## 2.5 Structures

### 2.5.1 AddinUdf

The **AddinUdf** structure specifies the data for a [**UDF**](#gt_5068e37f-372c-41df-9357-1072e12ed970) reference on an [**XLL**](#gt_3d6e3f45-91e7-46d5-871c-0b2fde20b5f5) or [**COM**](#gt_ef2ebebc-1760-407a-9ace-af48f9050e02) [**add-in**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6) in the [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| udfName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cb | | | | | | | | | | | | | | | | unused (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**udfName (variable):** A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) that specifies the name of the referenced UDF. **udfName.cch** MUST be less than or equal to 255. For COM [**add-in functions**](#gt_19f0478a-919a-4951-b8c0-f9900a1ddd3e) only, it also specifies the [**ProgID**](#gt_06b2ae3d-4106-49f3-9ca0-e2bcd649e75a) of the COM object that implements the add-in function (XLL add-in functions do not have their implementing libraries uniquely specified).

**cb (2 bytes):** An unsigned integer that specifies the size of **unused** in bytes.

**unused (variable):** Undefined and MUST be ignored. The size of this field in bytes is specified by **cb**.

### 2.5.2 AF12CellIcon

The **AF12CellIcon** structure specifies the [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) for an advanced [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) comparison.

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

**iIconSet (4 bytes):** An unsigned integer that specifies the [**icon set**](#gt_15e781d5-cddc-4852-b031-1ebc6b601ca9) number. MUST be a value as specified in [KPISets](#Section_496a1c964a764e1fa097f59d7ae7a296).

**iIcon (4 bytes):** An unsigned integer that specifies the icon number within the icon set. MUST be a value as specified in the following table:

| iIconSet value | Valid iIcon values |
| --- | --- |
| KPINIL (no icon) | 0xFFFFFFFF |
| KPI3ARROWS | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3ARROWSGRAY | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3FLAGS | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3TRAFFICLIGHTS1 | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3TRAFFICLIGHTS2 | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3SIGNS | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3SYMBOLS | 0x00000000, 0x00000001, or 0x00000002 |
| KPI3SYMBOLS2 | 0x00000000, 0x00000001, or 0x00000002 |
| KPI4ARROWS | 0x00000000, 0x00000001, 0x00000002, or 0x00000003 |
| KPI4ARROWSGRAY | 0x00000000, 0x00000001, 0x00000002, or 0x00000003 |
| KPI4REDTOBLACK | 0x00000000, 0x00000001, 0x00000002, or 0x00000003 |
| KPI4RATING | 0x00000000, 0x00000001, 0x00000002, or 0x00000003 |
| KPI4TRAFFICLIGHTS | 0x00000000, 0x00000001, 0x00000002, or 0x00000003 |
| KPI5ARROWS | 0x00000000, 0x00000001, 0x00000002, 0x00000003, or 0x00000004 |
| KPI5ARROWSGRAY | 0x00000000, 0x00000001, 0x00000002, 0x00000003, or 0x00000004 |
| KPI5RATING | 0x00000000, 0x00000001, 0x00000002, 0x00000003, or 0x00000004 |
| KPI5QUARTERS | 0x00000000, 0x00000001, 0x00000002, 0x00000003, or 0x00000004 |

### 2.5.3 AF12Criteria

The **AF12Criteria** structure specifies the criteria for an advanced [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) comparison.

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

**doper (10 bytes):** An [AFDOper](#Section_0e30d7c2fe7a4c97a2bef40a9709a473) that specifies the comparison condition.

**str (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the string value to use for the comparison. MUST exist if and only if **doper.vt** equals 0x06. The length MUST be equal to **doper.vtValue.cch**.

### 2.5.4 AF12DateInfo

The **AF12DateInfo** structure specifies the date and time for an advanced [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) comparison.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| year | | | | | | | | | | | | | | | | month | | | | | | | | | | | | | | | |
| day | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| hour | | | | | | | | | | | | | | | | minute | | | | | | | | | | | | | | | |
| second | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| nodeType | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**year (2 bytes):** An unsigned integer that specifies the year.

**month (2 bytes):** An unsigned integer that specifies the month. MUST be greater than or equal to 1 and less than or equal to 12.

**day (4 bytes):** An unsigned integer that specifies the day of the month. MUST be greater than or equal to 1[<148>](#Appendix_A_148" \o "Product behavior note 148) and less than or equal to 31.

**hour (2 bytes):** An unsigned integer that specifies the hour. MUST be greater than or equal to 0 and less than or equal to 23.

**minute (2 bytes):** An unsigned integer that specifies the minute. MUST be greater than or equal to 0 and less than or equal to 59.

**second (2 bytes):** An unsigned integer that specifies the second. MUST be greater than or equal to 0 and less than or equal to 59.

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

**nodeType (4 bytes):** An unsigned integer that specifies the date and time to filter on. MUST be one of the values from the table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | [**Filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) on **year** field. |
| 0x00000001 | Filter on **year** and **month** fields. |
| 0x00000002 | Filter on **year, month,** and **day** fields. |
| 0x00000003 | Filter on **year, month, day,** and **hour** fields. |
| 0x00000004 | Filter on **year, month, day, hour,** and **minute** fields. |
| 0x00000005 | Filter on **year, month, day, hour, minute,** and **second** fields. |

### 2.5.5 AFDOper

The **AFDOper** structure specifies an [AutoFilter](#Section_665bd56446774ea7bf6b89f27edb0788) data operation.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| vt | | | | | | | | grbitSign | | | | | | | | vtValue | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**vt (1 byte):** An unsigned integer that specifies the type of comparison. MUST be a value as specified in the table listed under **vtValue**. If this structure is part of an [AutoFilter12](#Section_8238f9cb97974cff9b8a180d2b025c31) record, the value of **vt** MUST NOT be 0x02.

**grbitSign (1 byte):** An unsigned integer that specifies the comparison operation between a [**cell value**](#gt_4d48a886-7f1d-4d41-a668-54f7f2f1a966) and **vtValue**. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x01 | [**Cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) value is displayed if it is less than the value specified in **vtValue.** |
| 0x02 | Cell value is displayed if it is equal to the value specified in **vtValue**. |
| 0x03 | Cell value is displayed if it is less than or equal to the value specified in **vtValue**. |
| 0x04 | Cell value is displayed if it is greater than the value specified in **vtValue.** |
| 0x05 | Cell value is displayed if it is not equal to the value specified in **vtValue.** |
| 0x06 | Cell value is displayed if it is greater than or equal to the value specified in **vtValue.** |

If **vt** is equal to 0x00, this field is undefined and MUST be ignored.

**vtValue (8 bytes):**  A variable type field whose type and meaning is dictated by the value of **vt**, as specified in the following table:

| Value of vt | Meaning of vtValue |
| --- | --- |
| 0x00 | **vtValue** is 8 bytes which are undefined and MUST be ignored. |
| 0x02 | **vtValue** is an [AFDOperRk](#Section_416473f854fb49ab93f7b5439f070476) that specifies a numeric value. MUST exist if and only if this structure is part of an AutoFilter record. |
| 0x04 | **vtValue** is an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies a numeric value. |
| 0x06 | **vtValue** is an [AFDOperStr](#Section_0e933a63d1894812b313f74ca0830fd7) that specifies a string value. |
| 0x08 | **vtValue** is an [AFDOperBoolErr](#Section_c8f1f5b4a9384c89b50ac6be58937b0e) that specifies a Boolean or error value. |
| 0x0C | All blanks are matched. **vtValue** is 8 bytes which are reserved, MUST be 0, and MUST be ignored. |
| 0x0E | All non-blanks are matched. **vtValue** is 8 bytes which are reserved, MUST be 0, and MUST be ignored. |

### 2.5.6 AFDOperBoolErr

The **AFDOperBoolErr** structure specifies a Boolean or error value for an [AutoFilter](#Section_665bd56446774ea7bf6b89f27edb0788) comparison.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| bes | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

### 2.5.7 AFDOperRk

The **AFDOperRk** structure specifies a numeric value for an [AutoFilter](#Section_665bd56446774ea7bf6b89f27edb0788) comparison.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rk | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rk (4 bytes):** An [RkNumber](#Section_04fa5340122f49db93ea00cc75501efc) that specifies a numeric value.

**unused1 (4 bytes):** Undefined and MUST be ignored.

### 2.5.8 AFDOperStr

The **AFDOperStr** structure specifies a string value for an [AutoFilter](#Section_665bd56446774ea7bf6b89f27edb0788) comparison. The string location is specified by the record or structure that contains this structure.

A question mark character (‘?’) in the string specifies a matching condition on any single character. An asterisk character (‘\*’) in the string specifies a matching condition on a sequence of zero or more characters.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cch | | | | | | | | fCompare | | | | | | | | reserved1 | | | | | | | | unused2 | | | | | | | |
| unused3 (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**unused1 (4 bytes):** Undefined and MUST be ignored. MUST exist if and only if this structure is part of an AutoFilter, a [Feature11](#Section_4c78a7d3a3ff48e28e2cc89785519322) or a [Feature12](#Section_4c95f0ddd35745758b77792dbe2c0d5e) record.

**cch (1 byte):** An unsigned integer that specifies the number of characters in the string. MUST be greater than or equal to 1.

**fCompare (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the string comparison contains question mark or asterisk characters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | String comparison contains question mark or asterisk characters. |
| 1 | String comparison does not contain question mark or asterisk characters. |

**reserved1 (1 byte):** MUST be zero, and MUST be ignored.

**unused2 (1 byte):** Undefined and MUST be ignored.

**unused3 (4 bytes):** Undefined and MUST be ignored. MUST exist if and only if this structure is part of an [AutoFilter12](#Section_8238f9cb97974cff9b8a180d2b025c31).

### 2.5.9 AutoFmt8

The **AutoFmt8** enumeration specifies the following auto formatting styles[<149>](#Appendix_A_149" \o "Product behavior note 149).

| Name | Value | Meaning |
| --- | --- | --- |
| **XL8\_ITBLSIMPLE** | 0x0000 | Simple |
| **XL8\_ITBLCLASSIC1** | 0x0001 | Classic 1 |
| **XL8\_ITBLCLASSIC2** | 0x0002 | Classic 2 |
| **XL8\_ITBLCLASSIC3** | 0x0003 | Classic 3 |
| **XL8\_ITBLACCOUNTING1** | 0x0004 | Accounting 1 |
| **XL8\_ITBLACCOUNTING2** | 0x0005 | Accounting 2 |
| **XL8\_ITBLACCOUNTING3** | 0x0006 | Accounting 3 |
| **XL8\_ITBLACCOUNTING4** | 0x0007 | Accounting 4 |
| **XL8\_ITBLCOLORFUL1** | 0x0008 | Colorful 1 |
| **XL8\_ITBLCOLORFUL2** | 0x0009 | Colorful 2 |
| **XL8\_ITBLCOLORFUL3** | 0x000A | Colorful 3 |
| **XL8\_ITBLLIST1** | 0x000B | List 1 |
| **XL8\_ITBLLIST2** | 0x000C | List 2 |
| **XL8\_ITBLLIST3** | 0x000D | List 3 |
| **XL8\_ITBL3DEFFECTS1** | 0x000E | 3Deffects 1 |
| **XL8\_ITBL3DEFFECTS2** | 0x000F | 3Deffects 2 |
| **XL8\_ITBLNONE\_GEN** | 0x0010 | None |
| **XL8\_ITBLJAPAN2** | 0x0011 | Japan 2 |
| **XL8\_ITBLJAPAN3** | 0x0012 | Japan 3 |
| **XL8\_ITBLJAPAN4** | 0x0013 | Japan 4 |
| **XL8\_ITBLNONE\_JPN** | 0x0014 | Japan None |
| **XL8\_ITBLREPORT1** | 0x1000 | Report 1 |
| **XL8\_ITBLREPORT2** | 0x1001 | Report 2 |
| **XL8\_ITBLREPORT3** | 0x1002 | Report 3 |
| **XL8\_ITBLREPORT4** | 0x1003 | Report 4 |
| **XL8\_ITBLREPORT5** | 0x1004 | Report 5 |
| **XL8\_ITBLREPORT6** | 0x1005 | Report 6 |
| **XL8\_ITBLREPORT7** | 0x1006 | Report 7 |
| **XL8\_ITBLREPORT8** | 0x1007 | Report 8 |
| **XL8\_ITBLREPORT9** | 0x1008 | Report 9 |
| **XL8\_ITBLREPORT10** | 0x1009 | Report 10 |
| **XL8\_ITBLTABLE1** | 0x100A | Table 1 |
| **XL8\_ITBLTABLE2** | 0x100B | Table 2 |
| **XL8\_ITBLTABLE3** | 0x100C | Table 3 |
| **XL8\_ITBLTABLE4** | 0x100D | Table 4 |
| **XL8\_ITBLTABLE5** | 0x100E | Table 5 |
| **XL8\_ITBLTABLE6** | 0x100F | Table 6 |
| **XL8\_ITBLTABLE7** | 0x1010 | Table 7 |
| **XL8\_ITBLTABLE8** | 0x1011 | Table 8 |
| **XL8\_ITBLTABLE9** | 0x1012 | Table 9 |
| **XL8\_ITBLTABLE10** | 0x1013 | Table 10 |
| **XL8\_ITBLPTCLASSIC** | 0x1014 | Table PTClassic |
| **XL8\_ITBLPTNONE** | 0x1015 | None |

### 2.5.10 Bes

The **Bes** structure specifies either a Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) value or an error value. **bBoolErr** specifies the value and **fError** specifies the value’s type.

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

**bBoolErr (1 byte):** An unsigned integer that specifies either a Boolean value or an error value, depending on the value of **fError**.

A Boolean value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | False |
| 0x01 | True |

An error value MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | #NULL! |
| 0x07 | #DIV/0! |
| 0x0F | #VALUE! |
| 0x17 | #REF! |
| 0x1D | #NAME? |
| 0x24 | #NUM! |
| 0x2A | #N/A |
| 0x2B | #GETTING\_DATA |

**fError (1 byte):**  A Boolean that specifies whether **bBoolErr** contains an error code or a Boolean value. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | bBoolErr SHOULD[<150>](#Appendix_A_150" \o "Product behavior note 150) contain a Boolean value. |
| 0x01 | bBoolErr contains an error value. |

### 2.5.11 Bold

The **Bold** enumeration specifies the [**font face weight**](#gt_8fd5e2d4-bd9a-48f2-ba16-42d23697508c).

| Name | Value | Meaning |
| --- | --- | --- |
| **BLSNORMAL** | 0x0190 | Normal font weight |
| **BLSBOLD** | 0x02BC | Bold font weight |

### 2.5.12 BookExt\_Conditional11

The **BookExt\_Conditional11** structure specifies two properties 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 |
| A | B | unused | | | | | |

**A - fBuggedUserAboutSolution (1 bit):**  A bit that specifies whether a warning is requested before loading a [**manifest**](#gt_d1a20cdc-cced-44de-a041-857fb9054856) that is a [**smart document**](#gt_cc9fe152-6a63-4555-91f1-1543ff84035d).

**B - fShowInkAnnotation (1 bit):**  A bit that specifies whether [**ink**](#gt_9fcdd1d5-3563-49b9-8a2e-bf696fb08fd0) [**comments**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) are visible in this workbook.

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

### 2.5.13 BookExt\_Conditional12

The **BookExt\_Conditional12** structure specifies [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) related 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 |
| A | B | C | reserved2 | | | | |

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

**B - fPublishedBookItems (1 bit):**  A bit that specifies whether only specific [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) items, including [**defined names**](#gt_5bb97b28-4adc-48ec-b544-02542753a933), [**tables**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7), [chart](#Section_8f56b001f57445e0932f84cf30408323) object and [PivotTables](#Section_a5f57198f2af40b2ba07e4b1836d73f3), are shown when the workbook is published to a server.

| Value | Meaning |
| --- | --- |
| 0 | All [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) or selected sheets are published. Each sheet is published, unless the [SheetExt](#Section_780be3426fd04265aaeba51f422a9c08) record for the sheet exists and the fNotPublished field of the [SheetExtOptional](#Section_ad38fef0aec74ea7882137fd7c86f73d) structure of the SheetExt record is 1. |
| 1 | Only selected items are published. For each item, the fPublished field in the record or structure within the record that specifies the item determines whether the item is published. For each type of item, the records and structures that contain the fPublished flag are as follows:  **Chart** object: [FtCmo](#Section_29161566501843568d2550e6674c66fa) structure of the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record  Table: [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure of the [Feature11](#Section_4c78a7d3a3ff48e28e2cc89785519322) record  Defined name: [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record  Defined name: [NamePublish](#Section_486bbbd13ede46afb1d0f29458579944) record  **PivotTable**: [SXAddl\_SXCView\_SXDVer12Info](#Section_c4888328f46743bb8ad960ff62f1d364) record |

**C - fShowPivotChartFilter (1 bit):**  A bit that specifies whether to show the [**PivotChart filter pane**](#gt_90f8a2d5-5501-4b3c-9186-f59b26b97f16).

