
| --- | --- |
| 0x01 | Left-alignment if **iReadingOrder** specifies [**left-to-right**](#gt_b8c262f8-6c09-457a-9b68-4bf3a08ab067) [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361); otherwise, right-alignment |
| 0x02 | Center-alignment |
| 0x03 | Right-alignment if **iReadingOrder** specifies left-to-right reading order; otherwise, left-alignment |
| 0x04 | Justify-alignment |
| 0x07 | [**Distributed alignment**](#gt_dae18ea5-2a98-4e10-9570-7f4ac695c6b8) |

**vat (1 byte):** An unsigned integer that specifies the [**vertical alignment**](#gt_5a59a612-2d00-4cb5-9565-952243641878) of the text. MUST be a value from the following table:

| Value | Alignment |
| --- | --- |
| 0x01 | Top-alignment |
| 0x02 | Center-alignment |
| 0x03 | Bottom-alignment |
| 0x04 | Justify-alignment |
| 0x07 | Distributed alignment |

**wBkgMode (2 bytes):** An unsigned integer that specifies the display mode of the background of the text. MUST be a value from the following table:

| Value | Background Mode |
| --- | --- |
| 0x0001 | Transparent background |
| 0x0002 | Opaque background |

**rgbText (4 bytes):** A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) structure that specifies the color of the text.

**x (4 bytes):** A signed integer that specifies the horizontal position of the text, relative to the upper-left of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)) in [SPRC](#Section_d5fc728e68de4972905a975bcef8c82d). This value MUST be ignored when this record is preceded by a [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) record or when it is followed by a [Pos](#Section_b2311d215bad4525b759cacc13d394cf) record; otherwise MUST be greater than or equal to 0 and less than or equal to 32767. SHOULD[<132>](#Appendix_A_132" \o "Product behavior note 132) be less than or equal to 4000.

**y (4 bytes):** A signed integer that specifies the vertical position of the text, relative to the upper-left of the chart area (section 2.2.3.17) in SPRC. This value MUST be ignored when this record is preceded by a DefaultText record or when it is followed by a Pos record; otherwise MUST be greater than or equal to 0 and less than or equal to 32767. SHOULD[<133>](#Appendix_A_133" \o "Product behavior note 133) be less than or equal to 4000.

**dx (4 bytes):** A signed integer that specifies the horizontal size of the text, relative to the chart area (section 2.2.3.17) in SPRC. This value MUST be ignored when this record is followed by a Pos record; otherwise MUST be greater than or equal to 0 and less than or equal to 32767. SHOULD[<134>](#Appendix_A_134" \o "Product behavior note 134) be less than or equal to 4000.

**dy (4 bytes):** A signed integer that specifies the vertical size of the text, relative to the chart area (section 2.2.3.17) in SPRC. This value MUST be ignored when this record is followed by a Pos record; otherwise MUST be greater than or equal to 0 and less than or equal to 32767. SHOULD[<135>](#Appendix_A_135" \o "Product behavior note 135) be less than or equal to 4000.

**A - fAutoColor (1 bit):** A bit that specifies whether the foreground text color is determined automatically.

**B - fShowKey (1 bit):** A bit that specifies whether the text is attached to a [**legend key**](#gt_6981bc96-6d51-425c-9550-63c5b8b08e54).

**C - fShowValue (1 bit):**  A bit that specifies whether the value, or the vertical value on bubble or scatter [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5), is displayed in the [data label](#Section_cac7f43a3af142f58ff2814c2870427f).

If the current attached label contains a [DataLabExtContents](#Section_9e2876c62d3049a7ac7eff01315e1418) record and the **fPercent** field of the DataLabExtContents record equals 0, this field MUST equal the **fValue** field of the DataLabExtContents record.

If the current attached label does not contain a DataLabExtContents record and **fShowLabelAndPerc** equals 1, this field MUST equal 0.

This field MUST equal 0 if the current attached label does not contain a DataLabExtContents record and one or more of the following conditions are satisfied:

 The **fShowLabelAndPerc** field equals 1.

 The **fShowPercent** field equals 1.

**D - unused1 (1 bit):** Undefined and MUST be ignored.

**E - fAutoText (1 bit):** A bit that specifies whether the text value of this text field is automatically generated and unchanged.

**F - fGenerated (1 bit):** A bit that specifies whether the properties of this text field are automatically generated and unchanged.

**G - fDeleted (1 bit):** A bit that specifies whether this data label was deleted by the user.

**H - fAutoMode (1 bit):**  A bit that specifies whether the [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c) is determined automatically.

**I - unused2 (3 bits):** Undefined and MUST be ignored.

**J - fShowLabelAndPerc (1 bit):**  A bit that specifies whether the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) name and the value, represented as a percentage of the sum of the values of the series the data label is associated with, are displayed in the data label.

MUST equal 0 if the chart group type of the corresponding chart group, series, or [data point](#Section_9c986ad250d44fa1a157063ac5c971a0), is not a bar of pie, doughnut, pie, or pie of pie chart group.

This field MUST equal 1 if the current attached label contains a DataLabExtContents record and both of the following conditions are satisfied:

 The **fCatName** and **fPercent** fields of the DataLabExtContents record equal 1.

 The **fSerName**, **fValue**, and **fBubSizes** fields of the DataLabExtContents record equal 0.

This field MUST equal 0 if the current attached label contains a DataLabExtContents record and one or more of the following conditions is satisfied:

 The **fCatName** or **fPercent** fields of the DataLabExtContents record equal 0.

 The **fSerName**, **fValue**, or **fBubSizes** fields of the DataLabExtContents record equal 1.

MUST be ignored if **fAutoText** equals 0.

**K - fShowPercent (1 bit):**  A bit that specifies whether the value, represented as a percentage of the sum of the values of the series the data label is associated with, is displayed in the data label.

MUST equal 0 if the chart group type of the corresponding chart group, series, or data point is not a bar of pie, doughnut, pie, or pie of pie chart group.

If the current attached label contains a DataLabExtContents record, this field MUST equal the value of the **fPercent** field of the DataLabExtContents record.

If the current attached label does not contain a DataLabExtContents record and **fShowLabelAndPerc** equals 1, this field MUST equal 1.

MUST be ignored if **fAutoText** equals 0.

**L - fShowBubbleSizes (1 bit):**  A bit that specifies whether the [**bubble size**](#gt_3a0cf938-5b61-4460-bdbb-3540d84d4180) is displayed in the data label.

MUST equal 0 if the chart group type of the corresponding chart group, series, or data point is not a bubble chart group.

If the current attached label contains a DataLabExtContents record and the **fPercent**, **fValue**, and **fCatName** fields of the DataLabExtContents record equal 0, this field MUST equal the **fBubSizes** field of the DataLabExtContents record.

If the current attached label contains a DataLabExtContents record and the **fPercent, fValue,** or **fCatName** fields of the DataLabExtContents record equal 1, this field MUST equal 0.

If the current attached label does not contain a DataLabExtContents record and **fShowPercent**, **fShowValue**, or **fShowLabel** equal 1, this field MUST equal 0.

MUST be ignored if **fAutoText** equals 0.

**M - fShowLabel (1 bit):**  A bit that specifies whether the category (2), or the horizontal value on bubble or scatter chart groups, is displayed in the data label on a non-area chart group, or the series name is displayed in the data label on an area chart group.

This field MUST equal the **fCatNameLabel** field of the DataLabExtContents record if the current attached label contains a DataLabExtContents record, the chart group is non-area, and both of the following conditions are satisfied:

 The **fValue** field of the DataLabExtContents record equals 0.

 The **fShowLabelAndPerc** fieldequals 1 or the **fPercent** field equals 0.

This field MUST equal the **fCatNameLabel** field of the DataLabExtContents record if the current attached label contains a DataLabExtContents record, the chart group is area or filled radar, and the following condition is satisfied:

 The **fValue** field of the DataLabExtContents record equals 0.

If the current attached label contains a DataLabExtContents record and the **fValue** field of the DataLabExtContents record equals 1, this field MUST equal 0.

This field MUST equal 0 if the current attached label does not contain a DataLabExtContents record and one of the following conditions is satisfied:

 The **fShowValue** field equals 1.

 The **fShowLabelAndPerc** field equals 0 and the **fShowPercent** field equals 1.

MUST be ignored if **fAutoText** equals 0.

**N - reserved (1 bit):**  MUST be zero, and MUST be ignored.

**icvText (2 bytes):** An [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) structure that specifies the color of the text.

**dlp (4 bits):** An unsigned integer that specifies the data label positioning of the text, relative to the [**graph object**](#gt_f4c97882-38e3-4b03-9f11-09ee6566da21) item the text is attached to. For all data label text fields, MUST be a value from the following table:

| Data label position | Value | Value for chart group type |
| --- | --- | --- |
| Auto | 0x0 | Pie chart group |
| Right | 0x0 | Line, Bubble, or Scatter chart group |
| Outside | 0x0 | Bar or Column chart group with **fStacked** equal to 0 |
| Center | 0x0 | Bar or Column chart group with **fStacked** equal to 1 |
| Outside End | 0x1 | Bar, Column, or Pie chart group |
| Inside End | 0x2 | Bar, Column, or Pie chart group |
| Center | 0x3 | Bar, Column, Line, Bubble, Scatter, or Pie chart group |
| Inside Base | 0x4 | Bar or Column chart group |
| Above | 0x5 | Line, Bubble, or Scatter chart group |
| Below | 0x6 | Line, Bubble, or Scatter chart group |
| Left | 0x7 | Line, Bubble, or Scatter chart group |
| Right | 0x8 | Line, Bubble, or Scatter chart group |
| Auto | 0x9 | Pie chart group |
| Moved by user | 0xA | All |

For all non-data label text fields, it MUST be 0x0.

**unused3 (10 bits):** Undefined and MUST be ignored.

**O - iReadingOrder (2 bits):** An unsigned integer that specifies the reading order of the text. MUST be a value from the following table:

| Value | Reading order |
| --- | --- |
| 0x0 | The reading order is equal to the **iReadingOrder** value of the Text record immediately following the closest preceding [Chart](#Section_8f56b001f57445e0932f84cf30408323), [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e), [Legend](#Section_03d359d915f94e7a8ad1d7b741ed2e21), [Series](#Section_d6eec0192d634c1e8080442af941b462), or [YMult](#Section_6d0a1b34ab5a450fb4a5f06d9d54ec55) record where **iReadingOrder** is not equal to 0x0. If no such preceding record exists, the DefaultText settings of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) are used. If the DefaultText settings also specify 0x0, the reading order is determined by the application. |
| 0x1 | Left-to-right |
| 0x2 | [**Right-to-left**](#gt_91359688-7863-4e88-b507-f57b3dada5ec) |

**trot (2 bytes):** An unsigned integer that specifies the text rotation. MUST be a value from the following table:

| Value | Angle description |
| --- | --- |
| 0 to 90 | Text rotated 0 to 90 degrees counter-clockwise |
| 91 to 180 | Text rotated 1 to 90 degrees clockwise (angle is **trot** – 90) |
| 255 | Text top-to-bottom with letters upright |

### 2.4.325 TextPropsStream

The **TextPropsStream** record specifies additional text properties for the text in the entire [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), text in the current [legend](#Section_1832229b7d1945f488d455e9c07466f0), text in the current [**legend entry**](#gt_6c27eb24-fb59-4bc8-8962-9cdac46a748e), text in the [attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a), or the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) labels of the current axis. These text properties are a superset of the properties stored in the associated [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) and [Font](#Section_291a910ccb694799875ea201845d4fd1) records based on the following table, as specified by [Chart Sheet substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). In each case, the associated Font record is specified by the associated [FontX](#Section_8c065ab610d44029a20dac422620eed2) record.[<136>](#Appendix_A_136" \o "Product behavior note 136)

| Rule containing the TextPropsStream record | Meaning |
| --- | --- |
| CHARTFORMATS | Specifies additional Rich Text Format properties for the text of the entire chart. The associated Text and FontX records are contained in the attached label that is contained in the first sequence of records that conforms to the DFTTEXT rule in the chart and that is not contained in the [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5). |
| LD | Specifies additional Rich Text Format properties for text in the current legend. The associated Text and FontX records are contained in the sequence of records that conforms to the ATTACHEDLABEL rule that is contained in the collection of records conforming to the LD rule. |
| SERIESFORMAT | Specifies additional Rich Text Format properties for the current legend entry. The associated Text and FontX records are contained in the sequence of records that conforms to the ATTACHEDLABEL rule that immediately precedes this record contained in the sequence of records that conforms to the SERIESFORMAT rule. |
| ATTACHEDLABEL | Specifies additional Rich Text Format properties for the text in the attached label. The associated Text and FontX records are contained in the sequence of records that conforms to the ATTACHEDLABEL rule. |
| AXS | Specifies additional Rich Text Format properties for the axis labels of the current axis. The associated Text and FontX records are contained in the sequence of records that conforms to the AXS rule. |

These text properties are stored in the **XML stream** (section [2.1.7.22](#Section_e25e01370b9c4429bd260eed92e01c35)), as specified in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4, section 5.7.2.217.

An application can choose to ignore this record without loss of functionality, except for the additional text properties. If an application chooses to implement this record, the application MUST implement the validation [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) specified by the **dwChecksum** field.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwChecksum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x08A5.

**dwChecksum (4 bytes):** An unsigned integer that specifies the checksum of the text properties attributes related to this record. The algorithm used to calculate the checksum is specified by [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.4.3.2. The checksum MUST be calculated from every property of the [**property stream**](#gt_dbd8bc67-1371-445e-af6a-dfa5eeef670c), taken as an array of bytes as specified by the [TextPropsStreamChecksumData](#Section_2ffc1908ad55483e918c78ba8a01b74b) structure.

The information required to build the memory stream can be gathered from the Text and Font records associated with this record, as previously specified.

When reading this record, the checksum is calculated as previously specified and compared to the **dwChecksum** value stored in this record. If the calculated checksum does not match the **dwChecksum** data, the application MUST assume that the **XML stream** (section 2.1.7.22) is out of date, and the data from the associated Text and Font records MUST be used instead of the data specified by the **XML stream** (section 2.1.7.22).

**cb (4 bytes):** An unsigned integer that specifies the size of the **rgb** field. This field MUST contain the exact length in bytes of the **rgb** field.

**rgb (variable):** An array of ANSI characters that contains the [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) representation of the text formatting properties, as defined in [ECMA-376] Part 4, section 5.7.2.217. The length of this field is specified by the **cb** field.

### 2.4.326 Theme

The **Theme** record specifies the [**theme**](#gt_8b5eb4c0-949b-47d9-8b63-b9bda81d61b8) in use in the document.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwThemeVersion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The value of the **frtHeader.rt** field MUST be 2198.

**dwThemeVersion (4 bytes):** An unsigned integer that specifies the theme type. SHOULD be a value from the following table[<137>](#Appendix_A_137" \o "Product behavior note 137):

| Value | Meaning |
| --- | --- |
| 0 | Custom theme |
| 124226 | Default theme |

**rgb (variable):** An optional byte stream that specifies the theme contents (as defined in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 1, Section 14.2.7). MUST exist if **dwThemeVersion** equals 0.

### 2.4.327 Tick

The **Tick** record specifies the attributes of the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) labels, [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb), and [**minor tick marks**](#gt_c2eb605a-6c5a-427e-8608-f16940de82a6) associated with an axis.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| tktMajor | | | | | | | | tktMinor | | | | | | | | tlt | | | | | | | | wBkgMode | | | | | | | |
| rgb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | rot | | | C | unused | | | | | | | | D | | icv | | | | | | | | | | | | | | | |
| trot | | | | | | | | | | | | | | | |

**tktMajor (1 byte):**  An unsigned integer that specifies the location of major tick marks. MUST be a value from the following table:

| Value | Tick mark location |
| --- | --- |
| 0x0000 | None. No major tick marks are drawn on the axis. |
| 0x0001 | Inside. Major tick marks are drawn toward the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). |
| 0x0002 | Outside. Major tick marks are drawn away from the plot area. |
| 0x0003 | Crossing. Major tick marks are drawn evenly on both sides of the axis. |

**tktMinor (1 byte):**  An unsigned integer that specifies the location of minor tick marks. MUST be a value from the following table:

| Value | Tick mark location |
| --- | --- |
| 0x0000 | None. No minor tick marks are present on the axis. |
| 0x0001 | Inside. Minor tick marks are drawn toward the plot area. |
| 0x0002 | Outside. Minor tick marks are drawn away from the plot area. |
| 0x0003 | Crossing. Minor tick marks are drawn evenly on both sides of the axis. |

**tlt (1 byte):**  An unsigned integer that specifies the location of axis labels. MUST be a value from the following table:

| Value | Tick mark label location |
| --- | --- |
| 0x0000 | None. No axis labels are present on the axis. |
| 0x0001 | Low. Axis labels are drawn to the left of the plot area for a vertical axis or below the plot area for a horizontal axis for all [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) types except radar. Axis labels for radar chart group types will be drawn as if the value was 0x0003. |
| 0x0002 | High. Axis labels are drawn to the right of the plot area for a vertical axis or above the plot area for a horizontal axis for all chart group types except radar. Axis labels for radar chart group types will be drawn as if the value was 0x0003. |
| 0x0003 | Next to Axis. Axis labels are drawn next to the axis. |

**wBkgMode (1 byte):**  An unsigned integer that specifies the display mode of the background of the text of the axis labels. MUST be ignored if the value of **fAutoCo** is 1. MUST be a value from the following table:

| Value | Background Mode |
| --- | --- |
| 0x0001 | Transparent background |
| 0x0002 | Opaque background. The background color will match the **rgbBack** field in the associated [AreaFormat](#Section_affb9fe34721495a9e5351c7d3c65480) record as specified by the [AXS](#section_732ff614d939416bb7c76d983471ff11) rule in the Chart Sheet Substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). |

**rgb (4 bytes):**  A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) structure that specifies the color of the text for the axis labels. MUST be ignored if **fAutoCo** is 1.

**reserved1 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved2 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved3 (4 bytes):** MUST be zero, and MUST be ignored.

**reserved4 (4 bytes):** MUST be zero, and MUST be ignored.

**A - fAutoCo (1 bit):**  A bit that specifies if the foreground text color of the axis labels is determined automatically.

| Value | Meaning |
| --- | --- |
| 0 | The text uses the color specified by **rgb**. |
| 1 | The text uses an automatically selected foreground color, based on the computer’s display settings. |

.

**B - fAutoMode (1 bit):**  A bit that specifies if the background color of the axis label is determined automatically.

| Value | Meaning |
| --- | --- |
| 0 | The background color is specified by **wBkgMode**. |
| 1 | The background color is set according to the [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) settings of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). |

.

**rot (3 bits):**  An unsigned integer that specifies text rotation of the axis labels. MUST be a value from the following table:

| Value | Text Rotation |
| --- | --- |
| 0x0 | Text is drawn with the rotation specified by the value of **trot**. |
| 0x1 | Text is drawn stacked, top-to-bottom, with the letters upright. |
| 0x2 | Text is drawn rotated at 90 degrees counterclockwise. |
| 0x3 | Text is drawn rotated at 90 degrees clockwise. |

**C - fAutoRot (1 bit):**  A bit that specifies whether the text rotation of the axis label is determined automatically.

| Value | Meaning |
| --- | --- |
| 0 | The axis labels do not rotate automatically, and follow the rotation specified by **rot** and **trot**. |
| 1 | The axis labels rotate as the location of the axis changes and the value of the **rot** and **trot** fields MUST be ignored. |

.

**unused (8 bits):** Undefined, and MUST be ignored.

**D - iReadingOrder (2 bits):**  An unsigned integer that specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361) of the axis labels. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The reading order is equal to the **iReadingOrder** value of the [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record immediately following the closest preceding [Chart](#Section_8f56b001f57445e0932f84cf30408323), [DataFormat](#Section_02773c0de16b4d6d82f473c8fd18868e), [Legend](#Section_03d359d915f94e7a8ad1d7b741ed2e21), [Series](#Section_d6eec0192d634c1e8080442af941b462) or [YMult](#Section_6d0a1b34ab5a450fb4a5f06d9d54ec55) record where **iReadingOrder** is not equal to 0x0. If no such preceding record exists, the DefaultText settings of the chart is used. If the DefaultText settings also specify 0x0, the reading order is determined by the Application. |
| 0x1 | [**Left-to-right**](#gt_b8c262f8-6c09-457a-9b68-4bf3a08ab067) |
| 0x2 | [**Right-to-left**](#gt_91359688-7863-4e88-b507-f57b3dada5ec) |

**icv (2 bytes):**  An [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) that specifies the color of the text. The color MUST be the same as **rgb**.

**trot (2 bytes):**  An unsigned integer that specifies the axis label’s text rotation. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 to 90 | Text rotated 0 to 90 degrees counterclockwise |
| 91 to 180 | Text rotated 1 to 90 degrees clockwise (angle is **trot** – 90) |
| 255 | Text top-to-bottom with letters upright |

### 2.4.328 TopMargin

The **TopMargin** record specifies the top margin of the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| num | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**num (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) structure that specifies the top margin of the current sheet in inches. The value MUST be greater than or equal to 0 and less than or equal to 49.

### 2.4.329 TxO

The **TxO** record specifies the text in a text box or a [**form**](#gt_c7858bfa-d4d2-48a7-ac9c-d2e90fbe3590) control. This record can be followed by a collection of [Continue](#Section_999fae21d3d942e88290639782460c67) records that specifies additional feature data to complete this record, as follows:

 If the value of the **cchText** field is not zero, this record does not fully specify the text. The rest of the data that MUST be specified is the text string and the [**formatting runs**](#gt_10031ac8-2a26-4200-beee-cd8d9420ca96) information. That data is specified in two sets of following Continue records:

 **Text String Specification**: The first set of Continue records specifies the text string. Each of these Continue records contains an [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies part of the string. The total number of characters in all XLUnicodeStringNoCch MUST be **cchText**.