**reserved2 (5 bits):** MUST be zero, and MUST be ignored.

### 2.5.14 Boolean

An unsigned integer greater than 1 bit in size that specifies a Boolean value. MUST be a value from the following table. All other bits in the field MUST be 0.

| Value | Meaning |
| --- | --- |
| 0x0 | Boolean value FALSE |
| 0x1 | Boolean value TRUE |

### 2.5.15 BorderStyle

The **BorderStyle** enumeration specifies the border line [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633).

| Name | Value | Meaning |
| --- | --- | --- |
| **NONE** | 0x0000 | No [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) |
| **THIN** | 0x0001 | Thin line |
| **MEDIUM** | 0x0002 | Medium line |
| **DASHED** | 0x0003 | Dashed line |
| **DOTTED** | 0x0004 | Dotted line |
| **THICK** | 0x0005 | Thick line |
| **DOUBLE** | 0x0006 | Double line |
| **HAIR** | 0x0007 | Hairline |
| **MEDIUMDASHED** | 0x0008 | Medium dashed line |
| **DASHDOT** | 0x0009 | Dash-dot line |
| **MEDIUMDASHDOT** | 0x000A | Medium dash-dot line |
| **DASHDOTDOT** | 0x000B | Dash-dot-dot line |
| **MEDIUMDASHDOTDOT** | 0x000C | Medium dash-dot-dot line |
| **SLANTDASHDOT** | 0x000D | Slanted dash-dot-dot line |

### 2.5.16 BuiltInStyle

The **BuiltInStyle** structure specifies the type of a built**-**in [cell style](#Section_f9425d3f127545be8389bf80f65b56b7). For [**row outline**](#gt_b5d24145-1614-4e62-b4dd-96f1af5e76fe) and [**column outline**](#gt_56df9ab8-ed36-41fc-9522-4d23740e0901) types this structure also specifies the [**outline level**](#gt_a5cd5eff-ddeb-490b-bc71-f6256774e3c3) of the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633).

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

**istyBuiltIn (1 byte):**  An unsigned integer that specifies the type of the built-in cell style. SHOULD be a value from the list of built in cell styles specified in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4: Markup Language Reference, section 3.8.7.[<151>](#Appendix_A_151" \o "Product behavior note 151)

**iLevel (1 byte):**  An unsigned integer that specifies the depth level of row/column automatic outlining. If **istyBuiltIn** equals 0x01 or 0x02, this value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0x00 | Outline level is 1 |
| 0x01 | Outline level is 2 |
| 0x02 | Outline level is 3 |
| 0x03 | Outline level is 4 |
| 0x04 | Outline level is 5 |
| 0x05 | Outline level is 6 |
| 0x06 | Outline level is 7 |

Otherwise, this value MUST be 0xFF and MUST be ignored.

### 2.5.17 CachedDiskHeader

The **CachedDiskHeader** structure specifies the formatting information of a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) column heading.

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

**cbdxfHdrDisk (4 bytes):** An unsigned integer that specifies the size, in bytes, of the **rgHdrDisk** field.

**rgHdrDisk (variable):** A [DXFN12List](#Section_bb221dc1261a41f4a5b416e480b428e6) structure that specifies the formatting of the column heading.

**strStyleName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) to use for the column heading. The name of the style MUST equal the **user** field of a [Style](#Section_13bec5ebe6ec4dc192350e7f9e5426a1) record in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf), or the name of a built-in style, as specified by the [BuiltInStyle](#Section_ff60de5e7d8a42b790563250e22019ec) record. This field is present only if the **fSaveStyleName** field of the containing [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) structure is set to 0x1.

If present, the formatting as specified by **strStyleName** is applied first, before the formatting as specified by **rgHdrDisk** is applied.

### 2.5.18 Cch255

A 2 byte unsigned integer that specifies a string size in characters.

The value 0xFFFF specifies that the string is NULL.

The value MUST be 0xFFFF or less than or equal to 0x00FF.

### 2.5.19 Cell

The **Cell** structure specifies a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in 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 |
| rw | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |
| ixfe | | | | | | | | | | | | | | | |

**rw (2 bytes):**  An [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) that specifies the row.

**col (2 bytes):**  A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) that specifies the column.

**ixfe (2 bytes):**  An [IXFCell](#Section_f9bc476745704f609a8e6fd3f32ddf3b) that specifies the [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) record.

### 2.5.20 CellXF

This structure specifies formatting properties 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 |
| alc | | | A | alcV | | | B | trot | | | | | | | | cIndent | | | | C | D | E | | F | | G | H | I | J | K | L |
| dgLeft | | | | dgRight | | | | dgTop | | | | M | | | | icvLeft | | | | | | | icvRight | | | | | | | N | |
| icvTop | | | | | | | icvBottom | | | | | | | icvDiag | | | | | | | dgDiag | | | | O | fls | | | | | |
| icvFore | | | | | | | icvBack | | | | | | | P | Q |

**alc (3 bits):** A [**HorizAlign**](#Section_75e17a8f9cd44b37927e4b0a54ef9266) that specifies the [**horizontal alignment**](#gt_f0e60ca8-51d5-4553-9126-3d89a4d08f90).

**A - fWrap (1 bit):** A bit that specifies whether the cell text is wrapped.

**alcV (3 bits):** A [**VertAlign**](#Section_1e9eb7d30cd842a3af1ef523105a5e93) that specifies the [**vertical alignment**](#gt_5a59a612-2d00-4cb5-9565-952243641878).

**B - fJustLast (1 bit):** A bit that specifies whether the justified or distributed alignment of the cell is used on the last line of text (setting this to 1 is typical for East Asian text but not typical in other contexts). If this field equals 1, then **alc** MUST equal 7.

**trot (1 byte):** An [XFPropTextRotation](#Section_828733cb953a48ceb4054d235575e9b3) that specifies the text rotation.

**cIndent (4 bits):** An unsigned integer that specifies the text [**indentation level**](#gt_2779d3df-3c50-44dc-9d2d-6996c4573aa9). MUST be less than or equal to 15.

**C - fShrinkToFit (1 bit):** A bit that specifies whether the cell is [**shrink to fit**](#gt_4740d2ef-00d3-4a29-983c-b7b3a6aa01e0).

**D - reserved1 (1 bit):** MUST be 0, and MUST be ignored.

**E - iReadOrder (2 bits):** A [**ReadingOrder**](#Section_dd395a856ae749cdae9418bab51e5357) that specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361).

**F - reserved2 (2 bits):** MUST be 0, and MUST be ignored.

**G - fAtrNum (1 bit):** A bit that specifies that if the **ifmt** field of the [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) record specified by the **ixfParent** field of the containing XF record is updated, the corresponding field of the containing XF record will not be set to the same value. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The **ifmt** field of the containing XF record is updated when the corresponding field of the XF record specified by the **ixfParent** field of the containing XF record is changed. |
| 0x1 | The **ifmt** field of the containing XF record is not updated when the corresponding field of the XF record specified by the **ixfParent** field of the containing XF record is changed. |

**H - fAtrFnt (1 bit):** A bit that specifies that if the **ifnt** field of the XF record specified by the **ixfParent** field of the containing XF record is updated, the corresponding field of the containing XF record will not be set to the same value. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The **ifnt** field of the containing XF record is updated when the corresponding field of the XF record specified by the **ixfParent** field of the containing XF record is changed. |
| 0x1 | The **ifnt** field of the containing XF record is not updated when the corresponding field of the XF record specified by the **ixfParent** field of the containing XF record is changed. |

**I - fAtrAlc (1 bit):** A bit that specifies that if the **alc** field, or the **fWrap** field, or the alcV field, or the fJustLast field, or the trot field, or the cIndent field, or the fShrinkToFit field or the iReadOrder field of the XF record specified by the **ixfParent** field of the containing XF record is updated, the corresponding fields of this structure will not be set to the same values. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The **alc**, **fWrap**, alcV, fJustLast, trot, cIndent, fShrinkToFit, iReadOrder fields are updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |
| 0x1 | The **alc**, **fWrap**, alcV, fJustLast, trot, cIndent, fShrinkToFit, iReadOrder fields are not updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |

**J - fAtrBdr (1 bit):** A bit that specifies that if the **dgLeft** field, or the **dgRight** field, or the **dgTop** field, or the **dgBottom** field, or the **dgDiag** field, or the **icvLeft** field, or the **icvRight** field, or the **grbitDiag** field, or the **icvTop** field, or the **icvBottom** field, or the **icvDiag** field of the XF record specified by the **ixfParent** field of the containing XF record is updated, the corresponding fields of this structure will not be set to the same values. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The **dgLeft**, **dgRight**, **dgTop**, **dgBottom**, **dgDiag**, **icvLeft**, **icvRight**, **grbitDiag**, **icvTop**, **icvBottom**, **icvDiag** fields are updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |
| 0x1 | The **dgLeft**, **dgRight**, **dgTop**, **dgBottom**, **dgDiag**, **icvLeft**, **icvRight**, **grbitDiag**, **icvTop**, **icvBottom**, **icvDiag** fields are not updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |

**K - fAtrPat (1 bit):** A bit that specifies that if the **fls** field, the **icvFore** field, or the **icvBack** field of the XF record specified by the **ixfParent** field of the containing XF record is updated, the corresponding fields of this structure will not be set to the same values. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The **fls**, **icvFore**, and **icvBack** fields are updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |
| 0x1 | The **fls**, **icvFore**, and **icvBack** fields are not updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |

**L - fAtrProt (1 bit):** A bit that specifies that if the **fLocked** field or the **fHidden** field of the XF record specified by the **ixfParent** field of the containing XF record is updated, the corresponding fields of the containing XF record will not be set to the same values. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The **fLocked** and **fHidden** fields of the containing XF record are updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |
| 0x1 | The **fLocked** and **fHidden** fields of the containing XF record are not updated when the corresponding fields of the XF record specified by the **ixfParent** field of the containing XF record are changed. |

**dgLeft (4 bits):** A [BorderStyle](#Section_e6134bd9203f49f1bc777ab3692f2364) that specifies the [**logical left**](#gt_ccc2ab6c-db9b-4c67-9b95-21ce79e7358d) [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad).

**dgRight (4 bits):** A BorderStyle that specifies the [**logical right**](#gt_ef86cf61-a2e3-4130-abc4-9e92dae5a2a7) border formatting.

**dgTop (4 bits):** A BorderStyle that specifies the top border formatting.

**M - dgBottom (4 bits):** A BorderStyle that specifies the bottom border formatting.

**icvLeft (7 bits):** An unsigned integer that specifies the color of the logical left [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c). The value MUST be one of the values specified in [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) or 0. A value of 0 means the logical left border color has not been specified. If this value is 0, then **dgLeft** MUST also be 0.

**icvRight (7 bits):** An unsigned integer that specifies the color of the logical right border. The value MUST be one of the values specified in IcvXF or 0. A value of 0 means the logical right border color has not been specified. If this value is 0, then **dgRight** MUST also be 0.

**N - grbitDiag (2 bits):** An unsigned integer that specifies which diagonal borders are present (if any). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | No diagonal border |
| 0x1 | [**Diagonal-down**](#gt_494c0660-9ece-4dcc-b8d3-1a5616a57782) border |
| 0x2 | [**Diagonal-up**](#gt_d4878a4d-c65e-471d-b9fb-da7a5a5aa929) border |
| 0x3 | Both diagonal-down and diagonal-up |

**icvTop (7 bits):** An unsigned integer that specifies the color of the top border. The value MUST be one of the values specified in IcvXF or 0. A value of 0 means the top border color has not been specified. If this value is 0, then **dgTop** MUST also be 0.

**icvBottom (7 bits):** An unsigned integer that specifies the color of the bottom border. The value MUST be one of the values specified in IcvXF or 0. A value of 0 means the bottom border color has not been specified. If this value is 0 then **dgBottom** MUST also be 0.

**icvDiag (7 bits):** An unsigned integer that specifies the color of the diagonal border. The value MUST be one of the values specified in IcvXF or 0. A value of 0 means the diagonal border color has not been specified. If this value is 0 then **dgDiag** MUST also be 0.

**dgDiag (4 bits):** A BorderStyle that specifies the diagonal border formatting.

**O - fHasXFExt (1 bit):** A bit that specifies whether an [XFExt](#Section_8a19848536094bcb87e741894d48b76a) will extend the information in this XF.

**fls (6 bits):** A [**FillPattern**](#Section_10767248ab464581ae08310ffcbf026b) that specifies the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e). If this value is 1, which specifies a solid fill pattern, then only **icvFore** is rendered.

**icvFore (7 bits):** An IcvXF that specifies the [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a) of the fill pattern.

**icvBack (7 bits):** An unsigned integer that specifies the [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c) of the fill pattern. The value SHOULD[<152>](#Appendix_A_152" \o "Product behavior note 152) be an IcvXF value.

**P - fsxButton (1 bit):** A bit that specifies whether the XF record is attached to a pivot field drop-down button.

**Q - reserved3 (1 bit):** MUST be 0 and MUST be ignored.

### 2.5.21 CFColor

The **CFColor** structure specifies a color in [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) records or in a [SheetExt](#Section_780be3426fd04265aaeba51f422a9c08) 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 |
| xclrType | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xclrValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numTint | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xclrType (4 bytes):** An [**XColorType**](#Section_7f0948f77e7a4ae785e77cdf9b83c22a) that specifies the type of color reference. MUST be different from XCLRNINCHED. MUST be different from XCLRAUTO unless it is contained in a SheetExt record.

**xclrValue (4 bytes):** A structure that specifies the color value. The type of structure depends on the color reference type specified by **xclrType** and MUST be a structure from the following table:

| Value of xclrType | Type |
| --- | --- |
| XCLRAUTO | Ignored |
| XCLRINDEXED | [ColorICV](#Section_dcfc497268fc4425b47d6cee71be72e7) |
| XCLRRGB | [LongRGBA](#Section_ef480296bdc34bcbbd1ecd354b79d7c2)[<153>](#Appendix_A_153" \o "Product behavior note 153) |
| XCLRTHEMED | [ColorTheme](#Section_839c782d4d1a4e88bac58c2335fb7b70) |

**numTint (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the tint and [**shade**](#gt_46cefc61-d599-4408-bd6c-9c3dec0c1db4) value to be applied to the color. MUST be greater than or equal to -1.0 and less than or equal to 1.0

### 2.5.22 CFDatabar

The **CFDatabar** structure specifies the parameters of a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule that uses [**data bar**](#gt_d8d5ab5a-ebee-45a3-bd11-2a5779bb54ed) formatting.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | reserved1 | | | | | | | | A | B | reserved2 | | | | | |
| iPercentMin | | | | | | | | iPercentMax | | | | | | | | color (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cfvoDB1 (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cfvoDB2 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**reserved1 (1 byte):** MUST be zero and MUST be ignored.

**A - fRightToLeft (1 bit):** A bit that specifies whether the data bars are drawn starting from the right of the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). MUST be a value from the following table:

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0x0 | Data bars are drawn starting from the left of the cell |
| 0x1 | Data bars are drawn starting from the right of the cell |

**B - fShowValue (1 bit):** A bit that specifies whether the numerical value of the cell appears in the cell along with the data bar.

**reserved2 (6 bits):** MUST be zero and MUST be ignored.

**iPercentMin (1 byte):** An unsigned integer that specifies the length of a data bar, as a percentage of the cell width, that is applied to cells with values equal to the [CFVO](#Section_3cc68999c2fc4a5792a594c0720779e9) value specified by **cfvoDB1**. MUST be less than or equal to 100.

**iPercentMax (1 byte):**  An unsigned integer that specifies the length of a data bar, as a percentage of the cell width, that is applied to cells with values equal to the CFVO value specified by **cfvoDB2**. MUST be greater than **iPercentMin** and less than or equal to 100.

**color (16 bytes):** A [CFColor](#Section_fd8e679d069f486bab482382cc167305) structure that specifies the color of the data bar.

**cfvoDB1 (variable):** A CFVO that specifies the maximum [**cell value**](#gt_4d48a886-7f1d-4d41-a668-54f7f2f1a966) that will be represented with a minimum width data bar. All cell values that are less than or equal to the CFVO value specified by this field are represented with a data bar of **iPercentMin** percent of the cell width.

**cfvoDB2 (variable):** A CFVO that specifies the minimum cell value that will be represented with a maximum width data bar. All cell values that are greater than or equal to the CFVO value specified by this field are represented with a data bar of **iPercentMax** percent of the cell width.