 Formatting Run **Specification**: The second set of Continue records specifies formatting runs. These Continue records contain a [TxORuns](#Section_31cd7d1ef21a4ddea4f42ce911c0a49d) structure. If the size of the TxORuns structure is longer than 8,224 bytes, it is split across multiple Continue records.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | | | C | | | D | | E | F | | | | G | H | rot | | | | | | | | | | | | | | | |
| reserved4 (optional) | | | | | | | | | | | | | | | | reserved5 (optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | controlInfo (optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchText | | | | | | | | | | | | | | | | cbRuns | | | | | | | | | | | | | | | |
| ifntEmpty | | | | | | | | | | | | | | | | fmla (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - reserved1 (1 bit):** MUST be zero, and MUST be ignored.

**B - hAlignment (3 bits):** An unsigned integer that specifies the [**horizontal alignment**](#gt_f0e60ca8-51d5-4553-9126-3d89a4d08f90). The value MUST be one of the values in the following table:

| Value | Meaning |
| --- | --- |
| 1 | Specifies left alignment. |
| 2[<138>](#Appendix_A_138" \o "Product behavior note 138) | Specifies centered alignment. |
| 3 | Specifies right alignment. |
| 4 | Specifies justify alignment. |
| 7 | Specifies [**justify distributed**](#gt_11eced66-af2c-4391-8b45-87a60ad41483) alignment. |

**C - vAlignment (3 bits):** An unsigned integer that specifies the [**vertical alignment**](#gt_5a59a612-2d00-4cb5-9565-952243641878). The value MUST be one of the values in the following table:

| Value | Meaning |
| --- | --- |
| 1 | Specifies top alignment. |
| 2 | Specifies middle alignment. |
| 3 | Specifies bottom alignment. |
| 4 | Specifies justify alignment[<139>](#Appendix_A_139" \o "Product behavior note 139). |
| 7 | Specifies justify distributed alignment. |

**D - reserved2 (2 bits):** MUST be zero, and MUST be ignored.

**E - fLockText (1 bit):** A bit that specifies whether the text is [**locked**](#gt_7795ac77-550e-4531-9ce5-327bbde6fa81).

**F - reserved3 (4 bits):** MUST be zero, and MUST be ignored.

**G - fJustLast (1 bit):** A bit that specifies whether the justify alignment or justify distributed alignment is used on the last line of the text in specific versions of the application[<140>](#Appendix_A_140" \o "Product behavior note 140).

**H - fSecretEdit (1 bit):** A bit that specifies whether this is a text box used for typing passwords and hiding the actual characters being typed by the user.

**rot (2 bytes):** An unsigned integer that specifies the orientation of the text within the object boundary. The value MUST be one of the values in the following table:

| Value | Meaning |
| --- | --- |
| 0 | Specifies no rotation. |
| 1 | Specifies stacked or vertical orientation. |
| 2 | Specifies 90-degree counter-clockwise rotation. |
| 3 | Specifies 90-degree clockwise rotation. |

**reserved4 (2 bytes):** MUST be zero and MUST be ignored. This field MUST exist if and only if the value of **cmo.ot** in the preceding [Obj](#Section_dd34df60825040a983a3911476a31ea7) record is not 0, 5, 7, 11, 12 or 14.

**reserved5 (4 bytes):** MUST be zero and MUST be ignored. This field MUST exist if and only if the value of **cmo.ot** in the preceding Obj record is not 0, 5, 7, 11, 12 or 14.

**controlInfo (6 bytes):** An optional [ControlInfo](#Section_2001936557594b79bd44a8a493b79f3b) structure that specifies the properties for some form controls. The field MUST exist if and only if the value of **cmo.ot** in the preceding Obj record is 0, 5, 7, 11, 12, or 14.

**cchText (2 bytes):** An unsigned integer that specifies the number of characters in the text string contained in the Continue records immediately following this record.

**cbRuns (2 bytes):** An unsigned integer that specifies the number of bytes of formatting run information in the TxORuns structure contained in the Continue records following this record. If **cchText** is 0, this value MUST be 0. Otherwise, the value MUST be greater than or equal to 16 and MUST be a multiple of 8.

**ifntEmpty (2 bytes):** A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) structure that specifies the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) when the value of **cchText** is 0.

**fmla (variable):** An [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) structure that specifies the [parsed expression](#Section_a795978bfa7845788e2dc07d78edae0e) of the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) for the text.

### 2.4.330 TxtQry

The **TxtQry** record specifies information for a [**text query**](#gt_c636d3ce-a120-4acf-91ac-40b3ec79593a) and that specifies the beginning of a collection of [ExtString](#Section_48ec5507dc4c49049590a32423145f0e) records, as defined by the [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of ExtString records specifies the [**connection string**](#gt_03a9d0ca-2f10-4f3d-b910-052714a96f7d) for a [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) that retrieves [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rt | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| A | B | C | | D | iCpidNew | | | | | | | | | | E | unused1 | | | | | | | | | | | | | | | |
| rowStartAt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | G | H | I | J | K | L | | chCustom | | | | | | | | | | | | | | | | unused2 | | | | | | | |
| itwf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| chDecimal | | | | | | | | chThousSep | | | | | | | | rgtxtwf (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchFile (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rt (2 bytes):**  An unsigned integer that specifies the record type. MUST be 0x0805.

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

**A - fFile (1 bit):**  A bit that specifies that the query was generated from an import text file action. MUST be 1.

**B - fDelimited (1 bit):**  A bit that specifies whether the data is delimited. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The data fields are of fixed size. |
| 0x1 | The data is delimited. |

**C - iCpid (2 bits):**  An unsigned integer that specifies the [**code page**](#gt_210637d9-9634-4652-a935-ded3cd434f38) used for the origin of the file. This value is unused when the value of the **fUseNewiCpid** field is equal to 1 and the value of the **iCpidNew** field is greater than 2. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Macintosh |
| 0x1 | Windows (ANSI) |
| 0x2 | MS-DOS (PC-8) |

**D - fPromptForFile (1 bit):**  A bit that specifies whether a file name is prompted for on [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Saved file location is used during refresh |
| 0x1 | Prompt for file name on refresh |

**iCpidNew (10 bits):**  An unsigned integer that specifies application-specific code page information that can be used to optimize [**text importation**](#gt_82f6fb9c-cd59-46ec-ba3e-e7dacfc5c830) and can be ignored.

**E - fUseNewiCpid (1 bit):**  A bit that specifies whether the **iCpidNew** value is used for specifying the code page instead of the **iCpid** value.

**unused1 (16 bits):**  Undefined and MUST be ignored.

**rowStartAt (4 bytes):**  A signed integer that specifies the row in the source file where the query begins.

**F - fTab (1 bit):**  A bit that specifies whether the tab character is treated as a column delimiter.

**G - fSpace (1 bit):**  A bit that specifies whether the space character is treated as a column delimiter.

**H - fComma (1 bit):**  A bit that specifies whether the comma character is treated as a field delimiter.

**I - fSemiColon (1 bit):**  A bit that specifies whether the semi-colon character is treated as a column delimiter.

**J - fCustom (1 bit):**  A bit that specifies whether the custom character defined in the **chCustom** field is treated as a column delimiter.

**K - fConsecutive (1 bit):**  A bit that specifies whether consecutive delimiters are treated as one delimiter.

**L - iTextDelm (2 bits):**  An unsigned integer that specifies a text delimiter. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Quotation mark |
| 0x1 | Apostrophe |
| 0x2 | No text delimiter |

**chCustom (16 bits):**  An unsigned integer that specifies the custom delimiter [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) character. This value is used if the **fCustom** value equals 1.

**unused2 (8 bits):**  Undefined and MUST be ignored.

**itwf (4 bytes):**  A signed integer that specifies the number of fields in each row of data. MUST be greater than 0 and less than or equal to 256.

**chDecimal (1 byte):**  An unsigned integer that specifies the decimal separator. MUST be a character from the [**ANSI character set**](#gt_100cd8a6-5cb1-4895-9de6-e4a3c224a583).

**chThousSep (1 byte):**  An unsigned integer that specifies the thousands separator. MUST be a character from the ANSI character set.

**rgtxtwf (variable):** An array of [TxtWf](#Section_b22b061b9795412a984b0f5f30d5ac5e) that specifies the text to column fields. The size of the array is determined by the **itwf** value. The array MUST NOT be empty.

**rgchFile (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the text file that is the source of the query.

### 2.4.331 Uncalced

The **Uncalced** record specifies that formulas (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) were pending recalculation when the file was saved.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved1 | | | | | | | | | | | | | | | |

**reserved1 (2 bytes):**  MUST be zero, and MUST be ignored.

### 2.4.332 Units

The **Units** record MUST be zero, and MUST be ignored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be zero, and MUST be ignored.

### 2.4.333 UserBView

The **UserBView** record specifies the general [**custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4) settings that apply to a whole [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). There are accompanying [UserSViewBegin](#Section_c75bbfe0f69546109d1eb7d93fc25fe9) records that specify individual custom view settings of each [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). The set of this record and the accompanying UserSViewBegin records share the same [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tabId | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| guid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dx | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wTabRatio | | | | | | | | | | | | | | | | A | B | C | | D | E | F | G | H | | I | J | K | L | M | N |
| unused2 | | | | | | | | | | | | | | | | O | P | unused3 | | | | | | | | | | | | | |
| wMergeInterval | | | | | | | | | | | | | | | | st (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**unused1 (4 bytes):**  Undefined and MUST be ignored.

**tabId (2 bytes):** A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) structure that specifies the [**active sheet**](#gt_767d2df7-5efd-40a1-9e58-4b6a597cc389) in this custom view. If the value of the **fInvalidTabId** field is 1, the value of **tabId** is undefined and MUST be ignored.

**reserved1 (2 bytes):**  MUST be zero, and MUST be ignored.

**guid (16 bytes):**  A GUID as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) that specifies the identity of the custom view.

**x (4 bytes):**  A signed integer that specifies the horizontal position of the workbook window, in [**pixels**](#gt_fe932605-d3bc-442f-9239-594676bce6ba).

**y (4 bytes):**  A signed integer that specifies the vertical position of the workbook window, in pixels.

**dx (4 bytes):**  A signed integer that specifies the width of the workbook window, in pixels. MUST be greater than or equal to 0.

**dy (4 bytes):**  A signed integer that specifies the height of the workbook window, in pixels. MUST be greater than or equal to 0.

**wTabRatio (2 bytes):**  An unsigned integer that specifies the ratio of the window area used to display [**sheet tabs**](#gt_3b131045-238c-4ce8-9c22-b6aac874c7c5) and the window area used to display the horizontal scroll bar. The value of **wTabRatio** MUST be greater than or equal to zero and less than or equal to 1000. A value of 0 specifies that only the horizontal scroll bar is displayed. A value of 1000 specifies that only sheet tabs are displayed.

**A - fDspFmlaBar (1 bit):** A bit that specifies whether a [**formula bar**](#gt_1292cd97-b42c-415b-b71f-739f1f842c53) is displayed.