### 2.5.23 CFExAveragesTemplateParams

This structure specifies the parameters for an above or below average [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule in a containing [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record or [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3) 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 |
| iParam | | | | | | | | | | | | | | | | reserved (14 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iParam (2 bytes):** An unsigned integer that specifies the number of standard deviations above or below the average for the rule. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The threshold is not offset by a multiple of the standard deviation. |
| 0x0001 | The threshold is offset by 1 standard deviation. |
| 0x0002 | The threshold is offset by 2 standard deviations. |

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

### 2.5.24 CFExDateTemplateParams

The **CFExDateTemplateParams** structure specifies parameters for the date-related [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules specified by a [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record or [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3) 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 |
| dateOp | | | | | | | | | | | | | | | | reserved (14 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dateOp (2 bytes):**  An unsigned integer that specifies the type of date comparison. The value of this field MUST be equal to the value that corresponds to the **icfTemplate** field in the containing CF12 record or CFExNonCF12 structure, according to the following table:

| Value of icfTemplate | Value of this field |
| --- | --- |
| 15 | 0 |
| 16 | 6 |
| 17 | 1 |
| 18 | 2 |
| 19 | 5 |
| 20 | 8 |
| 21 | 3 |
| 22 | 7 |
| 23 | 4 |
| 24 | 9 |

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

### 2.5.25 CFExDefaultTemplateParams

This structure specifies that there are no parameters for extensions to [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules specified by [CFEx](#Section_60d13d2f8eb741bf975c8a1a51ad58b6).

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

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

### 2.5.26 CFExFilterParams

The **CFExFilterParams** structure specifies parameters for a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule of type [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | reserved1 | | | | | | iParam | | | | | | | | | | | | | | | | reserved2 (13 bytes) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fTop (1 bit):**  A bit that specifies whether the top or bottom items are displayed with the conditional formatting. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0 | Bottom items are displayed with the conditional formatting |
| 0x1 | Top items are displayed with the conditional formatting |

**B - fPercent (1 bit):** A bit that specifies whether a percentage of the top or bottom items are displayed with the conditional formatting, or whether a set number of the top or bottom items are displayed with the conditional formatting. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0 | A set number of top or bottom items, specified by **iParam,** are displayed with the conditional formatting. |
| 0x1 | A percentage of top or bottom items, specified by **iParam,** are displayed with the conditional formatting |

**reserved1 (6 bits):** MUST be zero and MUST be ignored.

**iParam (2 bytes):**  An unsigned integer that specifies how many values are displayed with the conditional formatting. If **fPercent** equals 1 then this field represents a percent and MUST be less than or equal to 100. Otherwise, this field represents a set number of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) and MUST be less than or equal to 1000.

**reserved2 (13 bytes):** MUST be zero and MUST be ignored.

### 2.5.27 CFExNonCF12

The **CFExNonCF12** structure specifies properties that extend a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule that is specified by a [CF](#Section_d6dcadf27e074f7da60a0f643780225d) 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 |
| icf | | | | | | | | | | | | | | | | cp | | | | | | | | icfTemplate | | | | | | | |
| ipriority | | | | | | | | | | | | | | | | A | B | C | D | E | | | | fHasDXF | | | | | | | |
| dxf (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbTemplateParm | | | | | | | | rgbTemplateParms (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**icf (2 bytes):** An unsigned integer that specifies a zero-based index of a CF record in the collection of CF records directly following the [CondFmt](#Section_03ae6098bdc2475bba2cb8aef7882174) record that is referenced by the parent [CFEx](#Section_60d13d2f8eb741bf975c8a1a51ad58b6) record with the **nID** field. The referenced CF specifies the conditional formatting rule to be extended.

**cp (1 byte):** An unsigned integer that specifies the type of comparison operation to use when the **ct** field of the CF record referenced by the **icf** field of this structure is equal to 0x01. MUST be zero when the **ct** field of the CF record is not equal to 1. SHOULD[<154>](#Appendix_A_154" \o "Product behavior note 154) be equal to the **cp** field in the referenced CF record.

In the following table, *v* represents the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) value, and *v1* and *v2* represent the results of evaluating the formulas specified by **rgce1** and **rgce2** fields of the referenced CF record specified by icf. The value of this field MUST be a value from the following table:

| Value | Comparison Operation |
| --- | --- |
| 0x00 | No comparison |
| 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* |

**icfTemplate (1 byte):**  An unsigned integer that specifies the template from which the rule was created. MUST be the least significant byte of one of the valid values specified for the **icfTemplate** field in the [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record.

**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 structures in the [worksheet](#Section_f41c06f2905749a18c3fa4a4d211fc56) substream.

**A - fActive (1 bit):** A bit that specifies whether the rule is active. If set to zero, the rule will 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 |

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

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

**E - reserved2 (4 bits):** MUST be zero and MUST be ignored.

**fHasDXF (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether cell formatting data is part of this record extension. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | No formatting data in this record extension. |
| 0x01 | Formatting data is part of this record extension. |

**dxf (variable):** A [DXFN12](#Section_d25951d951fb48f2863aa53d6508c96a) structure that specifies the format to use for cells that satisfy the condition. MUST NOT be present when **fHasDXF** is zero.

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

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

### 2.5.28 CFExTemplateParams

The **CFExTemplateParams** structure specifies parameters for [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules of type [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) or [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3). The type of this structure depends on the **icfTemplate** field in the containing structure as specified in the following table:

| Value of icfTemplate | Type of CFExTemplateParams |
| --- | --- |
| 0x05 | [CFExFilterParams](#Section_796db4e443e043a5a4f367a43b3bd38d) |
| 0x08 | [CFExTextTemplateParams](#Section_b56ff81d920746a2b9a61d14a79fb37d) |
| 0x0F | [CFExDateTemplateParams](#Section_a079f971f12f438fa1273dee84e94034) |
| 0x10 | CFExDateTemplateParams |
| 0x11 | CFExDateTemplateParams |
| 0x12 | CFExDateTemplateParams |
| 0x13 | CFExDateTemplateParams |
| 0x14 | CFExDateTemplateParams |
| 0x15 | CFExDateTemplateParams |
| 0x16 | CFExDateTemplateParams |
| 0x17 | CFExDateTemplateParams |
| 0x18 | CFExDateTemplateParams |
| 0x19 | [CFExAveragesTemplateParams](#Section_6b440d012af74e72ac36b6ac189edb80) |
| 0x1A | CFExAveragesTemplateParams |
| 0x1D | CFExAveragesTemplateParams |
| 0x1E | CFExAveragesTemplateParams |
| other | [CFExDefaultTemplateParams](#Section_c8f156b610ec4594adb1c734fbb1fc11) |

### 2.5.29 CFExTextTemplateParams

The **CFExTextTemplateParams** structure specifies parameters for text-related [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules as specified by a [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record or [CFExNonCF12](#Section_bc6f3168a2fd4f268cdcd0a11b5f6ac3) 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 |
| ctp | | | | | | | | | | | | | | | | reserved (14 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ctp (2 bytes):** An unsigned integer that specifies the type of text rule. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Text contains |
| 0x0001 | Text does not contain |
| 0x0002 | Text begins with |
| 0x0003 | Text ends with |

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

### 2.5.30 CFFilter

The **CFFilter** structure specifies the parameters of a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule of type [**top N filter**](#gt_0f30d3fd-cc8f-4c20-ab45-4ccbb3f834d9).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cbFilter | | | | | | | | | | | | | | | | reserved1 | | | | | | | | A | B | reserved2 | | | | | |
| iParam | | | | | | | | | | | | | | | |

**cbFilter (2 bytes):** An unsigned integer that specifies the size of the structure in bytes, excluding the **cbFilter** field itself.

**reserved1 (1 byte):** MUST be zero and MUST be ignored.

**A - fTop (1 bit):** A bit that specifies whether the top or bottom items are displayed with the conditional formatting. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0 | Bottom items are displayed with the conditional formatting |
| 0x1 | Top items are displayed with the conditional formatting |

**B - fPercent (1 bit):** A bit that specifies whether a percentage of top or bottom items are displayed with the conditional formatting, or a set number of top or bottom items are displayed with the conditional formatting. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x0 | Top or bottom **iParam** items are displayed with the conditional formatting. |
| 0x1 | Top or bottom **iParam** percent of items are displayed with the conditional formatting |

**reserved2 (6 bits):** MUST be zero and MUST be ignored.

**iParam (2 bytes):** An unsigned integer that specifies how many values are displayed with the conditional formatting. If **fPercent** is set to 1 then this field represents a percent and MUST be less than or equal to 100, otherwise this field is a number of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) and MUST be less than or equal to 1000.

### 2.5.31 CFFlag

The **CFFlag** structure specifies the conditional format flag 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 |
| iIconSet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iIcon | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iIconSet (4 bytes):** A [KPISets](#Section_496a1c964a764e1fa097f59d7ae7a296) that identifies an [**icon set**](#gt_15e781d5-cddc-4852-b031-1ebc6b601ca9).

**iIcon (4 bytes):** A signed integer that specifies an [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) in the set. The value of this field changes the [**sort order**](#gt_58099001-70b9-4664-91fa-6035629bccb7) for custom sorts that are based on icon sets.

MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | No icon |
| 0 | First icon in the icon set |
| 1 | Second icon in the icon set |
| 2 | Third icon in the icon set |
| 3 | Fourth icon in the icon set |
| 4 | Fifth icon in the icon set |

### 2.5.32 CFGradient

The **CFGradient** structure specifies the parameters of a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule that uses [**color scale**](#gt_11144129-6c0d-4ad5-ba59-59439c4747db) formatting. Color scale formatting maps [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) values to colors through the following process:

1. An interpolation curve maps cell values to values between 0 and 1. The first and last control points, as specified in **rgInterp**, specify the cell values that map to 0 and 1 respectively.

2. A gradient curve maps values between 0 and 1 to colors.

Both curves are determined by two or three control points, with linear interpolation between those points.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | reserved1 | | | | | | | | cInterpCurve | | | | | | | |
| cGradientCurve | | | | | | | | A | B | reserved2 | | | | | | rgInterp (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgCurve (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**reserved1 (1 byte):** MUST be zero and MUST be ignored.

**cInterpCurve (1 byte):** An unsigned integer that specifies the number of control points in the interpolation curve. It MUST be 0x2 or 0x3.

**cGradientCurve (1 byte):** An unsigned integer that specifies the number of control points in the gradient curve. It MUST be equal to **cInterpCurve**.

**A - fClamp (1 bit):** A bit that specifies that the cell values are not used when they are out of the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of the interpolation curve. The minimum or the maximum of the interpolation curve is used instead of the cell value. The value SHOULD[<155>](#Appendix_A_155" \o "Product behavior note 155) be 1.

**B - fBackground (1 bit):** A bit that specifies that the color scale formatting applies to the background of the cells. It MUST be 1.

**reserved2 (6 bits):** MUST be zero and MUST be ignored.

**rgInterp (variable):** An array of [CFGradientInterpItem](#Section_166c53dcedc940a7bd1e128b7268e344). Each element is a control point of the interpolation curve. Its element count MUST be **cInterpCurve**.

**rgCurve (variable):** An array of [CFGradientItem](#Section_84cb4bf333d14fa39346e0c2c8cbb768). Each element is a control point of the gradient curve. Its element count MUST be **cGradientCurve**.

### 2.5.33 CFGradientInterpItem

The **CFGradientInterpItem** structure specifies one control point in the interpolation curve. The interpolation curve maps [**cell values**](#gt_4d48a886-7f1d-4d41-a668-54f7f2f1a966) to colors for a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule using [**color scale**](#gt_11144129-6c0d-4ad5-ba59-59439c4747db) formatting. The color is specified as the numerical value associated with the color in the corresponding **CFGradient.rgCurve** array of the containing [CFGradient](#Section_dd6c7ea2f6a945e092530989a7aa8421) 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 |
| cfvoInterp (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numDomain | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cfvoInterp (variable):** A [CFVO](#Section_3cc68999c2fc4a5792a594c0720779e9) structure that specifies the cell value associated with the numerical valuespecified in **numDomain**.

**numDomain (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) structure that specifies the numerical value of this control point. MUST be equal to 0.0 if the structure is the first item in the **rbct.rgInterp** array of the containing [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record. MUST be equal to 1.0 if this structure is the last item in the **rbct.rgInterp** array of the containing CF12 record. MUST be equal to 0.5 if this structure is the second item in the **rbct.rgInterp** array of the containing CF12 recordand **rbct.cInterpCurve** field of the containing CF12 recordis equal to 0x03.

### 2.5.34 CFGradientItem

The **CFGradientItem** structure specifies one control point in the gradient curve. The gradient curve specifies a [**color scale**](#gt_11144129-6c0d-4ad5-ba59-59439c4747db) used in [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) and maps numerical values to colors.

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

**numGrange (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the numerical value of the control point. MUST be equal to 0.0 if this structure is the first element in the **rbct.rgcurve** array of the containing [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record. MUST be equal to 1.0 if this structure is the last element in the **rbct.rgcurve** array of the containing CF12 record. MUST be equal to 0.5 if this structure is the second element in the **rbct.rgcurve** array of the containing CF12 recordand the **rbct.cInterpCurve** field of the containing CF12 recordis equal to 0x03.

**color (16 bytes):** A [CFColor](#Section_fd8e679d069f486bab482382cc167305) that specifies the color associated with the numerical valuespecified in **numGrange**.

### 2.5.35 CFMStateItem

The **CFMStateItem** structure specifies the threshold value associated with an [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) for a [CFMultistate](#Section_6c80a1a1f8c34352891c31c5ee418ffd) [**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 |
| cfvo (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fEqual | | | | | | | | unused | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**cfvo (variable):** A [CFVO](#Section_3cc68999c2fc4a5792a594c0720779e9) that specifies the threshold value.

**fEqual (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | [**Cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) values that are equal to the threshold value do not pass the threshold |
| 0x01 | Cell values that are equal to the threshold value pass the threshold. |

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

### 2.5.36 CFMultistate

The **CFMultistate** structure specifies the parameters for a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule that represents [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) values with icons from an [**icon set**](#gt_15e781d5-cddc-4852-b031-1ebc6b601ca9).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | reserved1 | | | | | | | | cStates | | | | | | | |
| iIconSet | | | | | | | | A | B | C | reserved3 | | | | | rgStates (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**reserved1 (1 byte):** MUST be zero and MUST be ignored.

**cStates (1 byte):** An unsigned integer that specifies the number of items in the icon set. MUST be the value from the following table:

| Value of iIconSet | Value of cStates |
| --- | --- |
| Between 0x00 and 0x07 included | 0x03 |
| Between 0x08 and 0x0C included | 0x04 |
| Between 0x0D and 0x10 included | 0x05 |

**iIconSet (1 byte):** An unsigned integer that specifies the icon set that represents the cell values. MUST be the value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | 3 colored arrows. Green pointing up, yellow pointing right, red pointing down |
| 0x01 | 3 gray arrows. One pointing up, one pointing right, one pointing down |
| 0x02 | 3 colored flags. One green, one yellow, one red |
| 0x03 | 3 round traffic lights. One green, one yellow, one red. |
| 0x04 | 3 colored signs. One green circle, one yellow triangle, one red diamond |
| 0x05 | 3 round traffic lights with black rectangle borders. One green, one yellow, one red. |
| 0x06 | 3 colored symbols. One green circle with check mark in center, one yellow circle with exclamation poin in center, one red circle with X in center |
| 0x07 | 3 colored symbols. One green check mark, one yellow exclamation point, one red X |
| 0x08 | 4 colored arrows. Green arrow pointing up. Yellow arrow pointing upwards at 45 degree angle. One yellow arrow pointing downwards at 45 degree angle. One red arrow pointing down. |
| 0x09 | 4 gray arrows. Aarrow pointing up. Arrow pointing upwards at 45 degree angle. Arrow pointing downwards at 45 degree angle. Arrow pointing down. |
| 0x0A | Four circles red to black. Bright red circle. faded red circle. Faded gray circle. Black circle |
| 0x0B | 4 sets of 4 vertical bars. Each bar in set is taller than the previous, angling upwards from left to right. First set has first bar filled in, rest are grey. Second set has first 2 bars filled in, rest are grey. Third set has first 3 bars filled in, last is gray. Fourth set has all 4 bars filled in. |
| 0x0C | 4 round traffic lights. One green, one yellow, one red, one black |
| 0x0D | 5 colored arrows. One green arrow pointing up. One yellow arrow pointing upwards at 45 degree angle. One yellow arrow pointing right. One yellow arrow pointing downwards at 45 degree angle. One red arrow pointing down. |
| 0x0E | 5 gray arrows. One arrow pointing up. One arow pointing upwards at 45 degree angle. One arrow pointing right. One arrow pointing downwards at 45 degree angle. One arrow pointing down. |
| 0x0F | 5 sets of 5 vertical bars for rating.  Each bar in set is taller than the previous, angling upwards from left to right. First set has all 5 bars filled in. Second set has first 4 bars filled in, the last is grey. Third set has first 2 bars filled in, rest are gray. Fourth set has 0 bars filled in. |
| 0x10 | 5 circles divided into quarters. First circle has all 4 quarters filled in black. Second ircle has 3 quarters filled in black. Third circle has 2 quarters filled in black. Fourth circle has 1 quarter filled in black. Fifth circle has 0 quarters filled in black. |

**A - fIconOnly (1 bit):** A bit that specifies whether only the [**icon**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) will be displayed in the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and that the cell value will be [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd).

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

**C - fReverse (1 bit):** A bit that specifies whether the order of the icons in the set is reversed.

**reserved3 (5 bits):** MUST be zero and MUST be ignored.

**rgStates (variable):** An array of [CFMStateItem](#Section_c7cb11a422424d53aadb8a2447aa858c). Each element specifies a threshold for the respective icon in the set, below which cell values are represented by the next icon in the set. The element count MUST be equal to **cStates**.

### 2.5.37 CFrtId

The **CFrtId** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [Future Record Type](#Section_b660b67822684414839ed1ae9a4e4e85) identifier values.

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

**rtFirst (2 bytes):**  An unsigned integer that specifies the first Future Record Type in the range. The value MUST be less than or equal to **rtLast**.

**rtLast (2 bytes):**  An unsigned integer that specifies the last Future Record Type in the range.

### 2.5.38 CFT

The **CFT** enumeration specifies [**custom filter**](#gt_8593ee2f-c2dd-4793-a684-45fe40c840d2) types.

| Name | Value | Meaning |
| --- | --- | --- |
| **CFTNIL** | 0x00000000 | None |
| **CFTTOP10** | 0x00000003 | [**Top N filter**](#gt_0f30d3fd-cc8f-4c20-ab45-4ccbb3f834d9) |
| **CFTEQUALDATE** | 0x00000004 | Equal to date |
| **CFTBEFORE** | 0x00000005 | Before |
| **CFTAFTER** | 0x00000006 | After |
| **CFTBETWEENDATE** | 0x00000007 | Between dates |
| **CFTTOMORROW** | 0x00000008 | Tomorrow |
| **CFTTODAY** | 0x00000009 | Today |
| **CFTYESTERDAY** | 0x0000000A | Yesterday |
| **CFTNEXTWEEK** | 0x0000000B | Next week |
| **CFTTHISWEEK** | 0x0000000C | This week |
| **CFTLASTWEEK** | 0x0000000D | Last week |
| **CFTNEXTMONTH** | 0x0000000E | Next month |
| **CFTTHISMONTH** | 0x0000000F | This month |
| **CFTLASTMONTH** | 0x00000010 | Last month |
| **CFTNEXTQUARTER** | 0x00000011 | Next quarter |
| **CFTTHISQUARTER** | 0x00000012 | This quarter |
| **CFTLASTQUARTER** | 0x00000013 | Last quarter |
| **CFTNEXTYEAR** | 0x00000014 | Next year |
| **CFTTHISYEAR** | 0x00000015 | This year |
| **CFTLASTYEAR** | 0x00000016 | Last year |
| **CFTYEARTODATE** | 0x00000017 | Year to date |
| **CFTQ1** | 0x00000018 | First quarter |
| **CFTQ2** | 0x00000019 | Second quarter |
| **CFTQ3** | 0x0000001A | Third quarter |
| **CFTQ4** | 0x0000001B | Fourth quarter |
| **CFTM1** | 0x0000001C | January |
| **CFTM2** | 0x0000001D | February |
| **CFTM3** | 0x0000001E | March |
| **CFTM4** | 0x0000001F | April |
| **CFTM5** | 0x00000020 | May |
| **CFTM6** | 0x00000021 | June |
| **CFTM7** | 0x00000022 | July |
| **CFTM8** | 0x00000023 | August |
| **CFTM9** | 0x00000024 | September |
| **CFTM10** | 0x00000025 | October |
| **CFTM11** | 0x00000026 | November |
| **CFTM12** | 0x00000027 | December |
| **CFTNOTEQUALDATE** | 0x00000028 | Does not equal date |
| **CFTBEFOREOREQUAL** | 0x00000029 | Equal or earlier date |
| **CFTAFTEROREQUAL** | 0x0000002A | Equal or later date |
| **CFTNOTBETWEENDATE** | 0x0000002B | Not between two dates |

### 2.5.39 CFVO

The **CFVO** structure specifies a Conditional Formatting Value Object (CFVO) that specifies how to calculate a value from the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells that a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule applies to.

The value this structure specifies how to calculate is referred to as a CFVO value in other 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 |
| cfvoType | | | | | | | | fmla (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numValue (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cfvoType (1 byte):** An unsigned integer that specifies how the CFVO value is determined. In the following table, X represents a parameter value. If **fmla.cce** is greater than zero, then X is the result of evaluating **fmla,** otherwise, X is **numValue.**  **cfvoType** MUST be one of the following values:

| Value | Meaning of CFVO Value |
| --- | --- |
| 0x01 | X |
| 0x02 | The minimum value from the range of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that the conditional formatting rule applies to. |
| 0x03 | The maximum value from the range of cells that the conditional formatting rule applies to. |
| 0x04 | The minimum value in the range of cells that the conditional formatting rule applies to plus X percent of the difference between the maximum and minimum values in the range of cells that the conditional formatting rule applies to.  For example, if the min and max values in the range are 1 and 10 respectively, and X is 10, then the CFVO value is 1.9. |
| 0x05 | The minimum value of the cell that is in X percentile of the range of cells that the conditional formatting rule applies to. |
| 0x07 | The result of evaluating **fmla**. |

**fmla (variable):**  A [CFVOParsedFormula](#Section_acaed9664eee4578ae5ba23a781a8944) that specifies the formula used to calculate the CFVO value. If **cfvoType** is 0x07, then **fmla.cce** MUST be greater than zero.

**numValue (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies a static value used to calculate the CFVO value. MUST be omitted if **fmla.cce** is greater than zero, or if **cfvoType** is equal to 0x02 or 0x03. MUST be greater than 0.0 and less than 100.0 if **cfvoType** is either 0x04 or 0x05

### 2.5.40 ChartNumNillable

**ChartNumNillable** is an 8-byte union that specifies a floating-point value, or a non-numeric value defined by the containing record. The type and meaning of the union contents are determined by the most significant 2 bytes, and is defined in the following table:

| Value of most significant 2 bytes | Type and meaning of union contents |
| --- | --- |
| 0xFFFF | A [NilChartNum](#Section_8adcc3efb44f41e09375535cb2b87ff3) that specifies a non-numeric value, as defined by the containing record. |
| Any other value. | An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies a floating-point value. |

### 2.5.41 Col

The **Col** structure specifies the zero-based column index of a column 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 |
| col | | | | | | | | | | | | | | | |

**col (2 bytes):**  An unsigned integer that specifies the zero-based column index of the column in the sheet that contains this structure. MUST be greater than or equal to the **colMic** field of the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record of the sheet that contains this structure and MUST be less than the **colMac** field of the Dimensions record of the sheet that contains this structure. MUST be less than or equal to 0x00FF.

### 2.5.42 Col\_NegativeOne

The **Col\_NegativeOne** structure specifies the zero-based index of a column 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 |
| col | | | | | | | | | | | | | | | |

**col (2 bytes):** A signed integer that specifies the zero-based index of a column in the sheet that contains this structure. The value 0xFFFF specifies a null column index. MUST be greater than or equal to 0xFFFF and less than or equal to 0x00FF.

### 2.5.43 Col12

The **Col12** structure specifies the zero-based index of a column 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 |
| col | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**col (4 bytes):** A signed integer that specifies a zero-based index of the sheet. MUST be greater than or equal to zero, and MUST be less than or equal to 0x3FFF.

### 2.5.44 Col256U

The **Col256U** structure specifies the zero-based index of a column 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 |
| col | | | | | | | | | | | | | | | |

**col (2 bytes):** An unsigned integer that specifies the zero-based index of a column in the sheet that contains this structure. MUST be less than or equal to 0x0100. The value 0x0100 specifies that the formatting in the containing record also specifies the default column formatting. If additional columns become [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72) at the extreme right of the column [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) because of column deletion, those columns have this default formatting applied.

### 2.5.45 ColByte

The **ColByte** structure specifies the zero-based index of a column 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 |
| col | | | | | | | |

**col (1 byte):** An unsigned integer that specifies the zero-based index of the column in the sheet that contains this structure. MUST be greater than or equal to the **colMic** field of the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record of the sheet that contains this structure and MUST be less than the **colMac** field of the Dimensions record of the sheet that contains this structure.

### 2.5.46 ColByteU

The **ColByteU** structure specifies the zero-based index of a column 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 |
| col | | | | | | | |

**col (1 byte):** An unsigned integer that specifies the zero-based index of a column in the sheet that contains this structure.

### 2.5.47 ColElfU

The **ColElfU** structure specifies the zero-based index of a column in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and [**relative reference**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) information for this column index and a corresponding row index.

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

**col (14 bits):** An unsigned integer that specifies the zero-based index of a column in the sheet that contains this structure. MUST be less than or equal to 0x00FF.

**A - fQuoted (1 bit):** A bit that specifies if the label occurrences in the [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) are surrounded by single quote characters.

**B - fRelative (1 bit):**  A bit that specifies whether a corresponding row index from the containing structure and **column** are relative or absolute. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | A corresponding row index from the containing structure and **column** are absolute coordinates and are specified by a fixed position in a sheet. |
| 0x1 | A corresponding row index from the containing structure and **column** are relative coordinates and are specified by their position in relation to the current row or current column. |

### 2.5.48 ColorICV

The **ColorICV** structure specifies a color in the color table.

This structure differs from the [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) structure in size (4 bytes versus 7 bits), and the validity of the values 0x40 and 0x41.

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

**iCV (4 bytes):** An unsigned integer that specifies a color in the color table. The value MUST be an IcvXF value. The value MUST NOT be 0x00000040 or 0x00000041.

### 2.5.49 ColorTheme

The **ColorTheme** structure specifies a color from the document’s [**theme**](#gt_8b5eb4c0-949b-47d9-8b63-b9bda81d61b8).

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

**iCV (4 bytes):** An unsigned integer that specifies one of the colors defined in the [**color scheme**](#gt_b0feeac6-f711-4ed7-b8c6-3a490734a9e5) of the document’s [Theme](#Section_0a793062989d4e66b765ba483d594979) record. MUST be one of the following values:

| Value | Color from the color scheme |
| --- | --- |
| 0x00000000 | Dark 1 |
| 0x00000001 | Light 1 |
| 0x00000002 | Dark 2 |
| 0x00000003 | Light 2 |
| 0x00000004 | Accent 1 |
| 0x00000005 | Accent 2 |
| 0x00000006 | Accent 3 |
| 0x00000007 | Accent 4 |
| 0x00000008 | Accent 5 |
| 0x00000009 | Accent 6 |
| 0x0000000A | [**Hyperlink**](#gt_dbe6a2d4-1841-4b4a-a9f6-562c6df7897e) |
| 0x0000000B | [**Followed hyperlink**](#gt_7ddfa06d-f75c-47d3-b7b7-8a3a4aa47975) |

If this structure is contained in a [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record, the value MUST be different from 0x0000000B.

### 2.5.50 ColRelNegU

The **ColRelNegU** structure specifies the zero-based column index of a column in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) offset information for this column index and a corresponding row index.

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

**col (14 bits):** A signed integer that specifies the zero-based column index or offset of a column in the sheet that contains this structure. MUST be greater than or equal to -255 be less than or equal to 255.

**A - colRelative (1 bit):** A bit that specifies whether **col** is an offset.

**B - rowRelative (1 bit):** bit that specifies whether a row index corresponding to **col** in the structure containing this structure is an offset.

### 2.5.51 ColRelU

The **ColRelU** structure specifies the zero-based index of a column in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and [**relative reference**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) information for this column index and a corresponding row index.

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

**col (14 bits):** An unsigned integer that specifies the zero-based index of a column in the sheet that contains this structure. MUST be less than or equal to 0x00FF.

**A - colRelative (1 bit):** A bit that specifies whether **col** is a relative reference.

**B - rowRelative (1 bit):** A bit that specifies whether a row index corresponding to **col** in the structure containing this structure is a relative reference.

### 2.5.52 ColSlco8U

The **ColSlco8U** structure specifies the zero-based index of a column in a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) and information about whether a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) has been deleted.

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

**col (14 bits):** An unsigned integer that specifies the zero-based index of a column in the sheet that contains this structure. MUST be less than or equal to 0x00FF.

**A - fDeleted (1 bit):** A bit that specifies whether the cell that is referenced by the containing structure, has been deleted. When set to 1, the [**cell reference**](#gt_4d15aeb2-3a7d-44d7-b8d1-8a441f1cc24f) of the containing structure MUST be ignored.

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

### 2.5.53 ColU

The **ColU** structure specifies the zero-based index of a column 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 |
| col | | | | | | | | | | | | | | | |

**col (2 bytes):** An unsigned integer that specifies the zero-based index of a column in the sheet that contains this structure. MUST be less than or equal to 0x00FF.

### 2.5.54 Colx

The **Colx** structure specifies the zero-based column index of a column 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 |
| col | | | | | | | | | | | | | | | |

**col (2 bytes):**  An unsigned integer that specifies the zero-based column index of a column in the sheet. The value MUST be 0, 0xFF or be greater than or equal to the **colMic** field of the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record of the sheet that contains this structure and less than the **colMac** field of the Dimensions record of the sheet that contains this structure.

### 2.5.55 CondDataValue

The **CondDataValue** structure specifies the conditional data 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 |
| condDataValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**condDataValue (4 bytes):** An unsigned integer that specifies a conditional data value. If [SortCond12](#Section_aead0d48db9045009e5638cb2b259622).**sortOn** is 0x1 or 0x2, it specifies the zero-based index of a [DXF](#Section_ea2a96e15ec343d08b979fa0b7e9fc27) record in the collection of DXF records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced DXF specifies the formatting. If SortCond12.**sortOn** is 0x0, this MUST be zero, and MUST be ignored.

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

### 2.5.56 CondFmtStructure

The **CondFmtStructure** structure specifies [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rules that are associated with a set of cells in a containing [CondFmt12](#Section_b891e73712f641ddb8a87360a4826d4a) 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 |
| ccf | | | | | | | | | | | | | | | | A | nID | | | | | | | | | | | | | | |
| refBound | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sqref (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ccf (2 bytes):** An unsigned integer that specifies the count of [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) records that follow the containing record. MUST be greater than or equal to 0x0001.

**A - fToughRecalc (1 bit):**  A bit that specifies that the appearance of the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) 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.

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

**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.

### 2.5.57 ConnGrbitDbt

The **ConnGrbitDbt** structure is a 2 byte variable-type structure that specifies [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9) properties for the containing record. Its meaning depends on the value of the **dbt** field of the containing record.

| Value | Meaning |
| --- | --- |
| 4 | A [ConnGrbitDbtWeb](#Section_edd38099e87b4db6b6e28e7c4bef8124) that specifies the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) flags for a Web data connection. |
| 5 | A [ConnGrbitDbtOledb](#Section_b6e55e1249014c8f827e3110cfee247c) that specifies the query flags for an [**OLE DB**](#gt_333f4fb1-4882-48df-bce6-f9961b408f31) data connection. |
| 7 | A [ConnGrbitDbtAdo](#Section_ccb9eb2c0b03446a88dd6b21ce748aa8) that specifies the query flags for an [**ADO**](#gt_3477d72a-874b-4a2a-b6a9-1431c128df49) data connection. |
| Any other value | A 2 byte unsigned integer. Unused and MUST be 0. |

### 2.5.58 ConnGrbitDbtAdo

The **ConnGrbitDbtAdo** structure specifies the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) flags for an [**ADO**](#gt_3477d72a-874b-4a2a-b6a9-1431c128df49) 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 |
| reserved1 | | | | | | | | A | reserved2 | | | | | | |

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

**A - fAdoRefreshable (1 bit):**  A bit that specifies if the ADO query can be refreshed.

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

### 2.5.59 ConnGrbitDbtOledb

The **ConnGrbitDbtOledb** structure specifies the [external connection](#Section_69df8d03b6fd45cda0a09b026e50a3d9) properties for an [**OLE DB**](#gt_333f4fb1-4882-48df-bce6-f9961b408f31) 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 |
| dbost | | | A | B | C | D | E | F | G | H | I | J | | | |

**dbost (3 bits):** An unsigned integer that specifies the OLE DB command type. This field applies to the database command strings that are saved with the parent records. MUST be a value from the following table:

| Name | Value | Meaning |
| --- | --- | --- |
| CMDNULL | 0x0 | The string is not specified. |
| CMDCUBE | 0x1 | The string specifies the name of a [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7) within an [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) database, see also [OLAP Connections](#Section_068796f9e5154dab8e69f9a7b52aaa9a). |
| CMDSQL | 0x2 | The string specifies an [**SQL**](#gt_37416b0f-ca5b-4fac-96e5-082eb80a3d84) statement. |
| CMDTABLE | 0x3 | The string specifies a database table name. |
| CMDDEFALT | 0x4 | The string specifies a statement in the default language of the database. |
| CMDSPLIST | 0x5 | The string specifies a list from a Web-based data provider. |

**A - fLocalConn (1 bit):** A bit that specifies which connection string to use for this external connection. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Uses the main connection string, as specified by a value of 0 in the **fLocal** field in [OleDbConn](#Section_b234c71728dc41f39016786cd68321e4), or by a value of 0 or 1 in the **rgIOleDbValid** of a [DConnConnectionOleDb](#Section_f80a92289cd64fd79be298c0953866fa). |
| 0x1 | Uses the alternate connection string, as specified by a value of 1 in the **fLocal** field in OleDbConn, or by a value of 2 or 3 in the **rgIOleDbValid** of a DConnConnectionOleDb. |

**B - fNoRefreshCube (1 bit):**  A bit that specifies whether any local cache of data from the OLAP [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) is to be flushed when the a refresh is done. The value zero specifies any local cache of data from the OLAP data source is to be flushed when the a refresh is done. MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**C - fUseOfficeLcid (1 bit):**  A bit that specifies whether the user’s [**locale**](#gt_7b78ebef-e35d-45ab-abfd-4121b60995de) information is provided to the OLAP data source for retrieval of translated data and errors. MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**D - fSrvFmtNum (1 bit):**  A bit that specifies whether to apply OLAP data source number formatting to the [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3). MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**E - fSrvFmtBack (1 bit):**  A bit that specifies whether to apply OLAP data source [**fill**](#gt_215c1c51-d5ef-46af-8596-d7ef63c1fe89) colors to the PivotTable. MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**F - fSrvFmtFore (1 bit):**  A bit that specifies whether to apply OLAP data source [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) colors to the PivotTable. MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**G - fSrvFmtFlags (1 bit):**  A bit that specifies whether to apply OLAP data source font formatting to the PivotTable. MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**H - fSupportsLangCellProp (1 bit):**  A bit that specifies whether the user’s locale information is provided to the OLAP data source to support [**member (2)**](#gt_5d78ca78-a9b1-4791-8126-bf9494304b11) [**localization**](#gt_c26ef2a9-60ae-4cba-a409-5202571f152c). MUST be zero and MUST be ignored if the **dbost** fielddoes not equal 0x1.