**B - fDspStatus (1 bit):** A bit that specifies whether a status bar is displayed.

**C - mdNoteDisp (2 bits):** An unsigned integer that specifies whether to show [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) and visual cue on each cell that has a comment. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Comment and visual cue are off for each cell with a comment. |
| 0x1 | A visual cue that indicates the cell has a comment. |
| 0x2 | Comment and visual cue are on for each cell with a comment. |

**D - fDspHScroll (1 bit):** A bit that specifies whether a horizontal scroll bar is displayed.

**E - fDspVScroll (1 bit):** A bit that specifies whether a vertical scroll bar is displayed.

**F - fBotAdornment (1 bit):** A bit that specifies whether sheet tabs are displayed.

**G - fZoom (1 bit):**  A bit that specifies whether the workbook window is maximized. The value of **fIconic** and the value of **fZoom** MUST NOT both be 1.

**H - fHideObj (2 bits):** A [**HideObjEnum**](#Section_8107b973334c41a786dbfe32fd929fce) structure that specifies how [**ActiveX objects**](#gt_0d95e494-61b2-43bc-8818-51aa162d2018), [**OLE objects**](#gt_cdff9514-a3fb-4897-941d-4e99193a0096), and [**drawing objects**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac) appear in the workbook Window.

**I - fPrintIncl (1 bit):** A bit that specifies whether the custom view includes the [**print settings**](#gt_6ef7745e-6602-4ff5-a8b0-9b9fd9f95b4a) of the workbook. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The custom view does not include print settings of the workbook. |
| 0x1 | The custom view includes print settings of the workbook.  UserSViewBegin records that have a **guid** field value equal to the **guid** of this record specify which print settings are included in the custom view.  Additionally, [**print titles**](#gt_02b53828-4eac-4962-984d-315a10885b44) and [**print areas**](#gt_5832abeb-7b03-49db-8cf0-512745131ff5) are specified by [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) records that have **Name** containing the **guid** of this record, using the following form, where <guid> matches the value of **guid** with the characters left brace "{", right brace "}", and dash "-" in **guid** replaced by an underscore "\_" character:   Print titles: Z<guid>.wvu.PrintTitles   Print area: Z<guid>.wvu.PrintArea |

**J - fRowColIncl (1 bit):**  A bit that specifies whether the custom view includes the [**hidden rows**](#gt_3833addc-1f77-4c64-856c-c1b967fdaa75), [**hidden columns**](#gt_ea5c8135-254e-407c-999b-5cf39e709164), and [**filters**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) for the workbook. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The custom view does not include Hidden rows, hidden columns, or filter settings. |
| 0x1 | The custom view includes Hidden rows, hidden columns, or filter settings of the workbook.  UserSViewBegin records that have a **guid** field value equal to the **guid** of this record specify whether Hidden rows, hidden columns, or filter settings are included in the custom view.  Additionally, hidden rows and hidden columns are specified by Lbl records that have **Name** containing the **guid** of this record, using the following form, where <guid> matches the value of **guid** with the characters left brace "{", right brace "}", and dash "-" in **guid** replaced by an underscore "\_" character:   Hidden rows: Z<guid>.wvu.Rows   Hidden columns: Z<guid>.wvu.Cols  Filter settings are also specified by Lbl records that have **Name** containing the value of **guid** for this record, using the following form, where <guid> matches the value of **guid** with the characters left brace "{", right brace "}", and dash "-" in **guid** replaced by an underscore "\_" character:   [**Range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) being filtered: Z<guid>.wvu.FilterData   Range containing filter criteria: Z<guid>.wvu.FilterCriteria |

**K - fInvalidTabId (1 bit):** A bit that specifies whether the **tabId** field is ignored.

**L - fTimedUpdate (1 bit):** A bit that specifies whether updates associated with linked or [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) are coordinated. If the value of the **fPersonalView** field is 0, the value of **fTimedUpdate** MUST be 0.

**M - fAllMemChanges (1 bit):** A bit that specifies whether the changes being saved have priority in a [**merge conflict**](#gt_7854bf7f-3ead-4a20-9686-77d75fd6cefa). If the value of the **fTimedUpdate** field is 0, the value of **fAllMemChanges** is undefined and MUST be ignored.

**N - fOnlySync (1 bit):** A bit that specifies whether the automatic update merges the current changes into a [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc) or whether the automatic update merges and also saves the changes. If the value of the **fPersonalView** field is 0, the value of **fOnlySync** MUST be 0.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**O - fPersonalView (1 bit):** A bit that specifies whether the custom view is the personal view of a shared workbook. MUST be 0 if this is not a shared workbook.

**P - fIconic (1 bit):**  A bit that specifies whether the workbook window is minimized. The value of **fIconic** and the value of **fZoom** MUST NOT both be 1.

**unused3 (14 bits):** Undefined and MUST be ignored.

**wMergeInterval (2 bytes):**  An unsigned integer that specifies the time interval, in minutes, between automatic merges of a shared workbook. The restrictions on the value of **wMergeInterval** are dictated by the value of the **fPersonalView** field and the value of the **fTimedUpdate** field, as specified in the following table:

| fPersonalView | fTimedUpdate | wMergeInterval |
| --- | --- | --- |
| 1 | 1 | MUST be greater than or equal to 5 and less than or equal to 1440. |
| 1 | 0 | Undefined and MUST be ignored. |
| 0 | 0 | MUST be 65535. |

**st (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of the custom view.

### 2.4.334 UserSViewBegin

The **UserSViewBegin** record specifies [**custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4) settings for the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and specifies the beginning of a collection of records as defined by the [Chart Sheet substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), [Dialog Sheet substream](#Section_da37feb48b9a462d87772a5fddd4866e) ABNF, [Macro Sheet substream](#Section_0dddd943f77a4fc2bf92868acb4587f7) ABNF, and [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF. The collection of records specifies custom view settings for the current sheet. There is an associated [UserBView](#Section_9ddd25503a9946ab9b6705173260cb9b) record, specified by the **guid** field, that specifies custom view settings that apply to the whole [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). If the current sheet is a [**chart sheet**](#gt_da561b7b-c629-4cd8-bfaa-6e62471d9e83), the [UserSViewBegin\_Chart](#Section_696154475f6f432e9a9c46b17dd1c5df) version of this record MUST be used.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| guid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iTabid | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| wScale | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| icvHdr | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| pnnSel | | | | | | | | reserved3 | | | | | | | | | | | | | | | | reserved4 | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | | U | V | | | W | X | Y | Z | a | b | |
| ref8TopLeft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| operNumX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| operNumY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colRPane | | | | | | | | | | | | | | | | rwBPane | | | | | | | | | | | | | | | |

**guid (16 bytes):**  A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1), as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2), that specifies the association with a UserBView. MUST equal the value of the **guid** field of the UserBView.

**iTabid (2 bytes):**  A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) structure that specifies the sheet of this custom view.

**reserved1 (2 bytes):**  MUST be zero, and MUST be ignored.

**wScale (4 bytes):**  An unsigned integer that specifies the [**zoom level**](#gt_bfb33471-a018-422b-bc63-177c8bc1831f) of the window used to display the sheet. MUST be greater than or equal to 10 and less than or equal to 400.

**icvHdr (2 bytes):**  An [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) structure that specifies the color of the [**gridlines**](#gt_82f8a326-64b0-4506-a18e-930f7c2c95b9) displayed in the view. MUST be less than or equal to 64.

**reserved2 (2 bytes):**  MUST be zero, and MUST be ignored.

**pnnSel (1 byte):**  A [**PaneType**](#Section_016387b99dac43dfb22634800b3c2198) structure that specifies the [**active pane**](#gt_33f49274-001d-40a3-bcca-f54a93906c29).

**reserved3 (2 bytes):**  MUST be zero, and MUST be ignored.

**reserved4 (1 byte):**  MUST be zero, and MUST be ignored.

**A - fShowBrks (1 bit):**  A bit that specifies whether [**page breaks**](#gt_55584218-fec7-4f6a-8295-e4dbf3b7d871) are displayed.

**B - fDspFmlaSv (1 bit):**  A bit that specifies whether the window used to display the sheet displays formulas or values. MUST be 0 for [**dialog sheets**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The window used to display the sheet displays values. |
| 0x1 | The window used to display the sheet displays formulas. |

**C - fDspGridSv (1 bit):**  A bit that specifies whether the window used to display the sheet displays gridlines.

**D - fDspRwColSv (1 bit):**  A bit that specifies whether the window used to display the sheet displays row and column headings. MUST be 0 for dialog sheets.

**E - fDspGutsSv (1 bit):**  A bit that specifies whether outline symbols are displayed. MUST be 0 for dialog sheets. MUST be 1 for [**macro sheets**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491).

**F - fDspZerosSv (1 bit):**  A bit that specifies whether the window used to display the sheet displays zero values or suppresses display of zero values. MUST be 0 for dialog sheets. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The window used to display the sheet displays zero values. |
| 1 | The window used to display the sheet suppresses display of zero values. |

**G - fHorizontal (1 bit):**  A bit that specifies whether the sheet is centered between the horizontal margins when printed.

**H - fVertical (1 bit):**  A bit that specifies whether the sheet is centered between the vertical margins when printed.

**I - fPrintRwCol (1 bit):**  A bit that specifies whether to print the row and column headings. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fPrintIncl** field value of 0.

**J - fPrintGrid (1 bit):**  A bit that specifies whether to print the gridlines. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equals to the **guid** of this record has the **fPrintIncl** field value of 0.

**K - fFitToPage (1 bit):**  A bit that specifies whether the [**fit to page**](#gt_5245d03e-06db-43aa-9752-60a624fc6338) option is enabled. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fPrintIncl** field value of 0.

**L - fPrintArea (1 bit):**  A bit that specifies whether there is at least one [**print area**](#gt_5832abeb-7b03-49db-8cf0-512745131ff5) on the sheet. If the value of **fOnePrintArea** is 1, the value of **fPrintArea** MUST be 1. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fPrintIncl** field value of 0.

Additionally, if **fPrintArea** is 1, there MUST exist an [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record for the print area as specified in the description for the **fPrintIncl** field in UserBView.

**M - fOnePrintArea (1 bit):**  A bit that specifies whether there is only one print area on the sheet. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fPrintIncl** field value of 0.

Additionally, if **fOnePrintArea** is 1, there MUST exist an Lbl record for the print area as specified in the description for the **fPrintIncl** field in UserBView.

**N - fFilterMode (1 bit):**  A bit that specifies whether there are [**hidden cells**](#gt_cde68c21-0bab-4e40-8b24-5954ff12fae2) because of filtering. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fRowColIncl** field value of 0.

Additionally, if **fFilterMode** is 1, there MUST exist an Lbl record for the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) being filtered as specified in the description for the **fRowColIncl** field in UserBView. There can exist an Lbl record for the range containing [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) criteria as specified in the description for the fRowColIncl field in UserBView.

**O - fEzFilter (1 bit):**  A bit that specifies whether the [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) icon is shown on the sheet. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fRowColIncl** field value of 0.

Additionally, if **fEzFilter** is 1, there MUST exist an Lbl record for the range being filtered as specified in the description for the **fRowColIncl** field in UserBView. There can exist an Lbl record for the range containing filter criteria as specified in the description for the fRowColIncl field in UserBView.

**P - fFrozen (1 bit):**  A bit that specifies whether the [**panes**](#gt_fa363a22-6c89-4829-86aa-09f939f40a54) in the window used to display the sheet are [**frozen**](#gt_1e984b7c-9760-4832-88c8-798e30f845db). If the value of **fFrozenNoSplit** is 1, the value of **fFrozen** MUST be 1.