**I - fSrvSupportsClientCube (1 bit):** A bit that specifies that the server supports local embedded data storage.

**J - reserved (4 bits):** MUST be zero and MUST be ignored.

### 2.5.60 ConnGrbitDbtWeb

The **ConnGrbitDbtWeb** structure specifies the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) flags for a Web 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 |
| A | B | C | D | E | F | reserved | | | | | | | | | |

**A - fParsePreFormatted (1 bit):**  A bit that specifies how text enclosed in <PRE> tags is handled.

| Value | Meaning |
| --- | --- |
| 0x0 | Each row of text enclosed in <PRE> tags will be imported as a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). |
| 0x1 | The text is parsed as tables. |

**B - fConsecDelim (1 bit):**  A bit that specifies how consecutive delimiters are treated.

| Value | Meaning |
| --- | --- |
| 0x0 | Each consecutive delimiter is treated as a separate delimiter. |
| 0x1 | Consecutive delimiters is treated as a single delimiter. |

**C - fSameSettings (1 bit):**  A bit that specifies how tables inside <PRE> blocks are parsed.

| Value | Meaning |
| --- | --- |
| 0x0 | Each [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) is parsed separately. |
| 0x1 | All tables are parsed with the same width settings as the first row of the first table. |

**D - fXL97Format (1 bit):**  A bit that specifies whether the query was created by a specific version of the application[<156>](#Appendix_A_156" \o "Product behavior note 156).

| Value | Meaning |
| --- | --- |
| 0x0 | The query was created by specific versions of the application[<157>](#Appendix_A_157" \o "Product behavior note 157). |
| 0x1 | The query was created by a specific version of the application[<158>](#Appendix_A_158" \o "Product behavior note 158). |

**E - fNoDateRecog (1 bit):**  A bit that specifies how dates are imported.

| Value | Meaning |
| --- | --- |
| 0x0 | Dates are imported as values of type date. |
| 0x1 | Dates are imported as text. |

**F - fRefreshedInXl9 (1 bit):**  A bit that specifies whether the query was refreshed in a specific version of the application[<159>](#Appendix_A_159" \o "Product behavior note 159).

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

### 2.5.61 ControlInfo

The **ControlInfo** structure specifies the properties of some [**form**](#gt_c7858bfa-d4d2-48a7-ac9c-d2e90fbe3590) control in a [Dialog Sheet](#Section_da37feb48b9a462d87772a5fddd4866e). The control MUST be a group, radio button, label, button or checkbox.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | reserved1 | | | | | | | | | | | | accel1 | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | |

**A - fDefault (1 bit):** A bit that specifies whether this control dismisses the Dialog Sheet and performs the default behavior. If the control is not a button, the value MUST be 0.

**B - fHelp (1 bit):** A bit that specifies whether this control is intended to load context-sensitive help for the Dialog Sheet. If the control is not a button, the value MUST be 0.

**C - fCancel (1 bit):** A bit that specifies whether this control dismisses the Dialog Sheet and take no action. If the control is not a button, the value MUST be 0.

**D - fDismiss (1 bit):** A bit that specifies whether this control dismisses the Dialog Sheet. If the control is not a button, the value MUST be 0.

**reserved1 (12 bits):** MUST be zero and MUST be ignored.

**accel1 (2 bytes):** A signed integer that specifies the [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) character of the control’s [**accelerator key**](#gt_d61b4a07-b6c1-4c08-9ebd-1d00b360f953). The value MUST be greater than or equal to 0x0000. A value of 0x0000 specifies there is no accelerator associated with this control.

**reserved2 (2 bytes):**  Reserved. MUST be 0x0000.

### 2.5.62 CrtLayout12Mode

The **CrtLayout12Mode** record specifies a layout mode. Each layout mode specifies a different meaning of the **x**, **y**, **dx**, and **dy** fields of [CrtLayout12](#Section_ff69b6f84d7943c5a983a1c8b9496665) and [CrtLayout12A](#Section_c8859c5c5bc14de3810f50d3c176ab51).

| Name | Value | Meaning |
| --- | --- | --- |
| **L12MAUTO** | 0x0000 | Position and [**dimension (2)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) are determined by the application. **x**, **y**, **dx** and **dy** MUST be ignored. |
| **L12MFACTOR** | 0x0001 | **x** and **y** specify the offset of the top left corner, relative to its default position, as a fraction of the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)). MUST be greater than or equal to -1.0 and MUST be less than or equal to 1.0. **dx** and **dy** specify the width and height, as a fraction of the chart area, MUST be greater than or equal to 0.0, and MUST be less than or equal to 1.0. |
| **L12MEDGE** | 0x0002 | **x** and **y** specify the offset of the upper-left corner; **dx** and **dy** specify the offset of the bottom-right corner. **x**, **y**, **dx** and **dy** are specified relative to the upper-left corner of the chart area (section 2.2.3.17) as a fraction of the chart area. **x**, **y**, **dx** and **dy** MUST be greater than or equal to 0.0, and MUST be less than or equal to 1.0. |

### 2.5.63 DataFunctionalityLevel

The **DataFunctionalityLevel** is a 1 byte unsigned integer that specifies a [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6)[<160>](#Appendix_A_160" \o "Product behavior note 160). SHOULD[<161>](#Appendix_A_161" \o "Product behavior note 161) be 0, 1, or 3. MUST be greater than or equal to 0 and less than or equal to 254.

### 2.5.64 DataSourceType

The **DataSourceType** enumeration specifies the [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) types.

| Name | Value | Meaning |
| --- | --- | --- |
| **DBT\_ODBC** | 0x0001 | [**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e)-based source |
| **DBT\_DAO** | 0x0002 | [**DAO**](#gt_0aa33fda-1d81-4d7a-aa7a-aae64b50674f)-based source |
| **DBT\_WEB** | 0x0004 | [**Web query**](#gt_7f21a511-63e5-43a2-ad46-235ce53af5f2) |
| **DBT\_OLEDB** | 0x0005 | [**OLE DB**](#gt_333f4fb1-4882-48df-bce6-f9961b408f31)-based source |
| **DBT\_TXT** | 0x0006 | Text-based source created via [**text query**](#gt_c636d3ce-a120-4acf-91ac-40b3ec79593a) |
| **DBT\_ADO** | 0x0007 | [**ADO**](#gt_3477d72a-874b-4a2a-b6a9-1431c128df49) record set |

### 2.5.65 DateAsNum

The **DateAsNum** structure specifies a date and time value stored as an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)).

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

**dateNum (8 bytes):**  An Xnum that specifies a date and time value. The value uses the double-precision floating point number in the Xnum structure as follows: The integer part of the number specifies the date as a number of days from a base date[<162>](#Appendix_A_162" \o "Product behavior note 162), and the fractional part specifies the time of day as a fraction of a 24-hour day. The base date for the number of days is determined by the [**date system**](#gt_cfc29c5e-eb23-4077-b6eb-492f20f5c87f) used in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe), as specified by the [Date1904](#Section_4a5e900a0eb043558fc181aab8f46e8b) record in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1), according to the following table:

| Date system | Meaning |
| --- | --- |
| 1900 | A value of 1 to **dateNum** specifies 00:00:00 on January 1, 1900. |
| 1904 | A value of 0 to **dateNum** specifies 00:00:00 on January 1, 1904. |

### 2.5.66 DateUnit

The **DateUnit** enumeration specifies the unit of measurement of a date value.

| Name | Value | Meaning |
| --- | --- | --- |
| **DUDAYS** | 0x0000 | Time value is measured in days. |
| **DUMONTHS** | 0x0001 | Time value is measured in months. |
| **DUYEARS** | 0x0002 | Time value is measured in years. |

### 2.5.67 DCol

The **DCol** structure specifies a count of column indexes 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 |
| dcol | | | | | | | | | | | | | | | |

**dcol (2 bytes):** An unsigned integer that specifies the count of column indexes in a sheet.

### 2.5.68 DColByteU

The **DColByteU** structure specifies a count or difference of column indexes 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 |
| dcol | | | | | | | |

**dcol (1 byte):** An unsigned integer that specifies the count of column indexes in a sheet.

### 2.5.69 DConFile

The **DConFile** structure specifies the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) file or workbook file and [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) that contain a [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). This structure is used by the [DConBin](#Section_d83824fcad44477cbe327da0e694ffcb), [DConRef](#Section_589885b2fd4e4fcc9c8e37fbf7838716) and [DConName](#Section_26ceabe5f33a442f9a0fa3def1c47948) 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 |
| stFile (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**stFile (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the workbook file or workbook file and sheet that contain the range specified in the DConBin, DConRef or DConName record.

MUST be a string that conforms to the following ABNF grammar:

dcon-file = external-virt-path / self-reference

external-virt-path = volume / unc-volume / rel-volume  / transfer-protocol / startup / alt-startup / library /  simple-file-path-dcon

simple-file-path-dcon = %x0001 file-path

self-reference = %x0002 sheet-name

See [VirtualPath](#Section_480c3d2a19d24396964cc16cbe9d1270) for the definition of the volume, unc-volume, rel-volume, transfer-protocol, startup, alt-startup, library, file-path and sheet-name rules used in the [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) grammar.  Note that the volume, unc-volume, rel-volume, transfer-protocol, startup, alt-startup, library, and file-path rules specify that an optional sheet name can be included.

If this structure is contained in a DConName or DConBin record and the [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) has a workbook scope, then this string MUST satisfy the external-virt-path rule and MUST NOT specify a sheet name.  Otherwise a sheet name MUST be specified.

### 2.5.70 DConnConnectionOleDb

The **DConnConnectionOleDb** structure specifies data connection properties of an [**OLE DB**](#gt_333f4fb1-4882-48df-bce6-f9961b408f31) 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 |
| nDrillthroughRows | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cOleDb | | | | | | | | | | | | | | | | rgIOleDbValid (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgIOleDbInvalid (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | | rgConn (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**nDrillthroughRows (4 bytes):** An unsigned integer that specifies the maximum number of rows that the application will retrieve during a [**drillthrough**](#gt_e5a4d8db-0d30-4977-9cab-fb66457f0ff7) operation on a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) based on this data connection.

**cOleDb (2 bytes):** An unsigned integer that specifies the number of [**connection strings**](#gt_03a9d0ca-2f10-4f3d-b910-052714a96f7d) associated with the OLE DB connection specified in **rgConn**. MUST be less than or equal to 4. MUST be equal to 0 if the **fStandAlone** field of the associated [DConn](#Section_a2ace8d3019445709bc5a865e0d78a21) of structure is 0.

**rgIOleDbValid (variable):** An array of 2-byte unsigned integers that specify the type of connection strings in **rgConn.** The size of the array MUST be equal to **cOleDb**. Each element of the array MUST be unique within **rgIOleDbValid**. Each element of the array MUST be from the following table:

| Value | Meaning of string in rgConn |
| --- | --- |
| 0 | The main connection string of the connection. This element MUST exist. |
| 1 | The variant of the main connection string that has the password removed. |
| 2 | The connection string to the local [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7) file. |
| 3 | The variant of the connection string to the local cube file that has the password removed. |

**rgIOleDbInvalid (variable):** Undefined and MUST be ignored. The size of the field, in bytes, MUST equal the value specified by the following formula:

2 \* (4 – **cOleDb**)

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

**rgConn (variable):** An array of [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31). The array specifies the connection strings associated with the OLE DB connection that correspond to the elements in **rgIOleDbValid**. The number of elements in the array MUST be equal to **cOleDb**. This field MUST NOT exist if **cOleDb**equals 0. The meaning of each item in **rgConn** is defined by the item with a matching index in **rgIOleDbValid** as defined in the table under **rgIOleDbValid.**

### 2.5.71 DConnConnectionWeb

The **DConnConnectionWeb** structure specifies data connection properties of [**Web query**](#gt_7f21a511-63e5-43a2-ad46-235ce53af5f2) data connections.

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

**rgbURL (variable):** A [DConnStringSequence](#Section_4447e71a659340f69fb3df6853439600) that specifies the URL for a Web query.

**rgbWebPost (variable):** A DConnStringSequence that specifies the [**post method**](#gt_ab84d1e3-1d4d-4085-a25e-f05593820d67)for a Web query.

### 2.5.72 DConnId

The **DConnId** structure specifies the identifier of the object that a connection is associated with.

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

**bType (1 byte):** An unsigned integer that specifies the identifier type. MUST be a value as specified in the table listed under field **data**.

**data (variable):** A variable field that specifies the identifier of the object whose type and meaning are dictated by the value of field **bType**, as specified in the following table:

| bType Value | Meaning |
| --- | --- |
| 0 | This field does not exist. There is no associated object. |
| 1 | A [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31) that specifies the name of a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289). |
| 2 | An [SXStreamID](#Section_a4dc3f5438904e35aad080a16b4b4cff) that specifies the stream in the [PivotCache storage](#Section_c5fb3f663ef64308ae3de59244159687). |

### 2.5.73 DConnParamBinding

The **DConnParamBinding** structure that specifies a parameter’s binding value based on field **pbt** of structure [DConnParameter](#Section_8bcedc2700644f8187f86b74f67342da).

| Value | Meaning |
| --- | --- |
| 0 | A [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31) that specifies the parameter prompt. |
| 1 | A [DConnParamBindingValType](#Section_c4277f2fb12f4c54ad28effcb1cc4fbe) structure that specifies the parameter value as defined in the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2). |

### 2.5.74 DConnParamBindingValByte

The **DConnParamBindingValByte** structure specifies the parameter binding.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fVal | | | | | | | | reserved1 | | | | | | | | | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**fVal (8 bits):** An unsigned integer that specifies the binding Boolean value.

**reserved1 (24 bits):** MUST be zero and MUST be ignored.

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

### 2.5.75 DConnParamBindingValInt

The **DConnParamBindingValInt** structure specifies the parameter binding.

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

**val (4 bytes):** An unsigned integer that specifies the binding value.

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

### 2.5.76 DConnParamBindingValString

The **DConnParamBindingValString** structure specifies properties for a data connection parameter that has a string data type.

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

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

**rgchBindingValueStr (variable):**  A [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31) that specifies the value for a data connection parameter.

### 2.5.77 DConnParamBindingValType

The **DConnParamBindingValType** structure specifies properties for a data connection parameter.

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

**wBindingValueGrbit (2 bytes):** An unsigned integer that specifies the data type of the parameter. MUST be a value from the table as specified in the **rgbBindingValue** field.

**rgbBindingValue (variable):** A variable type field whose type and meaning are specified by the value of **wBindingValueGrbit** as specified in the following table:

| wBindingValueGrbit Value | Meaning |
| --- | --- |
| 0x0001 | An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the value for a parameter that has a numeric data type. |
| 0x0002 | A [DConnParamBindingValString](#Section_a5fdd0e324454cf9a36a1a8ab602b679) that specifies the value for a parameter that has a string data type. |
| 0x0004 | A [DConnParamBindingValByte](#Section_3e28965329bd4823a8c7fb12634f7a6c) that specifies the value for a parameter that has a Boolean data type. |
| 0x0800 | A [DConnParamBindingValInt](#Section_33f65f4fb1a94f2b91ad30c5551e2c70) that specifies the value for a parameter that has an integer data type. |

### 2.5.78 DConnParameter

The **DConnParameter** structure specifies a parameter of 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 |
| rgchName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pbt | | | reserved | | | | | | | | | | | | | wTypeSql | | | | | | | | | | | | | | | |
| A | unused | | | | | | | | | | | | | | | paramBinding (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgchName (variable):** A [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31) that specifies the name of the parameter.