**Q - fFrozenNoSplit (1 bit):**  A bit that specifies whether the panes in the window used to display the sheet are [**frozen panes**](#gt_28507dfc-4443-4a02-a18c-27b5db006946) but are not [**split panes**](#gt_03a3359c-d8a8-4988-ace6-369a2ae4ff82).

**R - fSplitV (1 bit):**  A bit that specifies whether the window used to display the sheet is split vertically.

**S - fSplitH (1 bit):**  A bit that specifies whether the window used to display the sheet is split horizontally.

**T - fHiddenRw (2 bits):**  An unsigned integer that specifies the state of [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) rows, excluding the filtered rows. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Indicates a [**hidden row**](#gt_3833addc-1f77-4c64-856c-c1b967fdaa75) is present. |
| 0x1 | Indicates a hidden row is not present. |

MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fRowColIncl** field value of 0.

Additionally, if **fHiddenRw** is 1, there MUST exist an Lbl record for the hidden rows as specified in the description for the **fRowColIncl** field in UserBView.

**U - fHiddenCol (1 bit):**  A bit that specifies whether there is at least one [**hidden column**](#gt_ea5c8135-254e-407c-999b-5cf39e709164) in the sheet. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fRowColIncl** field value of 0.

Additionally, if **fHiddenRw** is 1, there MUST exist an Lbl record for the hidden columns as specified in the description for the **fRowColIncl** field in UserBView.

**V - unused1 (3 bits):**  Undefined and MUST be ignored.

**W - fFilterUnique (1 bit):**  A bit that specifies whether the sheet has the [**advanced filter**](#gt_31065343-5514-44e3-884d-9b16ddd36176) enabled and is displaying only unique rows. MUST be 0 for dialog sheets. MUST be 0 if the UserBView record with **guid** field value equal to the **guid** of this record has the **fRowColIncl** field value of 0.

Additionally, if **fFilterUnique** is 1, there MUST exist an Lbl record for the range being filtered as specified in the description for the **fRowColIncl** field in UserBView. There can exist an Lbl record for the range containing filter criteria as specified in the description for the fRowColIncl field in UserBView.

**X - fSheetLayoutView (1 bit):**  A bit that specifies whether the sheet is in the [**Page Break Preview view**](#gt_a7342c25-b4fd-4c84-9922-ae9c4a92d180). Only one of this value or the value of **fPageLayoutView** can be 1. If both values are 0, the custom view is in the [**Normal view**](#gt_b3c343ae-05ca-4b91-9cc1-383ee3563990). MUST be 0 for dialog sheets and macro sheets.

**Y - fPageLayoutView (1 bit):**  A bit that specifies whether the sheet is in the [**Page Layout view**](#gt_c5ea3e6c-db72-4a85-b273-596e95a3841e). MUST be 0 for dialog sheets and macro sheets.

**Z - unused2 (1 bit):**  Undefined and MUST be ignored.

**a - fRuler (1 bit):**  A bit that specifies whether the [**ruler**](#gt_03895998-6780-4615-8795-0fda97bd6379) is displayed.

**b - reserved5 (2 bits):**  MUST be zero, and MUST be ignored.

**ref8TopLeft (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structure that specifies the [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) area of the [**logical top-left**](#gt_88b25c47-61c2-44de-abb0-12ea3348a412) pane.

**operNumX (8 bytes):**  A [**floating-point number**](#gt_237156df-b9cf-4b8a-9753-98001801a90d) that specifies the left-to-right position of the start of the split pane expressed as a column number. The value MUST be greater than or equal to 0. The sum of this value and the value of **ref8TopLeft**.**colFirst** MUST be less than or equal to 256.

**operNumY (8 bytes):**  A floating-point number that specifies the top-to-bottom position of the start of the split pane expressed as a row number. The value MUST be greater than or equal to 0. The sum of this value and the value of **ref8TopLeft**.**rowFirst** MUST be less than or equal to 65536.

**colRPane (2 bytes):**  An unsigned integer that specifies the first visible column of the [**logical right**](#gt_ef86cf61-a2e3-4130-abc4-9e92dae5a2a7) pane. MUST be 65535 or less than or equal to 255. If the value of the **fSplitV** field is 1, the value of **colRPane** MUST be 65535. If the value of the **fSplitV** field is 0, the value of **colRPane** MUST be less than or equal to 255.

**rwBPane (2 bytes):**  An unsigned integer that specifies the first visible row of the bottom pane. If the value of the **fSplitH** field is 1, the value of **rwRPane** MUST be 65535.

### 2.4.335 UserSViewBegin\_Chart

The **UserSViewBegin\_Chart** record specifies [**custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4) settings for the current [**chart sheet**](#gt_da561b7b-c629-4cd8-bfaa-6e62471d9e83) and that specifies the beginning of a collection of records as defined by the [Chart Sheet substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies custom view settings for the current chart sheet. There is an associated [UserBView](#Section_9ddd25503a9946ab9b6705173260cb9b) record, specified by the **guid** field, that specifies custom view settings that apply to the whole [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| guid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iTabid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wScale | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | | | | | | | A | | reserved3 | | | | | | B | C |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused5 | | | | | | | | | | | | | | | | unused6 | | | | | | | | | | | | | | | |

**guid (16 bytes):**  A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1), as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2), that specifies the association with a UserBView. MUST equal the value of the **guid** field of the UserBView record.

**iTabid (4 bytes):**  A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) structure that specifies the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) of this custom view.

**wScale (4 bytes):**  An unsigned integer that specifies the [**zoom level**](#gt_bfb33471-a018-422b-bc63-177c8bc1831f) of the window used to display the sheet. MUST be greater than or equal to 10 and less than or equal to 400.

**reserved1 (4 bytes):** MUST be zero, and MUST be ignored.

**unused1 (4 bytes):**  Undefined and MUST be ignored.

**reserved2 (22 bits):**  MUST be zero, and MUST be ignored.

**A - hsState (2 bits):** An unsigned integer that specifies the [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) state of the chart sheet. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The chart sheet is [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72). |
| 0x1 | The chart sheet is hidden. |
| 0x2 | Very Hidden; the sheet is hidden and cannot be displayed using the user interface. |

**reserved3 (6 bits):**  MUST be zero, and MUST be ignored.

**B - fZoomToFit (1 bit):** A bit that specifies whether the zoom level is set to "Zoom to Fit Selection". SHOULD[<141>](#Appendix_A_141" \o "Product behavior note 141) be 1 if the current zoom level specified by the **wScale** field fits the current [**selection**](#gt_8a241461-3c59-45fb-9094-b6692a0c27fe).

**C - reserved4 (1 bit):** MUST be zero, and MUST be ignored.

**unused2 (8 bytes):**  Undefined and MUST be ignored.

**unused3 (8 bytes):** Undefined and MUST be ignored.

**unused4 (8 bytes):** Undefined and MUST be ignored.

**unused5 (2 bytes):** Undefined and MUST be ignored.

**unused6 (2 bytes):** Undefined and MUST be ignored.

### 2.4.336 UserSViewEnd

The **UserSViewEnd** record specifies the end of a collection of records, as defined by the [common productions](#Section_a1b3d8b4744241fd9c57bbd2a6394082) substream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) and the [Dialog Sheet substream](#Section_da37feb48b9a462d87772a5fddd4866e) ABNF. The collection of records specifies a collection of [**custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4) records.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| reserved | | | | | | | | | | | | | | | |

**reserved (2 bytes):**  MUST be 1, and MUST be ignored.

### 2.4.337 UsesELFs

The **UsesELFs** record specifies whether the file supports [**natural language formulas**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| useselfs | | | | | | | | | | | | | | | |

**useselfs (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the file supports natural language formulas. The value SHOULD[<142>](#Appendix_A_142" \o "Product behavior note 142) be 0x0000.

### 2.4.338 UsrChk

The **UsrChk** record specifies the version information for the last user who opened the [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| version | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**version (2 bytes):**  An unsigned integer that specifies the [**BIFF**](#gt_f9965de8-cd18-4e26-a9c6-adfee3d67517) version that was used by the last user to open the shared workbook. The value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0200 | [**BIFF2**](#gt_c0c2618b-ae39-4e3d-9615-4b71d8fb888a) |
| 0x0300 | [**BIFF3**](#gt_3b9d80df-ea32-495e-b43b-fa8a6d942ab9) |
| 0x0400 | [**BIFF4**](#gt_d99263f5-d806-4c42-9923-00c72054162a) |
| 0x0500 | [**BIFF5**](#gt_1448958e-abe8-40f3-9d71-40500c3cf9a3) |
| 0x0600 | [**BIFF8**](#gt_e60b71bb-c66c-4a44-ab07-0f9f20ee3dd5) |

**reserved (2 bytes):**  MUST be zero, and MUST be ignored.

### 2.4.339 UsrExcl

The **UsrExcl** record specifies whether a user has acquired an exclusive lock on the [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc) and that specifies the beginning of a collection of records as defined by the [revision](#Section_d120a1ffd2e6488381a507236f1994b0) stream [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies properties for a shared workbook.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fExclusive | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sdtr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchUser | | | | | | | | | | | | | | | | stUser (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**fExclusive (4 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the user has an exclusive lock on the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). The value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | The user does not have an exclusive lock on the workbook. |
| 0x00000001 | The user has an exclusive lock on the workbook. |

**sdtr (8 bytes):**  A [ShortDTR](#Section_c6ed848642884cd9a9e81792fa0486fb) structure that specifies the date and time when **fExclusive** was set to 0x00000001.

**cchUser (2 bytes):** An unsigned integer that specifies the number of characters in **stUser** that are used to specify the name of the user who has [**locked**](#gt_7795ac77-550e-4531-9ce5-327bbde6fa81) the workbook. Characters in **stUser** that are to the right of these used characters are ignored. MUST be less than or equal to 0x0036.

**stUser (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the name of the user who has locked the workbook. The count of characters MUST be 147.

### 2.4.340 UsrInfo

The **UsrInfo** record specifies information about a user who currently has the [shared workbook](#Section_e45a62c4490f4304a09668908b57dacc) open.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| lUsrId | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| guid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| shortdtr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stUserName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | |

**lUsrId (4 bytes):**  A signed integer that specifies a unique user identifier for this user.

**guid (16 bytes):**  A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1), as specified by [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2), that specifies the last set of revisions synced to by this user.

**shortdtr (8 bytes):**  A [ShortDTR](#Section_c6ed848642884cd9a9e81792fa0486fb) structure that specifies the date and time this user opened the shared workbook.

**stUserName (variable):**  A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the name of this user. The number of characters in this string MUST be greater than or equal to 1 and less than or equal to 54.

**unused (1 byte):** Undefined and MUST be ignored.

### 2.4.341 ValueRange

The **ValueRange** record specifies the properties of a value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| numMin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numMax | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numMajor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numMinor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numCross | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | unused | | | | | | | |

**numMin (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) structure that specifies the minimum value of the value axis. MUST be less than the value of **numMax**. If the value of **fAutoMin** is 1, this field MUST be ignored.

**numMax (8 bytes):** An Xnum structure that specifies the maximum value of the value axis. MUST be greater than the value of **numMin**. If the value of **fAutoMax** is 1, this field MUST be ignored.

**numMajor (8 bytes):** An Xnum structure that specifies the interval at which [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) and [**major gridlines**](#gt_2803347c-6396-46a5-9ede-6bef1149b013) are displayed. MUST be greater than or equal to the value of **numMinor**. If the value of **fAutoMajor** is 1, this field MUST be ignored.

**numMinor (8 bytes):**  An Xnum structure that specifies the interval at which [**minor tick marks**](#gt_c2eb605a-6c5a-427e-8608-f16940de82a6) and [**minor gridlines**](#gt_49980976-6314-43ad-ad51-8d3e55ef4b59) are displayed. MUST be greater than or equal to zero. If the value of **fAutoMinor** is 1, this field MUST be ignored.

**numCross (8 bytes):** An Xnum structure that specifies at which value the other axes in the [axis group](#Section_578b739742624944b5a67ee6d4d3bb55) cross this value axis. If the value of **fAutoCross** is 1, this field MUST be ignored.

**A - fAutoMin (1 bit):**  A bit that specifies whether **numMin** is calculated automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **numMin** is used as the minimum value of the value axis. |
| 1 | **numMin** is calculated such that the [data point](#Section_9c986ad250d44fa1a157063ac5c971a0) with the minimum value can be displayed in the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). |

**B - fAutoMax (1 bit):**  A bit that specifies whether **numMax** is calculated automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **numMax** is used as the maximum value of the value axis. |
| 1 | **numMax** is calculated such that the data point with the maximum value can be displayed in the plot area. |

**C - fAutoMajor (1 bit):**  A bit that specifies whether **numMajor** is calculated automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **numMajor** is used as the interval at which major tick marks and major gridlines are displayed. |
| 1 | **numMajor** is calculated automatically. |

**D - fAutoMinor (1 bit):**  A bit that specifies whether **numMinor** is calculated automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **numMinor** is used as the interval at which minor tick marks and minor gridlines are displayed. |
| 1 | **numMinor** is calculated automatically. |

**E - fAutoCross (1 bit):**  A bit that specifies whether **numCross** is calculated automatically. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value specified by **numCross** is used as the point at which the other axes in the axis group cross this value axis. |
| 1 | **numCross** is calculated so that the crossing point is displayed in the plot area. |

**F - fLog (1 bit):**  A bit that specifies whether the value axis has a logarithmic scale. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The scale of the value axis is linear. |
| 1 | The scale of the value axis is logarithmic. The default base of the logarithmic scale is 10, unless a [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) record follows this record, specifying the base in a [XmlTkLogBaseFrt](#Section_270f46e58f16498c94279eed13948bed) structure. |

**G - fReversed (1 bit):**  A bit that specifies whether the values on the value axis are displayed in reverse order. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Values are displayed from smallest-to-largest, from left-to-right, or from bottom-to-top, respectively, depending on the orientation of the axis. |
| 1 | The values are displayed in reverse order, meaning largest-to-smallest, from left-to-right, or from bottom-to-top, respectively. |

**H - fMaxCross (1 bit):**  A bit that specifies whether the other axes in the axis group cross this value axis at the maximum value. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The other axes in the axis group cross this value axis at the value specified by **numCross**. |
| 1 | The other axes in the axis group cross the value axis at the maximum value. If **fMaxCross** is 1, then both **fAutoCross** and **numCross** MUST be ignored. |

**unused (8 bits):**  Undefined and MUST be ignored.

### 2.4.342 VCenter

The **VCenter** record specifies whether the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) is centered vertically when printed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| vcenter | | | | | | | | | | | | | | | |

**vcenter (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the sheet is centered between [TopMargin](#Section_ecfc8b81a8884e258632a9edd66e106c) and [BottomMargin](#Section_a0fa5550116c4768b0d19ab0887d3f60) when printed.

### 2.4.343 VerticalPageBreaks

The **VerticalPageBreaks** record specifies a list of all explicit column [**page breaks**](#gt_55584218-fec7-4f6a-8295-e4dbf3b7d871) in the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cbrk | | | | | | | | | | | | | | | | rgbrk (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cbrk (2 bytes):**  An unsigned integer that specifies the number of page breaks. The value MUST be less than or equal to 255.

**rgbrk (variable):**  An array of [VertBrk](#Section_33884b038ef74000a6174a7ec3f311c5) that specifies all of the page breaks. The array MUST be sorted first by the **col** value and then by the **RowStart** value in each VertBrk. Two page breaks MUST NOT overlap. The number of VertBrkMUSTequal the value of **cbrk**.

### 2.4.344 WebPub

The **WebPub** record specifies the information for a single [**published**](#gt_8ffc383a-d4f1-4515-a8b5-874d84ab2d2b) Web page.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtRefHeaderU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tws | | | | | | | | twd | | | | | | | | A | B | C | D | reserved2 | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | | unused2 | | | | | | | | | | | | | | | |
| nStyleId | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| srcName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stFileDest (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stDivId (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| crtID (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| frtRgb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused3 | | | | | | | | | | | | | | | |

**frtRefHeaderU (12 bytes):** An [FrtRefHeaderU](#Section_81109a771dbd43fe84d2b5177bb41297) structure. If the value of **tws** is 4, then **frtRefHeaderU.ref8** specifies the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells associated with this record and **frtRefHeaderU.grbitFrt.fFrtRef** MUST be 1. If the value of **tws** is not 4, then **frtRefHeaderU.grbigFrt.fFrtRef** MUST be zero.

**tws (1 byte):** An unsigned integer that specifies the type of Web source that was published. It MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0xFF | The source is undefined. |
| 0x00 | [**Workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) |
| 0x01 | Entire [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) |
| 0x02 | [**Print area**](#gt_5832abeb-7b03-49db-8cf0-512745131ff5) |
| 0x03 | [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) range |
| 0x04 | Range of cells |
| 0x05 | Chart |
| 0x06 | [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) report |
| 0x07 | [**Query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289) ([**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) range) |
| 0x08 | [**Named range**](#gt_042582ea-4050-4e5c-a2df-ae39706a19b6) |

**twd (1 byte):** An unsigned integer that specifies the type of Web page created and whether the item is static or interactive. It MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Non-interactive page, only for viewing |
| 0x01 | Uses workbook functionality |
| 0x02 | Uses PivotTable functionality |
| 0x03 | Uses chart functionality |

**A - unused1 (1 bit):** Undefined and MUST be ignored.

**B - fAutoRepublish (1 bit):**  This bit specifies whether to republish the Web page when it is saved.

**C - reserved1 (1 bit):** MUST be zero and MUST be ignored.

**D - fMhtml (1 bit):**  This bit specifies whether the file is published as a single Web page or as a Web page with references to other files.

**reserved2 (12 bits):** MUST be zero and MUST be ignored.

**reserved3 (2 bytes):** MUST be zero and MUST be ignored.

**unused2 (2 bytes):** Undefined and MUST be ignored.

**nStyleId (4 bytes):**  An unsigned integer that specifies the unique identifier for this published content.

**cb (4 bytes):** An unsigned integer that specifies the size of the data that follows in this record according to the following formula:

size of **srcName** + size of **stFileDest** + size of **stDivId** + size of **stTitle** + size of **crtID** + size of **frtRGB** + size of **unused3**

The value MUST be greater than 0.

**srcName (variable):** A [WebPubString](#Section_fbba252fa2c64cd5bacccec3062eb45a) structure that specifies the named range to be published. The field MUST exist if and only if the value of **tws** is greater than 4. The character count in the string MUST be less than or equal to 255.

**stFileDest (variable):** A WebPubString structure that specifies the [**URL**](#gt_433a4fb7-ef84-46b0-ab65-905f5e3a80b1) or the path to the location of the published page. The character count in the string MUST be less than or equal to 255.

**stDivId (variable):**  A WebPubString structure that specifies the destination bookmark of the published page. The character count in the string MUST be less than or equal to 255.

**stTitle (variable):** A WebPubString structure that specifies the title of the [**published item**](#gt_14dfffe3-13a6-4c5f-b1d8-22e1e241634f).

**crtID (4 bytes):**  An MSOSPID structure, as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872), that specifies the published chart object. This field MUST exist if and only if **tws** equals 5.

**frtRgb (variable):** A binary stream that specifies the bytes reserved for future use. The size of this field in bytes is calculated according to the following formula:

size of this record – 30 – size of **srcName** – size of **stFileDest** – size of **stDivId** – size of **stTitle** – size of **crtID****[<143>](#Appendix_A_143" \o "Product behavior note 143)**

**unused3 (2 bytes):**  Undefined and MUST be ignored.

### 2.4.345 Window1

The **Window1** record specifies attributes of a window used to display a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) (called "the window" within this record definition). For each Window1 record in the Globals Substream there MUST be an associated [Window2](#Section_80576ec8e7f04c9990a7d850587bc97b) record in each [chart sheet](#Section_732ff614d939416bb7c76d983471ff11), [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56), [macro sheet](#Section_0dddd943f77a4fc2bf92868acb4587f7), and [dialog sheet](#Section_da37feb48b9a462d87772a5fddd4866e) substream that exists in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). The Window2 record in a given substream associated with a given Window1 record is the Window2 record whose ordinal position in the collection of Window2 records in the containing substream is equal to the ordinal position of the given Window1 record in the collection of Window1 records in the [Globals Substream](#workbookcontent_biff8workbookgrammar). Each Window2 record specifies extended properties of the associated Window1 record.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| xWn | | | | | | | | | | | | | | | | yWn | | | | | | | | | | | | | | | |
| dxWn | | | | | | | | | | | | | | | | dyWn | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | reserved | | | | | | | | | itabCur | | | | | | | | | | | | | | | |
| itabFirst | | | | | | | | | | | | | | | | ctabSel | | | | | | | | | | | | | | | |
| wTabRatio | | | | | | | | | | | | | | | |

**xWn (2 bytes):**  A signed integer that specifies the horizontal position, in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382), of the window. The value is relative to the [**logical left**](#gt_ccc2ab6c-db9b-4c67-9b95-21ce79e7358d) edge of the [**client area**](#gt_623ea69b-ffdb-4751-8751-2cbf4cc11f08) of the window.

**yWn (2 bytes):**  A signed integer that specifies the vertical position, in twips, of the window. The value is relative to the top edge of the client area of the window.

**dxWn (2 bytes):**  A signed integer that specifies the width, in twips, of the window. MUST be greater than or equal to 1.

**dyWn (2 bytes):**  A signed integer that specifies the height, in twips, of the window. MUST be greater than or equal to 1.

**A - fHidden (1 bit):**  A bit that specifies whether the window is in the list of [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) windows.

**B - fIconic (1 bit):**  A bit that specifies whether the window is minimized.

**C - fVeryHidden (1 bit):**  A bit that specifies whether the window has the properties of **fHidden** and that also specifies that the user cannot see that the window is in the list of hidden windows.

**D - fDspHScroll (1 bit):**  A bit that specifies whether a horizontal scroll bar is displayed.

**E - fDspVScroll (1 bit):**  A bit that specifies whether a vertical scroll bar is displayed.

**F - fBotAdornment (1 bit):**  A bit that specifies whether [**sheet tabs**](#gt_3b131045-238c-4ce8-9c22-b6aac874c7c5) are displayed.