**pbt (3 bits):** An unsigned integer that specifies the parameter type. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Prompt. User is prompted for the value of the parameter. |
| 0x1 | Value. The parameter value is specified in the [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2). |

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

**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. This signed integer specifies the [**SQL**](#gt_37416b0f-ca5b-4fac-96e5-082eb80a3d84) data type.

**A - fDefaultName (1 bit):** A bit that specifies whether a default name has been assigned by the application to the parameter. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The user specified a name for the parameter. |
| 0x1 | The application specified a name for the parameter. |

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

**paramBinding (variable):** A [DConnParamBinding](#Section_492685836058470eb45e059106566e51) structure that specifies the parameter’s bindings.

### 2.5.79 DConnStringSequence

The **DConnStringSequence** structure specifies a sequence of strings.

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

**cst (2 bytes):**  An unsigned integer that specifies the number of strings in the **rgString** array.

**rgString (variable):**  An array of [DConnUnicodeStringSegmented](#Section_f5e3e428a6ae4ad19c235a21a743ff31) that specifies a segmented [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) string.

### 2.5.80 DConnUnicodeStringSegmented

The **DConnUnicodeStringSegmented** structure specifies a segmented Unicode 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 |
| st (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**st (variable):** An [XLUnicodeStringSegmented](#Section_796bcbebf2eb49ee86a3518f65db3aa0) that specifies a segmented Unicode string.

### 2.5.81 DJoin

The **DJoin** enumeration specifies the join type for two data operations.

| Name | Value | Meaning |
| --- | --- | --- |
| **DJOINNULL** | 0x00000000 | None |
| **DJOINAND** | 0x00000001 | And |
| **DJOINOR** | 0x00000002 | Or |

### 2.5.82 DRw

The **DRw** structure specifies a count of row indexes 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 |
| drw | | | | | | | | | | | | | | | |

**drw (2 bytes):** An unsigned integer that specifies the count or difference of row indexes in a sheet.

### 2.5.83 DRwByteU

The **DRwByteU** structure specifies a count of row indexes 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 |
| drw | | | | | | | |

**drw (1 byte):** An unsigned integer that specifies the count or difference of row indexes in a sheet.

### 2.5.84 Duce

The **Duce** structure specifies additional undo data that is applied to an [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106) that uses a [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) if the [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) is rejected.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| duceStacked | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| duceRadical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | eptg | | | | | | | | rgloc (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**duceStacked (4 bytes):** A [DuceStacked](#Section_ad09dd7695c7443d869ef19a45188c5f) that specifies additional undo data used for the natural language formula.

**duceRadical (9 bytes):** A [DuceRadical](#Section_50d6121fc50b4613b2fedf4c3831ae91) that specifies additional undo data used for the natural language formula. If **eptg** does not specify that this natural language formula is an ElfRadical, then this field is undefined and MUST be ignored.

**eptg (1 byte):** An unsigned integer that specifies the type of natural language formula. **eptg** MUST equal the second byte of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f) specified by the **ptg** field of the [Ducr](#Section_19786641f7a74e14b7beb6a0a805103f) that contains this structure. The type of the natural language formula is either ElfStacked or ElfRadical, neither or both.

**eptg** MUST be a value from the following table.

| Value | ElfStacked | ElfRadical |
| --- | --- | --- |
| 0x02 | No | No |
| 0x03 | No | No |
| 0x06 | No | No |
| 0x07 | No | No |
| 0x0A | No | Yes |
| 0x0B | Yes | Yes |
| 0x0D | Yes | No |
| 0x0F | Yes | No |

ElfStacked: A natural language formula is considered to be stacked if more than one [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) is used for the label.ElfRadical: A natural language formula is considered to be radical if the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) refers to more than one cell.

**rgloc (variable):** An array of [RRLoc](#Section_bb9d270cde604792b20eddb576a111c0) structures. The number of elements is specified by the **cLoc** field of **duceStacked**. MUST exist if and only if the type of the natural language formula as specified by **eptg** is ElfStacked. The **fNoDollarOnLabel** field of each RRLoc structure in the array is undefined and MUST be ignored.

### 2.5.85 DuceRadical

The **DuceRadical** structure specifies additional undo data associated with a [**natural language formula**](#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 |
| refRadical (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ptgRadical | | | | | | | |

**refRadical (8 bytes):** A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) that specifies the [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) referenced by the natural language formula. MUST exist if and only if **ptgRadical** is a [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3).

**unused (8 bytes):** An array of 1-byte signed integers. Undefined and MUST be ignored. MUST exist if and only if **ptgRadical** is equal to [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0).

**ptgRadical (1 byte):** An unsigned integer that specifies the next [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f) in the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) associated with this natural language formula. MUST either by a PtgArea or a PtgAreaErr.

### 2.5.86 DuceStacked

The type and meaning of the **DuceStacked** structure are specified by the type of the **eptg** field of the [Duce](#Section_a96a9ad6560748d49c8317b430456e47) structure that contains this structure, as specified in the following table:

| Value | Meaning |
| --- | --- |
| 1 | This structure specifies an [SQElfFlags](#Section_8f89d3b0024b40d1aa5bdc214af31772) that specifies additional undo data associated with the [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b). |
| 0 | This structure specifies an [RRLoc](#Section_bb9d270cde604792b20eddb576a111c0) that specifies the location affected by the natural language formula. |

### 2.5.87 Ducr

The **Ducr** structure specifies undo data that is applied to an [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106) that was affected by an [insertion / deletion of rows / columns revision](#Section_6241f2cd16874b319cab2ff269a8e892) or a [move cells revision](#Section_a04c9efd436f48a59adff4752a2411ba) if the [**revision**](#gt_b799ab69-7abc-447e-b9f8-10cb8fd7016e) is rejected.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iptg | | | | | | | | | | | | | | | | ptg | | | | | | | | A | B | reserved2 | | | | | |
| duce (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| duceRadical (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ducr\_cond\_1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ducr\_cond\_2 (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

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

**iptg (2 bytes):** An unsigned integer that specifies a zero-based index of a [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f) structure in the array specified by the [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) structure associated with the affected expression. The referenced Ptg specifies which Ptg is affected by the revision.

**ptg (1 byte):** The Ptg before the revision action occurred.

**A - fLbl (1 bit):** A bit that specifies whether the affected expression is contained in a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933).

**B - fUseSh2 (1 bit):** A bit that specifies whether the affected expression is on a different [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). MUST be zero for [RRDInsDel](#Section_fe37df682d0e4d89a213cc4ebd9ac138).

**reserved2 (6 bits):** MUST be zero, and MUST be ignored.

**duce (variable):** A [Duce](#Section_a96a9ad6560748d49c8317b430456e47) that specifies additional undo data that is used for a [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b). MUST exist if and only if **ptg** is equal to 0x18.

**duceRadical (8 bytes):** A variable type field with the type and meaning determined by the value of **ptg**, as specified in the following table. MUST exist if and only if **ptg** is not equal to 0x18.

| ptg Value | Type |
| --- | --- |
| [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055) | A [RgceLoc8](#Section_32ce1ec2e11b428cba62d835613968e1) that specifies the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) reference originally contained by the expression. |
| [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577) | A RgceLoc8 that specifies the cell reference originally contained by the expression. |
| [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) | A [RgceArea](#Section_6df491b914e84efd9d9298db51b7cdbd) that specifies a reference to a rectangular [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells originally contained by the expression. |
| [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) | A RgceArea that specifies a reference to a rectangular range of cells originally contained by the expression. |
| All other values | MUST be zero, and MUST be ignored. |

**ducr\_cond\_1 (variable):** A [DucrConditionalLbl](#Section_06ef9943efad4c5a965cc200b8815475) that specifies defined name information associated with the affected expression. MUST exist if and only if **fLbl** equals 1.

**ducr\_cond\_2 (6 bytes):** A [DucrConditionalNoLbl](#Section_bde83ad37fb1481fabffd4cdf8dd5364) that specifies location information associated with the affected expression. MUST exist if and only if **fLbl** equals 0.

### 2.5.88 DucrConditionalLbl

The **DucrConditionalLbl** structure specifies information associated with the [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) in the [Ducr](#Section_19786641f7a74e14b7beb6a0a805103f) 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 |
| tabid | | | | | | | | | | | | | | | | builtinIndex | | | | | | | | unused (optional) | | | | | | | |
| ... | | | | | | | | | | | | | | | | stDefName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**tabid (2 bytes):** A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) 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 associated with the sheet.

**builtinIndex (1 byte):** An unsigned integer that specifies the identifier of a [**built-in name**](#gt_d40a51df-e96f-45ec-885d-6f936d172b39). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | Not a built-in name |
| 0x01 | The built-in name is "Consolidate\_Area" |
| 0x02 | The built-in name is "Auto\_Open" |
| 0x03 | The built-in name is "Auto\_Close" |
| 0x04 | The built-in name is "Extract" |
| 0x05 | The built-in name is "Database" |
| 0x06 | The built-in name is "Criteria" |
| 0x07 | The built-in name is "Print\_Area" |
| 0x08 | The built-in name is "Print\_Titles" |
| 0x09 | The built-in name is "Recorder" |
| 0x0A | The built-in name is "Data\_Form" |
| 0x0B | The built-in name is "Auto\_Activate" |
| 0x0C | The built-in name is "Auto\_Deactivate" |
| 0x0D | The built-in name is "Sheet\_Title" |
| 0x0E | The built-in name is "\_FilterDatabase" |

**unused (3 bytes):** Undefined and MUST be ignored. MUST exist if and only if **builtinIndex** is not equal to zero.

**stDefName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the defined name. MUST exist if and only if **builtinIndex** is equal to zero.

### 2.5.89 DucrConditionalNoLbl

The **DucrConditionalNoLbl** structure specifies location information associated with the [Ducr](#Section_19786641f7a74e14b7beb6a0a805103f) 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 |
| tabid | | | | | | | | | | | | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**tabid (2 bytes):** A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) that specifies the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) containing the affected [**expression**](#gt_6d43b116-acad-45af-aea5-a8e7240a1106).

**loc (4 bytes):** An [RRLoc](#Section_bb9d270cde604792b20eddb576a111c0) that specifies the location of the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) containing the affected expression. The **fQuotesOnLabel** and **fNoDollarOnLabel** fields in the RRLoc structure are undefined and MUST be ignored.

### 2.5.90 DwQsiFuture

The **DwQsiFuture** structure specifies option flags 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 |
| A | B | C | D | E | F | G | H | I | reserved5 | | | | | | | reserved6 | | | | | | | | | | | | | | | |

**A - fPreserveFmt (1 bit):**  A bit that specifies whether the user applied formatting is preserved.

**B - fAutoFit (1 bit):** A bit that specifies whether columns be auto fit after a data [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060).

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

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

**E - fExtDataList (1 bit):** A bit that specifies whether an [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) list is the [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) for the query table.

**F - reserved3 (1 bit):**  MUST be zero, and MUST be ignored.

**G - fCreateQTList (1 bit):** A bit that specifies whether a query table list is to be created.

**H - fDummyList (1 bit):** A bit that specifies whether a dummy query table list is created.

**I - reserved4 (1 bit):**  MUST be zero, and MUST be ignored.

**reserved5 (7 bits):** MUST be zero, and MUST be ignored.

**reserved6 (16 bits):**  MUST be zero, and MUST be ignored.

### 2.5.91 DXFALC

The **DXFALC** structure specifies the text alignment properties within a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) 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 |
| alc | | | A | alcv | | | B | trot | | | | | | | | cIndent | | | | C | D | E | | unused | | | | | | | |
| iIndent | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**alc (3 bits):** A [**HorizAlign**](#Section_75e17a8f9cd44b37927e4b0a54ef9266) that specifies the [**horizontal alignment**](#gt_f0e60ca8-51d5-4553-9126-3d89a4d08f90) of the text.

**A - fWrap (1 bit):** A bit that specifies the text display when the text is wider than the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

| Value | Meaning |
| --- | --- |
| 0 | The text is truncated. |
| 1 | The text is wrapped into more than one line. |

**alcv (3 bits):** A [**VertAlign**](#Section_1e9eb7d30cd842a3af1ef523105a5e93) that specifies the [**vertical alignment**](#gt_5a59a612-2d00-4cb5-9565-952243641878) of the text.

**B - fJustLast (1 bit):**  A bit that specifies whether cell text is [**justify distributed**](#gt_11eced66-af2c-4391-8b45-87a60ad41483). If **fJustLast is** 1 the text is justify distributed and **alc** MUST be 0x7.

**trot (8 bits):** An [XFPropTextRotation](#Section_828733cb953a48ceb4054d235575e9b3) that specifies the text rotation.

**cIndent (4 bits):**  An unsigned integer that specifies the absolute level of indentation. The absolute level of indentation will replace any previous indentation. MUST be ignored when **iIndent** is not 255. MUST be less than or equal to 15.

**C - fShrinkToFit (1 bit):**  A bit that specifies whether the character sizes in the text MUST be reduced so that the text fits in the cell.

**D - fMergeCell (1 bit):** A bit that specifies that the cell MUST be merged.

**E - iReadingOrder (2 bits):** A [**ReadingOrder**](#Section_dd395a856ae749cdae9418bab51e5357) that specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361). If **fZeroInited** in the parent structure is zero, then it is undefined and MUST be ignored.

**unused (8 bits):** Undefined and MUST be ignored.

**iIndent (4 bytes):**  A signed integer that specifies the relative level of indentation. The relative level of indentation will be added to any previous indentation. The value MUST be greater than or equal to -15 and less than or equal to 255. The value SHOULD[<163>](#Appendix_A_163" \o "Product behavior note 163) be greater than or equal to -15 and less than or equal to 15, or be equal to 255. The values -250 through 250 specify a relative indentation level, and the value 255 specifies the absence of a relative indentation level.

### 2.5.92 DXFBdr

The **DXFBdr** structure specifies the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) of [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) borders in a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) 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 |
| dgLeft | | | | dgRight | | | | dgTop | | | | A | | | | icvLeft | | | | | | | icvRight | | | | | | | B | C |
| icvTop | | | | | | | icvBottom | | | | | | | icvDiag | | | | | | | dgDiag | | | | unused | | | | | | |

**dgLeft (4 bits):** A [BorderStyle](#Section_e6134bd9203f49f1bc777ab3692f2364) that specifies the grid [**line style**](#gt_a6d51057-258d-42cc-9920-6e08c10d2447) for the left [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) of the cell.

**dgRight (4 bits):**  A BorderStyle that specifies the grid line style for the right border of the cell.

**dgTop (4 bits):**  A BorderStyle that specifies the grid line style for the top border of the cell.

**A - dgBottom (4 bits):**  A BorderStyle that specifies the grid line style for the bottom border of the cell.

**icvLeft (7 bits):**  An [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) that specifies the color of the left border of the cell or unused. This value is unused and MUST be ignored if **dgLeft** is 0 or if the **glLeftNinch** field in the containing DXFN structure is 1.

**icvRight (7 bits):**  An IcvXF that specifies the color of the right border of the cell or unused. This value is unused and MUST be ignored if **dgRight** is 0 or if the **glRightNinch** field in the containing DXFN structure is 1.

**B - bitDiagDown (1 bit):** A bit that specifies if the cell has a downward diagonal drawn.

**C - bitDiagUp (1 bit):**  A bit that specifies if the cell has an upward diagonal drawn.

**icvTop (7 bits):**  An IcvXF that specifies the color of the top border of the cell or unused. This value is unused and MUST be ignored if **dgTop** is 0 or if the **glTopNinch** field in the containing DXFN structure is 1.

**icvBottom (7 bits):**  An IcvXF that specifies the color of the bottom border of the cell or unused. This value is unused and MUST be ignored if **dgBottom** is 0 or if the **glBottomNinch** field in the containing DXFN structure is 1.

**icvDiag (7 bits):**  An IcvXF that specifies the color of the diagonals of the cell or unused. This value is unused and MUST be ignored if **dgDiag** is 0 or if the **glDiagDownNinch** and the **glDiagUpNinch** fields in the containing DXFN are both 1.

**dgDiag (4 bits):**  A BorderStyle that specifies the grid line style for the diagonals of the cell..

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

### 2.5.93 DXFFntD

The **DXFFntD** structure specifies a [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) and its format 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 |
| cchFont | | | | | | | | stFontName (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused1 (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stxp (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| icvFore | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tsNinch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fSssNinch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fUlsNinch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fBlsNinch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ich | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iFnt | | | | | | | | | | | | | | | |

**cchFont (1 byte):** An unsigned integer that specifies the number of characters of the font name string.

**stFontName (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the font name. MUST exist if and only if **cchFont** is greater than zero. The number of characters in the string is specified in **cchFont**. If **stFontName.fHighByte** equals 0x0, **cchFont** MUST be less than or equal to 62. If **stFontName.fHighByte** equals 0x1, **cchFont** MUST be less than or equal to 31.