**G - fNoAFDateGroup (1 bit):**  A bit that specifies whether dates are grouped hierarchically in the [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) menu or listed chronologically in the AutoFilter menu.

| Value | Meaning |
| --- | --- |
| 0 | Dates are grouped by year, month and day in the AutoFilter menu. |
| 1 | Dates are listed chronologically in the AutoFilter menu. |

**reserved (9 bits):**  MUST be zero, and MUST be ignored.

**itabCur (2 bytes):**  A [TabIndex](#Section_4bf91dd999de44058bfb95aa32a1a29f) structure that specifies the [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) sheet tab.

**itabFirst (2 bytes):**  A TabIndex structure that specifies the first displayed sheet tab.

**ctabSel (2 bytes):**  An unsigned integer that specifies the number of sheet tabs that are selected. The value MUST be less than or equal to the number of sheets in the workbook. Each [**sheet stream**](#gt_ed6406c5-331a-443d-a472-3666215c18fd) in the [workbook stream](#Section_f682f4b08c6b444e83f852d156f1e8ba) specifies a sheet.

**wTabRatio (2 bytes):**  An unsigned integer that specifies the ratio of the width of the sheet tabs to the width of the horizontal scroll bar, multiplied by 1000. MUST be less than or equal to 1000.

### 2.4.346 Window2

The **Window2** record specifies attributes of the window used to display a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) in a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) and that specifies the beginning of a collection of records as defined by the [Chart Sheet substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), [Macro Sheet substream](#Section_0dddd943f77a4fc2bf92868acb4587f7) ABNF, and [Worksheet substream](#Section_f41c06f2905749a18c3fa4a4d211fc56) ABNF. The collection of records specifies the settings of a [**Page Layout view**](#gt_c5ea3e6c-db72-4a85-b273-596e95a3841e) for a sheet, the zoom of the current view, the position of either [**frozen panes**](#gt_28507dfc-4443-4a02-a18c-27b5db006946) or [**unfrozen panes**](#gt_172b6800-45a6-4d45-938b-0f21abf83672), and the [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) within the sheet. When this record is contained in a macro sheet substream or a worksheet substream, it has a length of 18 bytes. When this record is contained in a chart sheet substream, it has a length of 10 bytes (which are the first 10 bytes of the original 18-byte record) and only the **fSelected** field is used. This record specifies extended properties of an associated [Window1](#Section_5e7b06630af04ff583fbb3c42a7ed54f) record, and that association is specified in Window1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | C | D | E | F | G | H | I | J | K | L | M | | | | rwTop | | | | | | | | | | | | | | | |
| colLeft | | | | | | | | | | | | | | | | icvHdr | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | wScaleSLV | | | | | | | | | | | | | | | |
| wScaleNormal | | | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | |

**A - fDspFmlaRt (1 bit):**  A bit that specifies whether the window displays formulas (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) or values. If the value is 1, the window displays formulas (section 2.2.2). This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**B - fDspGridRt (1 bit):**  A bit that specifies whether the window displays [**gridlines**](#gt_82f8a326-64b0-4506-a18e-930f7c2c95b9).

| Value | Meaning |
| --- | --- |
| 0 | The window does not display gridlines. |
| 1 | The window displays gridlines. |

This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**C - fDspRwColRt (1 bit):**  A bit that specifies whether the window displays row headings and column headings.

| Value | Meaning |
| --- | --- |
| 0 | The window does not display row headings and column headings. |
| 1 | The window displays row headings and column headings. |

This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**D - fFrozenRt (1 bit):**  A bit that specifies whether the panes in the window are [**frozen**](#gt_1e984b7c-9760-4832-88c8-798e30f845db). The value MUST be 0 if either the value of **colLeft** is 255 or the value of **rwTop** is 65535. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**E - fDspZerosRt (1 bit):**  A bit that specifies whether the window displays zero values.

| Value | Meaning |
| --- | --- |
| 0 | The window displays cells that have a value of zero as blank. |
| 1 | The window displays cells that have a value of zero as a zero. |

This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**F - fDefaultHdr (1 bit):**  A bit that specifies whether the gridlines of the window are drawn in the window's default [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a) or in the color specified by the value of **icvHdr**. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

| Value | Meaning |
| --- | --- |
| 0 | Gridlines of the window are drawn in the color specified by the value of **icvHdr**. |
| 1 | Gridlines of the window are drawn in the default foreground color of the window. |

**G - fRightToLeft (1 bit):**  A bit that specifies whether the text is displayed in [**right-to-left**](#gt_91359688-7863-4e88-b507-f57b3dada5ec) mode in the window.

| Value | Meaning |
| --- | --- |
| 0 | The text is displayed in [**left-to-right**](#gt_b8c262f8-6c09-457a-9b68-4bf3a08ab067) mode. |
| 1 | The text is displayed in right-to-left mode. |

This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**H - fDspGuts (1 bit):**  A bit that specifies whether the window displays the [**outline state**](#gt_595fa0de-0130-489d-ba83-fbba78917310). This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**I - fFrozenNoSplit (1 bit):**  A bit that specifies whether the panes in the window are frozen without [**pane**](#gt_fa363a22-6c89-4829-86aa-09f939f40a54) splits or frozen with pane splits. If the value of **fFrozenRt** is 0, the value of **fFrozenNoSplit** MUST be 0.

| Value | Meaning |
| --- | --- |
| 0 | The panes in the window are frozen with pane splits. |
| 1 | The panes in the window are frozen without pane splits. |

This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**J - fSelected (1 bit):**  A bit that specifies whether the [**sheet tab**](#gt_3b131045-238c-4ce8-9c22-b6aac874c7c5) is selected.

**K - fPaged (1 bit):**  A bit that specifies whether the sheet is currently being displayed in the window. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**L - fSLV (1 bit):**  A bit that specifies whether the sheet is in [**Page Break Preview view**](#gt_a7342c25-b4fd-4c84-9922-ae9c4a92d180). This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**M - reserved1 (4 bits):**  MUST be zero, and MUST be ignored. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**rwTop (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies a zero-based row index of the first [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) row of the sheet. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**colLeft (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies a zero-based column index of the [**logical left**](#gt_ccc2ab6c-db9b-4c67-9b95-21ce79e7358d)-most visible column. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**icvHdr (2 bytes):**  An [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) structure that specifies the color of the gridlines. MUST be less than or equal to 64. MUST be 64 if and only if the value of **fDefaultHdr** is 1. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**reserved2 (2 bytes):**  MUST be zero, and MUST be ignored. This field is undefined and MUST be ignored if this record is contained in a chart sheet substream.

**wScaleSLV (2 bytes):**  An unsigned integer that specifies the [**zoom level**](#gt_bfb33471-a018-422b-bc63-177c8bc1831f) in the Page Break Preview view. If the value of **fSLV** is 1 and this record has an associated [Scl](#Section_2cdcac9bf00444cb82e1d592500ffef8) as specified in the ABNF in [Common Productions](#Section_a1b3d8b4744241fd9c57bbd2a6394082), the value of **wScaleSLV** is undefined and MUST be ignored. MUST[<144>](#Appendix_A_144" \o "Product behavior note 144) be either 0 or greater than or equal to 10 and less than or equal to 400. A value of 0 specifies the default zoom level. This field MUST NOT exist if this record is contained in a chart sheet substream.

**wScaleNormal (2 bytes):**  An unsigned integer that specifies the zoom level in the [**Normal view**](#gt_b3c343ae-05ca-4b91-9cc1-383ee3563990). If the value of **fSLV** is 0 and the value of the **fPageLayoutView** field of the [PLV](#Section_9aaa4e93a6c24de1b1bd3c87e9affa5c), as specified in the ABNF in Common Productions, is 0 and this record has an associated Scl, then the value of **wScaleNormal** is undefined and MUST be ignored. MUST[<145>](#Appendix_A_145" \o "Product behavior note 145) be either 0 or greater than or equal to 10 and less than or equal to 400. A value of 0 specifies the default zoom level. This field MUST NOT exist if this record is contained in a chart sheet substream.

**unused (2 bytes):**  Undefined and MUST be ignored. This field MUST NOT exist if this record is contained in a chart sheet substream.

**reserved3 (2 bytes):**  MUST be zero, and MUST be ignored. This field MUST NOT exist if this record is contained in a chart sheet substream.

### 2.4.347 WinProtect

The **WinProtect** record specifies whether the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) windows can be resized or moved and whether the [**window state**](#gt_b470d08f-cbdd-49db-a2e0-08bb9a04d503) can be changed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fLockWn | | | | | | | | | | | | | | | |

**fLockWn (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the windows can be resized or moved and whether the window state can be changed. It MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The workbook windows can be resized or moved and the window state can be changed. |
| 0x0001 | The workbook windows cannot be resized or moved and the window state cannot be changed. |

### 2.4.348 WOpt

The **WOpt** record specifies options for saving as a Web page.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | reserved1 | | | | | | | | | | screenSize | | | | | | | | reserved2 | | | | | | | |
| dwPixelsPerInch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| uiCodePage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbLocationOfComponents (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbFuture (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The value of the **frtHeaderOld.rt** field MUST be 0x080B.

**A - fRelyOnCSS (1 bit):**  A bit that specifies whether [**cascading style sheets (CSS)**](#gt_22155692-26b0-4146-9737-ef43f4b31305) is used for [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) formatting when viewing the saved file in a Web browser.

**B - fOrganizeInFolder (1 bit):**  A bit that specifies whether all supporting files, such as background textures and graphics, are organized in a separate [**folder**](#gt_6afebb3e-5358-4ab8-b0fc-fcc8de47fcc1) when saving this file as a Web page. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | All supporting files are saved in the same folder as the Web page. |
| 1 | All supporting files are organized in a separate folder. |

**C - fUseLongFileNames (1 bit):**  A bit that specifies whether [**long file names**](#gt_7d480c8b-0dfe-4c54-8d8d-5e8718a8c638) are used when saving this file as a Web page.

**D - fDownloadComponents (1 bit):**  A bit that specifies whether the necessary [**Microsoft Office Web Components**](#gt_c362a2c8-f385-404c-8967-3143d111bb97) are downloaded if they are not installed when viewing the saved file in a Web browser.

**E - fRelyOnVML (1 bit):**  A bit that specifies whether the application uses [**VML**](#gt_eb6b7893-b656-4b91-8fab-51fd1cf28a38) to display graphics in a Web browser.

**F - fAllowPNG (1 bit):**  A bit that specifies whether Portable Network Graphics (PNG) format is allowed as an image format when saving this file as a Web page.

**reserved1 (10 bits):** MUST be zero, and MUST be ignored.

**screenSize (1 byte):**  A **WebScreenSizeEnum**, as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.2.1.4, that specifies the ideal minimum screen size of the target monitor used to view the saved file in a Web browser.

**reserved2 (1 byte):** MUST be zero, and MUST be ignored.

**dwPixelsPerInch (4 bytes):**  An unsigned integer that specifies the density, in pixels per inch, of graphics images and [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) cells when saving this file as a Web page. The value MUST be greater than or equal to 19 and less than or equal to 480.