**unused1 (variable):** Undefined and MUST be ignored. The size of this field is 63 minus the size of the **stFontName** field. If the **stFontName** field doesn’t exist, the size of this field is 63.

**stxp (16 bytes):** A [Stxp](#Section_35f2f61e21db4916860db32d27e45154) that specifies the font attributes.

**icvFore (4 bytes):** An integer that specifies the color of the font. The value MUST be -1, 32767 or any of the valid values of the [IcvFont](#Section_968607efe9644d65b4c964caa31d648a) structure. A value of -1 specifies that this value is ignored. A value of 32767 specifies that the color of the font is the default foreground text color. Any other value specifies the color of the font as specified in the IcvFont structure.

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

**tsNinch (4 bytes):** A [Ts](#Section_f2372db53c3e4bb08976e275f1750d0a) structure that specifies how the value of **stxp.ts** is to be interpreted. If **tsNinch.ftsItalic** is set to 1 then the value of **stxp.ts.ftsItalic** MUST be ignored. If **tsNinch.ftsStrikeout** is set to 1 then the value of the **stxp.ts.ftsStrikeout** MUST be ignored.

**fSssNinch (4 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the value of **stxp.sss** MUST be ignored.

**fUlsNinch (4 bytes):**  A Boolean that specifies whether the value of **stxp.uls** MUST be ignored.

**fBlsNinch (4 bytes):**  A Boolean that specifies whether the value of **stxp.bls** MUST be ignored.

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

**ich (4 bytes):** A signed integer that specifies the zero based index of the first character to which this font applies. MUST be greater than or equal to 0xFFFFFFFF. MUST be set to 0xFFFFFFFF when the font is to be updated.

**cch (4 bytes):** A signed integer that specifies the number of characters to which this font applies. MUST be greater than or equal to **ich** field. MUST be set to 0xFFFFFFFF if the **ich** field is set to 0xFFFFFFFF.

**iFnt (2 bytes):** An unsigned integer that specifies the font. If the value is 0 then the default font is used. If the value is greater than 0 then the font to be applied is determined by the font name specified in **stFontName**.

### 2.5.94 DXFId

The **DXFId** structure specifies a [DXF](#Section_ea2a96e15ec343d08b979fa0b7e9fc27) 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 |
| index | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**index (4 bytes):** An unsigned integer that specifies a zero-based index of a DXF record in the collection of DXF records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1).

### 2.5.95 DXFN

The **DXFN** structure specifies [differential formatting](#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 |
| 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 | c | d |
| e | f | g | reserved2 | | | | | | | | | | | | h | dxfnum (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxffntd (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfalc (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfbdr (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfpat (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfprot (optional) | | | | | | | | | | | | | | | |

**A - alchNinch (1 bit):** A bit that specifies whether the value of **dxfalc**.**alc** MUST be ignored.

**B - alcvNinch (1 bit):** A bit that specifies whether the value of **dxfalc**.**alcv** MUST be ignored.

**C - wrapNinch (1 bit):** A bit that specifies whether the value of **dxfalc.fWrap** MUST be ignored.

**D - trotNinch (1 bit):** A bit that specifies whether the value of **dxfalc.trot** MUST be ignored.

**E - kintoNinch (1 bit):** A bit that specifies whether the value of **dxfalc.fJustLast** MUST be ignored .

**F - cIndentNinch (1 bit):** A bit that specifies whether the values of **dxfalc.cIndent** and **dxfalc.iIndent** MUST be ignored.

**G - fShrinkNinch (1 bit):** A bit that specifies whether the value of **dxfalc.fShrinkToFit** MUST be ignored.

**H - fMergeCellNinch (1 bit):** A bit that specifies whether the value of **dxfalc.fMergeCell** MUST be ignored.

**I - lockedNinch (1 bit):** A bit that specifies whether the value of **dxfprot.fLocked** MUST be ignored.

**J - hiddenNinch (1 bit):** A bit that specifies whether the value of **dxfprot.fHidden** MUST be ignored.

**K - glLeftNinch (1 bit):** A bit that specifies whether the values of **dxfbdr.dgLeft** and **dxfbdr.icvLeft** MUST be ignored .

**L - glRightNinch (1 bit):** A bit that specifies whether the values of **dxfbdr.dgRight** and **dxfbdr.icvRight** MUST be ignored.

**M - glTopNinch (1 bit):** A bit that specifies whether the values of **dxfbdr.dgTop** and **dxfbdr.icvTop** MUST be ignored.

**N - glBottomNinch (1 bit):** A bit that specifies whether the values of **dxfbdr.dgBottom** and **dxfbdr.icvBottom** MUST be ignored.

**O - glDiagDownNinch (1 bit):** A bit that specifies whether the value of **dxfbdr.bitDiagDown** MUST be ignored. When both **glDiagDownNinch** and **glDiagUpNinch** are set to 1, the values of **dxfbdr.dgDiag** and **dxfbdr**.**icvDiag** MUST be ignored.

**P - glDiagUpNinch (1 bit):** A bit that specifies whether the value of **dxfbdr.bitDiagUp** MUST be ignored. When both **glDiagDownNinch** and **glDiagUpNinch** are set to 1, the values of **dxfbdr.dgDiag** and **dxfbdr**.**icvDiag** MUST be ignored.

**Q - flsNinch (1 bit):** A bit that specifies whether the value of **dxfpat.fls** MUST be ignored.

**R - icvFNinch (1 bit):** A bit that specifies whether the value of **dxfpat.icvForeground** MUST be ignored.

**S - icvBNinch (1 bit):** A bit that specifies whether the value of **dxfpat.icvBackground** MUST be ignored.

**T - ifmtNinch (1 bit):** A bit that specifies whether the value of **dxfnum.ifmt** MUST be ignored.

**U - fIfntNinch (1 bit):** A bit that specifies whether the value of **dxffntd.ifnt** MUST be ignored.

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

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

**X - ibitAtrNum (1 bit):** A bit that specifies whether number formatting information is part of this structure.

**Y - ibitAtrFnt (1 bit):** A bit that specifies whether [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) information is part of this structure.

**Z - ibitAtrAlc (1 bit):** A bit that specifies whether alignment information is part of this structure.

**a - ibitAtrBdr (1 bit):** A bit that specifies whether [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad) information is part of this structure.

**b - ibitAtrPat (1 bit):** A bit that specifies whether pattern information is part of this structure.

**c - ibitAtrProt (1 bit):** A bit that specifies whether rotation information is part of this structure.

**d - iReadingOrderNinch (1 bit):** A bit that specifies whether the value of **dxfalc.iReadingOrder** MUST be ignored.

**e - fIfmtUser (1 bit):** A bit that specifies that the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) used is a user-defined [**format string**](#gt_07085e26-506a-4b35-81ad-972464e277ff). When set to 1, **dxfnum** contains a format string.

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

**g - fNewBorder (1 bit):** A bit that specifies how the [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) formats apply to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461).

| Value | Description |
| --- | --- |
| 0 | Border formats apply to all cells in the range. |
| 1 | Border formats only apply to the [**outline**](#gt_d20b50ce-6124-4bda-ba32-5d132016d639) of the range. |

For example, if the bit is set to 1 and there is a left border format, that left border format will only apply to the cells on the left edge of the range of cells.

**reserved2 (12 bits):** MUST be zero and MUST be ignored.

**h - fZeroInited (1 bit):** A bit that specifies whether the value of **dxfalc.iReadingOrder** MUST be taken into account.

**dxfnum (variable):** A [DXFNum](#Section_5fa137f0b7fb4650b7906cb74cebd6ae) that specifies the number formatting. MUST exist if and only if **ibitAtrNum** is nonzero.

**dxffntd (variable):** A [DXFFntD](#Section_de46349dbd0846df8ca9fe436a84013a) that specifies the font. MUST exist if and only if **ibitAtrFnt** is nonzero.

**dxfalc (8 bytes):** A [DXFALC](#Section_8112b2cdd484401da9fbf8e0343728b3) that specifies the text alignment properties. MUST exist if and only if **ibitAtrAlc** is nonzero.

**dxfbdr (8 bytes):** A [DXFBdr](#Section_c74f39272b0f493fa2882b9df072c995) that specifies the border properties. MUST exist if and only if **ibitAtrBdr** is nonzero.

**dxfpat (4 bytes):** A [DXFPat](#Section_edbd9b1eb6964ad4abbddc35c9f2806a) that specifies the pattern and colors. MUST exist if and only if **ibitAtrPat** is nonzero.

**dxfprot (2 bytes):** A [DXFProt](#Section_4ab9924d2a85478ea19fec32439dc50d) that specifies the [**protection**](#gt_dbeb9653-2ab1-4ec4-b64e-e77a8951c499) attributes. MUST exist if and only if **ibitAtrProt** is nonzero.

### 2.5.96 DXFN12

The **DXFN12** structure specifies [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) and is an extension to [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cbDxf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved (optional) | | | | | | | | | | | | | | | | dxfn (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xfext (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cbDxf (4 bytes):** An unsigned integer that specifies the size of the structure in bytes. If greater than zero, it MUST be the total byte count of **dfxn** and **xfext**. Otherwise it MUST be zero.

**reserved (2 bytes):** MUST be zero and MUST be ignored. MUST be omitted when **cbDxf** is greater than zero.

**dxfn (variable):** A DXFN that specifies part of the differential formatting. MUST be omitted if **cbDxf** is 0x00000000.

**xfext (variable):** An [XFExtNoFRT](#Section_5ff3badd44504b96b56d2a25eb32f5ac) that specifies extensions for the differential formatting. MUST be omitted if **cbDxf** is equal to the byte count of **dxfn**.

### 2.5.97 DXFN12List

The **DXFN12List** structure specifies [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) used by [table block-level formatting](#Section_0c7947ddc8874a69a5cbc14494d21034). This structure also specifies extensions to the [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) formatting 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 |
| dxfn (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xfext (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**dxfn (variable):** A DXFN structure that specifies differential formatting used by table block-level formatting.

**xfext (variable):** An [XFExtNoFRT](#Section_5ff3badd44504b96b56d2a25eb32f5ac) structure that specifies the set of extensions to the differential formatting properties specified in **dxfn**. MUST exist if and only if the size of this structure is greater than the size of the **dxfn** field.

### 2.5.98 DXFN12NoCB

The **DXFN12NoCB** structure specifies [differential formatting](#Section_f0b6070c31f54d3dbcb719612da8b8f6) and is an extension to [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9).

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

**dxfn (variable):** A DXFN that specifies part of the differential formatting.

**xfext (variable):** An optional [XFExtNoFRT](#Section_5ff3badd44504b96b56d2a25eb32f5ac) that specifies extensions for the differential formatting.

### 2.5.99 DXFNum

The **DXFNum** structure specifies the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) in a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) structure. Its type depends on the **fIfmtUser** field of DXFN

| Value | Meaning |
| --- | --- |
| 0 | [DXFNumIFmt](#Section_c7d79e299fee4407b17f72ae7cd6c0a4) |
| 1 | [DXFNumUsr](#Section_ca9ccfbf2718425893183698b66f362a) |

### 2.5.100 DXFNumIFmt

The **DXFNumIFmt** structure specifies the number format in a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) structure when a format identifier is used.

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

**unused (8 bits):** Undefined and MUST be ignored.

**ifmt (8 bits):** An unsigned integer that specifies the identifier of the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) to use as specified in [IFmt](#Section_9017e24779954a9c96e8950df24735a2).

### 2.5.101 DXFNumUsr

The **DXFNumUsr** structure specifies the [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) in a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) structure when a [**format string**](#gt_07085e26-506a-4b35-81ad-972464e277ff) is used.

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

**cb (2 bytes):** An unsigned integer that specifies the size of this structure, in bytes.

**fmt (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the number format to use as specified in the **stFormat** field of [Format](#Section_300280fde4fe4675a9244d383af48d3b).

### 2.5.102 DXFPat

The **DXFPat** structure specifies the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e) and color within a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) 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 |
| unused1 | | | | | | | | | | fls | | | | | | icvForeground | | | | | | | icvBackground | | | | | | | A | |

**unused1 (10 bits):** Undefined and MUST be ignored.

**fls (6 bits):** A [**FillPattern**](#Section_10767248ab464581ae08310ffcbf026b) that specifies the fill pattern.

**icvForeground (7 bits):**  An unsigned integer that specifies the color of the foreground of the cell. The value MUST be an [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) value. This value is unused and MUST be ignored if the **icvFNinched** field in the containing DXFN structure is 1.

**icvBackground (7 bits):**  An unsigned integer that specifies the color of the background of the cell. The value MUST be an IcvXF value. This value is unused and MUST be ignored if the **icvBNinched** field in the containing DXFN structure is 1.

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

### 2.5.103 DXFProt

The **DXFProt** structure specifies the protection attributes inside a containing [DXFN](#Section_a1141f1df60745efb8dd4a1f2b27b4f9) 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 |
| A | B | reserved | | | | | | | | | | | | | |

**A - fLocked (1 bit):** A bit that specifies if the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) content is locked when the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is protected.

**B - fHidden (1 bit):** A bit that specifies if the cell content is hidden when the workbook is protected.

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

### 2.5.104 EnhancedProtection

The **EnhancedProtection** structure specifies protection settings for [Shared Features](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) of the Enhanced Protection type as specified by [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8).ISFPROTECTION. These settings apply to a protected [**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 |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | reserved | | | | | | | | | | | | | | | | |

**A - iprotObjects (1 bit):** A bit that specifies whether [**linked objects**](#gt_cfc45e76-9219-4c47-9ef2-5832a172f795) or [**embedded objects**](#gt_708607be-8655-416e-93f3-b434e9ecbd56) can be edited.

**B - iprotScenarios (1 bit):** A bit that specifies whether [**scenarios**](#gt_ee14f43c-19d8-467b-aa0b-e025635f6ba3) can be edited.

**C - iprotFormatCells (1 bit):** A bit that specifies whether [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) can be formatted.

**D - iprotFormatColumns (1 bit):** A bit that specifies whether columns can be formatted.

**E - iprotFormatRows (1 bit):** A bit that specifies whether rows can be formatted.

**F - iprotInsertColumns (1 bit):** A bit that specifies whether columns can be inserted.

**G - iprotInsertRows (1 bit):** A bit that specifies whether rows can be inserted.

**H - iprotInsertHyperlinks (1 bit):** A bit that specifies whether [**hyperlinks**](#gt_dbe6a2d4-1841-4b4a-a9f6-562c6df7897e) can be inserted.

**I - iprotDeleteColumns (1 bit):** A bit that specifies whether columns can be deleted.

**J - iprotDeleteRows (1 bit):** A bit that specifies whether rows can be deleted.

**K - iprotSelLockedCells (1 bit):** A bit that specifies whether locked cells can be selected.

**L - iprotSort (1 bit):** A bit that specifies whether cells can be sorted.

**M - iprotAutoFilter (1 bit):** A bit that specifies whether cells can be filtered.

**N - iprotPivotTables (1 bit):** A bit that specifies whether [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) reports can be created or modified.

**O - iprotSelUnlockedCells (1 bit):** A bit that specifies whether unlocked cells can be selected.

**reserved (17 bits):** MUST be zero, and MUST be ignored.

### 2.5.105 ExternDdeLinkNoOper

The **ExternDdeLinkNoOper** structure specifies the data for a [DDE data item](#Section_2492b742489e489f945187a703134708) in the [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| linkName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**reserved (4 bytes):** MUST be 0 and MUST be ignored.

**linkName (variable):** A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) that specifies the DDE data item name. The value MUST be "StdDocumentName".

### 2.5.106 ExternDocName

The **ExternDocName** structure specifies the data for an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2) in the [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) 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 |
| ixals | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| extName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| nameDefinition (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ixals (2 bytes):**  If the external defined name specified by **extName** is a [**local name**](#gt_6f2787cc-ab35-4cc1-bebd-fb120864d320), this unsigned integer specifies a one-based index of an [XLUnicodestring](#Section_36ca6de7be1648bcaa5e3eaf4942f671) in the **rgst** field of the preceding [SupBook](#Section_31ed3738e4ff4b60804cac49ac1ee6c0) record. The XLUnicodestring specifies the name of the sheet where the external defined name specified by **extName** is scoped. Otherwise this MUST be 0. The value MUST be less than or equal to the value of the **ctab** field in the preceding SupBook record.

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

**extName (variable):** A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) that specifies the name of the external defined name. **extName.cch** MUST be less than or equal to 255.

**nameDefinition (variable):** An [ExtNameParsedFormula](#Section_bcdeb72504eb4432ab350d38dd06a7cf) that specifies the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) of the external defined name.