**uiCodePage (4 bytes):**  An unsigned integer that specifies the [**code page**](#gt_210637d9-9634-4652-a935-ded3cd434f38). The value MUST be one of the code page values specified in [[CODEPG]](https://go.microsoft.com/fwlink/?LinkId=89840), to be used by the Web browser when viewing the saved file.

**rgbLocationOfComponents (variable):**  An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) structure that specifies the [**URL**](#gt_433a4fb7-ef84-46b0-ab65-905f5e3a80b1) or the file path to the location from which authorized users can download Microsoft Office Web Components when viewing the saved file as a Web page. The value of **rgbLocationOfComponents.cch** MUST be less than or equal to 2083.

**rgbFuture (variable):**  A binary stream that specifies the bytes reserved for future use. The size of this field in bytes is calculated according to the following formula:

size of this record – 16 – size of **rgbLocationOfComponents**

### 2.4.349 WriteAccess

The **WriteAccess** record specifies the name of the user who last created, opened, or modified the file.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| userName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**userName (variable):**  An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structure that specifies the [**user name**](#gt_c298446e-09d2-470d-a70f-5249dafa15c6). The value of **userName.cch** MUST be less than or equal to 54. If the value of **userName.rgb** is equal to "\0x20\0x20" no user name is specified.

**unused (variable):** Undefined and MUST be ignored. The size of this field in bytes

MUST be equal to the value of the following formula: (112 – number of bytes of **userName**).

### 2.4.350 WriteProtect

The existence of the **WriteProtect** record specifies that the file is write-[**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829).

### 2.4.351 WsBool

The **WsBool** record specifies information about a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| A | B | | | C | D | E | F | G | H | I | | J | K | L | M |

**A - fShowAutoBreaks (1 bit):**  A bit that specifies whether [**page breaks**](#gt_55584218-fec7-4f6a-8295-e4dbf3b7d871) inserted automatically are [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) on the sheet.

**B - reserved1 (3 bits):**  MUST be zero, and MUST be ignored.

**C - fDialog (1 bit):**  A bit that specifies whether the sheet is a [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8).

**D - fApplyStyles (1 bit):**  A bit that specifies whether to apply styles in an [**outline**](#gt_d20b50ce-6124-4bda-ba32-5d132016d639) when an outline is applied.

**E - fRowSumsBelow (1 bit):**  A bit that specifies whether summary rows appear below an outline's detail rows.

**F - fColSumsRight (1 bit):**  A bit that specifies whether summary columns appear to the right or left of an outline's detail columns. Valid values are specified in the following table:

| Value | Meaning |
| --- | --- |
| 0 | The summary columns appear to the right, if the sheet is displayed [**left-to-right**](#gt_b8c262f8-6c09-457a-9b68-4bf3a08ab067), or appear to the left, if the sheet is displayed [**right-to-left**](#gt_91359688-7863-4e88-b507-f57b3dada5ec). |
| 1 | The summary columns appear to the left, if the sheet is displayed left-to-right, or appear to the right, if the sheet is displayed right-to-left. |

**G - fFitToPage (1 bit):**  A bit that specifies whether to fit the printable contents to a single page when printing this sheet.

**H - reserved2 (1 bit):**  MUST be zero, and MUST be ignored.

**I - unused (2 bits):** Undefined and MUST be ignored.

**J - fSyncHoriz (1 bit):**  A bit that specifies whether horizontal scrolling is synchronized across multiple windows displaying this sheet.

**K - fSyncVert (1 bit):**  A bit that specifies whether vertical scrolling is synchronized across multiple windows displaying this sheet.

**L - fAltExprEval (1 bit):**  A bit that specifies whether the sheet uses [**transition formula evaluation**](#gt_47a54c6a-a541-44ae-a0a9-acf78ab8a331).

**M - fAltFormulaEntry (1 bit):**  A bit that specifies whether the sheet uses [**transition formula entry**](#gt_fd2c615c-ad67-4b97-bde4-7827b37196eb).

### 2.4.352 XCT

The **XCT** record specifies the beginning of an [external cell cache](#Section_b985d1a223f3483ebebdbd0e882d4c89) and that specifies the beginning of a collection of [CRN](#Section_049bee32923041a9ab401cf5de41d563) records as defined in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of CRN records specifies the values of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) in the external cell cache.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ccrn | | | | | | | | | | | | | | | | itab (optional) | | | | | | | | | | | | | | | |

**ccrn (2 bytes):**  A signed integer of which the absolute value specifies the number of CRN records immediately following this record. A value less than zero specifies that the most recent [SupBook](#Section_31ed3738e4ff4b60804cac49ac1ee6c0) preceding this record contains a link that is not valid.

**itab (2 bytes):**  An unsigned integer that specifies a zero-based index into the **rgst** array of the most recent instance of a SupBook preceding this record in the file. The element of the **rgst** array specified by this field contains the name of the sheet that contains the cached cells. The value of **itab** MUST be less than the value of the **ctab** field of the most recent instance of SupBook.

### 2.4.353 XF

The **XF** record specifies formatting properties for a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) or a [cell style](#Section_f9425d3f127545be8389bf80f65b56b7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ifnt | | | | | | | | | | | | | | | | ifmt | | | | | | | | | | | | | | | |
| A | B | C | D | ixfParent | | | | | | | | | | | | Data (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ifnt (2 bytes):** A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) structure that specifies a [Font](#Section_291a910ccb694799875ea201845d4fd1) record.

**ifmt (2 bytes):** An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) structure that specifies a [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) identifier.

**A - fLocked (1 bit):** A bit that specifies whether the [**locked protection**](#gt_10f1ec97-0464-49da-bf78-5339b9d3520c) property is set to true.

**B - fHidden (1 bit):** A bit that specifies whether the [**hidden protection**](#gt_1b14d877-9a96-485f-8eb8-b2c26f3355cf) property is set to true.

**C - fStyle (1 bit):** A bit that specifies whether this record specifies a [cell XF](#Section_518a740d71c640c8bb97e7df6915861a) or a [cell style XF](#Section_3d5348ded9df4c31b1fd9f9377273152). If the value is 1, this record specifies a cell style XF.

**D - f123Prefix (1 bit):** A bit that specifies whether prefix characters are present in the cell. The possible prefix characters are single quote (0x27), double quote (0x22), caret (0x5E), and backslash (0x5C).[<146>](#Appendix_A_146" \o "Product behavior note 146) If **fStyle** equals 1, this field MUST equal 0.

**ixfParent (12 bits):** An unsigned integer that specifies the zero-based index of a cell style XF record in the collection of XF records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) that this cell format inherits properties from. Cell style XF records are the subset of XF records with an **fStyle** field equal to 1. See [XFIndex](#Section_0b683865eeee4621a3d8b18d20a2afd9) for more information about the organization of XF records in the file.

If **fStyle** equals 1, this field SHOULD equal 0xFFF, indicating there is no inheritance from a cell style XF. [<147>](#Appendix_A_147" \o "Product behavior note 147)

**Data (variable):**  If the value of **fStyle** equals 0, this field contains a [CellXF](#Section_671c8577901f42159ebf6f5890e5896d) that specifies additional properties of the cell XF. If the value of **fStyle** equals 1, this field contains a [StyleXF](#Section_38cad019597749bfa55a6e2e9feaca74) that specifies additional properties of the cell style XF.

### 2.4.354 XFCRC

The **XFCRC** record specifies the number of [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) records contained in this file and that contains a [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the data in those records. This record MUST exist if and only if there are [XFExt](#Section_8a19848536094bcb87e741894d48b76a) records in the file.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | cxfs | | | | | | | | | | | | | | | |
| crc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x87C.

**reserved (2 bytes):**  MUST be zero, and MUST be ignored.

**cxfs (2 bytes):**  An unsigned integer that specifies the number of XF records in this file. MUST be greater than or equal to 16 and less than or equal to 4050.

**crc (4 bytes):**  An unsigned integer that specifies a checksum, as specified by [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.4.3, of the data portion of the XF records. This checksum is used to detect whether the XF records in the file were modified by an application that does not support the formatting feature extensions in XFExt records.

### 2.4.355 XFExt

The **XFExt** record specifies a set of formatting property extensions to an [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) record in this file.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | ixfe | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | cexts | | | | | | | | | | | | | | | |
| rgExt (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**frtHeader (12 bytes):** An [FrtHeader](#Section_d56e99f8a2714db1923c222722d21a37) structure. The **frtHeader.rt** field MUST be 0x087D.

**reserved1 (2 bytes):** MUST be zero and MUST be ignored.

**ixfe (2 bytes):** An [XFIndex](#Section_0b683865eeee4621a3d8b18d20a2afd9) structure that specifies the XF record in the file that this record extends. MUST be less than or equal to 4050.

**reserved2 (2 bytes):** MUST be zero and MUST be ignored.

**cexts (2 bytes):** An unsigned integer that specifies the number of elements in **rgExt.**

**rgExt (variable):** An array of [ExtProp](#Section_4b32cefb74ce45efa791380af109a63b). Each array element specifies a formatting property extension.

### 2.4.356 YMult

The **YMult** record specifies properties of the value multiplier for a value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) and that specifies the beginning of a collection of records as defined by the [Chart Sheet substream](#Section_732ff614d939416bb7c76d983471ff11) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The collection of records specifies a [**display units**](#gt_7d807b62-cff1-4e03-a73f-840844345b83) label.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| frtHeaderOld | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| axmid | | | | | | | | | | | | | | | | numLabelMultiplier | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | C | reserved2 | | | | | | | | | | | | |

**frtHeaderOld (4 bytes):**  An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b) structure. The **frtHeaderOld.rt** field MUST be 0x0857.

**axmid (2 bytes):**  A signed integer that specifies the axis multiplier type. MUST be a value from the following table:

| Value | Multiplier type |
| --- | --- |
| 0xFFFF (-1) | Custom multiplier, multiplier value MUST be stored in **numLabelMultiplier** |
| 0x0000 | Values on axis are multiplied by 1.0 |
| 0x0001 | Values on axis are multiplied by 100.0 |
| 0x0002 | Values on axis are multiplied by 1000.0 |
| 0x0003 | Values on axis are multiplied by 10,000.0 |
| 0x0004 | Values on axis are multiplied by 100,000.0 |
| 0x0005 | Values on axis are multiplied by 1,000,000.0 |
| 0x0006 | Values on axis are multiplied by 10,000,000.0 |
| 0x0007 | Values on axis are multiplied by 100,000,000.0 |
| 0x0008 | Values on axis are multiplied by 1,000,000,000.0 |
| 0x0009 | Values on axis are multiplied by 1,000,000,000,000.0 |

**numLabelMultiplier (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) structure that specifies a custom multiplier. The value on the axis are multiplied by the value of this field. MUST be greater than 0.0. If **axmid** is set to a value other than 0xFFFF, this field is ignored.

**A - reserved1 (1 bit):** MUST be 1, and MUST be ignored.

**B - fAutoShowMultiplier (1 bit):**  A bit that specifies whether the display units label is displayed.

**C - fBeingEditted (1 bit):**  A bit that specifies whether the display units label is currently being edited.

**reserved2 (13 bits):** MUST be zero, and MUST be ignored.