### 2.5.107 ExternOleDdeLink

The **ExternOleDdeLink** structure specifies the data for an [OLE data item](#Section_11cff7c06cf34f8694bede7a72497e21) or a [DDE data item](#Section_2492b742489e489f945187a703134708) in the [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) record. If the **fOleLink** field in the owned ExternName record is 1, the referenced item MUST be an OLE data item.

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

**lStgName (4 bytes):** An unsigned integer that specifies a [link storage](#Section_a05f262bbc9a44be88b4eba16b41ac6b) that specifies the linked [**OLE**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c) object. This name of the link storage MUST be the concatenation of "LNK" and the eight byte hexadecimal representation of this value. The value MUST be 0 for a DDE data item.

**linkName (variable):** A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) that specifies the name of OLE data item or DDE data item. **linkName.cch** MUST be less than or equal to 255.

**moper (variable):** An optional [MOper](#Section_9497b5111b0d4cdc8343c8ca06ae162a) that specifies current [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) values for the linked data. This field MUST exist if and only if

(byte size of owning ExternName record – 6 – byte size of **linkName** > 0).

### 2.5.108 ExtProp

The **ExtProp** structure specifies an extension to a formatting 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 |
| extType | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| extPropData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**extType (2 bytes):** An unsigned integer that specifies the type of the extension. MUST be a value from the table as specified in the **extPropData** field.

**cb (2 bytes):** An unsigned integer that specifies the size of this ExtProp structure.

**extPropData (variable):** This field specifies the extension data. The size and data type of this field varies based on the property type as specified in **extType** as follows:

| extType value | extPropData field Data and Meaning |
| --- | --- |
| 0x0004 | A [FullColorExt](#Section_5ebfa922f3b64d1a8812687427e1510d) that specifies the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) interior [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a). |
| 0x0005 | A FullColorExt that specifies the cell interior [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c). |
| 0x0006 | An [XFExtGradient](#Section_eeb3376cc04b4558beb11d2b2d9362f8) that specifies a cell interior [**gradient fill**](#gt_35280309-5b22-4c17-be48-f06c37ffc685). |
| 0x0007 | A FullColorExt that specifies the top cell border color. |
| 0x0008 | A FullColorExt that specifies the bottom cell border color. |
| 0x0009 | A FullColorExt that specifies the left cell border color. |
| 0x000A | A FullColorExt that specifies the right cell border color. |
| 0x000B | A FullColorExt that specifies the diagonal cell border color. |
| 0x000D | A FullColorExt that specifies the cell text color. |
| 0x000E | A 2-byte unsigned integer that specifies a [**FontScheme**](#Section_ce82744c42a84c1a80f67d100b4550ed). |
| 0x000F | A 2-byte unsigned integer that specifies the text [**indentation level**](#gt_2779d3df-3c50-44dc-9d2d-6996c4573aa9). MUST be less than or equal to 250. |

### 2.5.109 ExtRst

The **ExtRst** structure specifies [**phonetic string**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77) 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 |
| reserved | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| phs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rphssub (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgphruns (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**reserved (2 bytes):** MUST be 1, and MUST be ignored.

**cb (2 bytes):**  An unsigned integer that specifies the size, in bytes, of the phonetic string data.

**phs (4 bytes):**  A [Phs](#Section_a9702cefc57842d69d881c23252e1f3a) that specifies the formatting information for the phonetic string.

**rphssub (variable):**  An [RPHSSub](#Section_72a83b9668ff4054a68c16415cc85dcd) that specifies the phonetic string.

**rgphruns (variable):** An array of [PhRuns](#Section_69a204e5276849b1b546b56036edcd10). This specifies the [**phonetic text runs**](#gt_02ee536f-14c0-451a-9d66-111431897cac). Each PhRuns specifies a phonetic text run within **rphssub.st** that is displayed above a [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553) in the **rgb** field of the [XLUnicodeRichExtendedString](#Section_173d9f51e5d343da8de2be7f22e119b9) that contains this structure. The first character of the phonetic text run is the character specified by the **ichFirst** field of PhRuns. The first character in the **rgb** field of the XLUnicodeRichExtendedString that contains this structure that the phonetic text run appears earlier is specified by the **ichMom** field of PhRuns. Each **ichMom** field of a PhRuns in the array MUST be less than the **ichMom** field of the subsequent PhRuns in the array. Each **ichFirst** field of a PhRuns in the array MUST be less than the **ichFirst** of the subsequent PhRuns in the array. The sum of the **cchMom** fields of all PhRuns in the array MUST be less than or equal to the number of characters in **rgb** field of the XLUnicodeRichExtendedString that contains this structure. The number of elements in this array is **rphssub.crun**.

### 2.5.110 FactoidData

The **FactoidData** structure specifies information about a [**smart tag**](#gt_2f57a49a-d503-4605-8798-0e53bd637609).

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

**A - fDelete (1 bit):** A bit that specifies whether the smart tag is deleted.

**B - fXMLBased (1 bit):** A bit that specifies whether the smart tag is [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85)-based. For more information about XML-based smart tags, see [[MSDN-OSTD]](https://go.microsoft.com/fwlink/?LinkId=120036).

**reserved (6 bits):** MUST be 0, and MUST be ignored.

**propertyBag (variable):** A PropertyBag as defined in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.3.4.3 that specifies smart tag properties. Each entry in the PropertyBag is a pair of indexes into the **stringTable** field of the PropertyBagStore as defined in [MS-OSHARED] section 2.3.4.1 that specify the key/value pair representing a property of the smart tag.

### 2.5.111 Feat11CellStruct

The **Feat11CellStruct** structure specifies 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 |
| idxRow | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idxField | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**idxRow (4 bytes):** An unsigned integer that specifies the row identifier of the row in the table. The row identifiers are stored in a table column with the **strName** of [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) equal to "ID". The row identifier specified in this field MUST match a row identifier stored in the **LISTDATA** element of the [List Data](#Section_914f09bd8c944c099e8631dfe058f037) stream. It MUST also match a row identifier stored in the **LISTSCHEMA** element of the List Data stream, under the Field node, where the "name" attribute of the Field node is equal to "ID".

**idxField (4 bytes):** An unsigned integer that specifies a column identifier. MUST be equal to the **idField** field of an item in the fielddata array of the containing [*TableFeatureType*](#Section_0db919872a05497cac1cfbd588e10047) structure.

### 2.5.112 Feat11FdaAutoFilter

The **Feat11FdaAutoFilter** structure specifies the definition of an automatically generated [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda), or [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35).

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

**cbAutoFilter (4 bytes):** An unsigned integer that specifies the size, in bytes, of the **recAutoFilter** field. MUST be less than or equal to 2080 bytes.

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

**recAutoFilter (variable):** An [AutoFilter](#Section_665bd56446774ea7bf6b89f27edb0788) structure that specifies the filter that is applied to the [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) column.

### 2.5.113 Feat11FieldDataItem

The **Feat11FieldDataItem** structure specifies a column of a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| idField | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| lfdt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| lfxidt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ilta | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbFmtAgg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istnAgg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | | F | G | H | I | J | K | unused2 | | | | | | | | | | | | | | | | | | | |
| cbFmtInsertRow | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istnInsertRow | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strFieldName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strCaption (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfFmtAgg (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfFmtInsertRow (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AutoFilter (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgXmap (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fmla (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| totalFmla (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strTotal (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wssInfo (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| qsif (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dskHdrCache (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**idField (4 bytes):** An unsigned integer that specifies the identifier of the column. MUST be nonzero and MUST be unique within the **FieldData** array in the containing [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure.

**lfdt (4 bytes):** An unsigned integer that specifies the column’s Web based data provider data type. If the **lt** field of the containing TableFeatureType structure is not set to 0x00000001, this field MUST be 0x00000000; otherwise it MUST be a value from the following table. For more information about the data types, see [[MS-WSSTS]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-WSSTS%5d.pdf#Section_52b95801d55f4d63a1c3b4e857c43b31) section 2.3.

| Value | Web Based Data Provider Data Type |
| --- | --- |
| 0x00000001 | Text |
| 0x00000002 | Number |
| 0x00000003 | Boolean |
| 0x00000004 | Date Time |
| 0x00000005 | Note |
| 0x00000006 | Currency |
| 0x00000007 | Lookup |
| 0x00000008 | Choice |
| 0x00000009 | [**URL**](#gt_433a4fb7-ef84-46b0-ab65-905f5e3a80b1) |
| 0x0000000A | Counter |
| 0x0000000B | Multiple Choices |

**lfxidt (4 bytes):** An unsigned integer that specifies the column’s [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) data type. If the **lt** field of the containing TableFeatureType structure is not set to 0x00000002, this field MUST be 0x00000000; otherwise it MUST be a value from the following table. For more information about the data types, see [[MSDN-SOM]](https://go.microsoft.com/fwlink/?LinkID=156653&clcid=0x409).

| Value | MS-XML Data Type |
| --- | --- |
| 0x00001000 | SOMITEM\_SCHEMA |
| 0x00001001 | SOMITEM\_ATTRIBUTE |
| 0x00001002 | SOMITEM\_ATTRIBUTEGROUP |
| 0x00001003 | SOMITEM\_NOTATION |
| 0x00001100 | SOMITEM\_IDENTITYCONSTRAINT |
| 0x00001101 | SOMITEM\_KEY |
| 0x00001102 | SOMITEM\_KEYREF |
| 0x00001103 | SOMITEM\_UNIQUE |
| 0x00002000 | SOMITEM\_ANYTYPE |
| 0x00002100 | SOMITEM\_DATATYPE |
| 0x00002101 | SOMITEM\_DATATYPE\_ANYTYPE |
| 0x00002102 | SOMITEM\_DATATYPE\_ANYURI |
| 0x00002103 | SOMITEM\_DATATYPE\_BASE64BINARY |
| 0x00002104 | SOMITEM\_DATATYPE\_BOOLEAN |
| 0x00002105 | SOMITEM\_DATATYPE\_BYTE |
| 0x00002106 | SOMITEM\_DATATYPE\_DATE |
| 0x00002107 | SOMITEM\_DATATYPE\_DATETIME |
| 0x00002108 | SOMITEM\_DATATYPE\_DAY |
| 0x00002109 | SOMITEM\_DATATYPE\_DECIMAL |
| 0x0000210A | SOMITEM\_DATATYPE\_DOUBLE |
| 0x0000210B | SOMITEM\_DATATYPE\_DURATION |
| 0x0000210C | SOMITEM\_DATATYPE\_ENTITIES |
| 0x0000210D | SOMITEM\_DATATYPE\_ENTITY |
| 0x0000210E | SOMITEM\_DATATYPE\_FLOAT |
| 0x0000210F | SOMITEM\_DATATYPE\_HEXBINARY |
| 0x00002110 | SOMITEM\_DATATYPE\_ID |
| 0x00002111 | SOMITEM\_DATATYPE\_IDREF |
| 0x00002112 | SOMITEM\_DATATYPE\_IDREFS |
| 0x00002113 | SOMITEM\_DATATYPE\_INT |
| 0x00002114 | SOMITEM\_DATATYPE\_INTEGER |
| 0x00002115 | SOMITEM\_DATATYPE\_LANGUAGE |
| 0x00002116 | SOMITEM\_DATATYPE\_LONG |
| 0x00002117 | SOMITEM\_DATATYPE\_MONTH |
| 0x00002118 | SOMITEM\_DATATYPE\_MONTHDAY |
| 0x00002119 | SOMITEM\_DATATYPE\_NAME |
| 0x0000211A | SOMITEM\_DATATYPE\_NCNAME |
| 0x0000211B | SOMITEM\_DATATYPE\_NEGATIVEINTEGER |
| 0x0000211C | SOMITEM\_DATATYPE\_NMTOKEN |
| 0x0000211D | SOMITEM\_DATATYPE\_NMTOKENS |
| 0x0000211E | SOMITEM\_DATATYPE\_NONNEGATIVEINTEGER |
| 0x0000211F | SOMITEM\_DATATYPE\_NONPOSITIVEINTEGER |
| 0x00002120 | SOMITEM\_DATATYPE\_NORMALIZEDSTRING |
| 0x00002121 | SOMITEM\_DATATYPE\_NOTATION |
| 0x00002122 | SOMITEM\_DATATYPE\_POSITIVEINTEGER |
| 0x00002123 | SOMITEM\_DATATYPE\_QNAME |
| 0x00002124 | SOMITEM\_DATATYPE\_SHORT |
| 0x00002125 | SOMITEM\_DATATYPE\_STRING |
| 0x00002126 | SOMITEM\_DATATYPE\_TIME |
| 0x00002127 | SOMITEM\_DATATYPE\_TOKEN |
| 0x00002128 | SOMITEM\_DATATYPE\_UNSIGNEDBYTE |
| 0x00002129 | SOMITEM\_DATATYPE\_UNSIGNEDINT |
| 0x0000212A | SOMITEM\_DATATYPE\_UNSIGNEDLONG |
| 0x0000212B | SOMITEM\_DATATYPE\_UNSIGNEDSHORT |
| 0x0000212C | SOMITEM\_DATATYPE\_YEAR |
| 0x0000212D | SOMITEM\_DATATYPE\_YEARMONTH |
| 0x000021FF | SOMITEM\_DATATYPE\_ANYSIMPLETYPE |
| 0x00002200 | SOMITEM\_SIMPLETYPE |
| 0x00002400 | SOMITEM\_COMPLEXTYPE |
| 0x00004000 | SOMITEM\_PARTICLE |
| 0x00004001 | SOMITEM\_ANY |
| 0x00004002 | SOMITEM\_ANYATTRIBUTE |
| 0x00004003 | SOMITEM\_ELEMENT |
| 0x00004100 | SOMITEM\_GROUP |
| 0x00004101 | SOMITEM\_ALL |
| 0x00004102 | SOMITEM\_CHOICE |
| 0x00004103 | SOMITEM\_SEQUENCE |
| 0x00004104 | SOMITEM\_EMPTYPARTICLE |
| 0x00000800 | SOMITEM\_NULL |
| 0x00002800 | SOMITEM\_NULL\_TYPE |
| 0x00004801 | SOMITEM\_NULL\_ANY |
| 0x00004802 | SOMITEM\_NULL\_ANYATTRIBUTE |
| 0x00004803 | SOMITEM\_NULL\_ELEMENT |

**ilta (4 bytes):** An unsigned integer that specifies the [**aggregation function**](#gt_f9b44a9d-68c4-4a28-b347-cce9eb5f8845) to use for the [**total row**](#gt_95e9bcf4-d644-4e96-9070-dbc80b4d1b28) of the column. MUST be a value from the following table:

| Value | Aggregation Formula |
| --- | --- |
| 0x00000000 | No formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) |
| 0x00000001 | Average |
| 0x00000002 | Count |
| 0x00000003 | Count Numbers |
| 0x00000004 | Max |
| 0x00000005 | Min |
| 0x00000006 | Sum |
| 0x00000007 | Standard Deviation |
| 0x00000008 | Variance |
| 0x00000009 | Custom formula[<164>](#Appendix_A_164" \o "Product behavior note 164) |

**cbFmtAgg (4 bytes):** An unsigned integer that specifies the size, in bytes, of the **dxfFmtAgg** field.

**istnAgg (4 bytes):** An unsigned integer that specifies the zero-based index of the [Style](#Section_13bec5ebe6ec4dc192350e7f9e5426a1) record in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) that is used for the total row of the column. If this value equals 0xFFFFFFFF, the total row of the column uses built-in [table styles](#Section_4ac7212b4aa74ece962526c58224ae80).

**A - fAutoFilter (1 bit):**  A bit that specifies whether the column has an [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35).

**B - fAutoFilterHidden (1 bit):** A bit that specifies whether the column has an AutoFilters that is not displayed. When this field is set to 1, **fAutoFilter** MUST be set to 1.

**C - fLoadXmapi (1 bit):** A bit that specifies whether the **rgXmap** field is present. MUST be 0 if the **lt** field of the containing TableFeatureType structure is not equal to 0x00000002.

**D - fLoadFmla (1 bit):** A bit that specifies whether the **fmla** field is present for a table whose [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) is a Web based data provider list. MUST be 0 if the **lt** field of the containing TableFeatureType structure is not equal to 0x00000001.

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

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

**G - fLoadTotalFmla (1 bit):** A bit that specifies whether the **totalFmla** field is present. SHOULD[<165>](#Appendix_A_165" \o "Product behavior note 165) be 1 if **ilta** is 0x00000009, MUST be 0 otherwise.

**H - fLoadTotalArray (1 bit):** A bit that specifies whether the formula specified by **totalFmla** is an array formula. MUST be 0 when **fLoadTotalFmla** is 0.

**I - fSaveStyleName (1 bit):** A bit that specifies whether the **dskHdrCache.strStyleName** field is present.

**J - fLoadTotalStr (1 bit):** A bit that specifies whether the **strTotal** field is present. MUST be 0 when **ilta** is not 0x00000000.

**K - fAutoCreateCalcCol (1 bit):** A bit that specifies whether the column has a calculated column formula. MUST be 0 if the **lt** field of the containing TableFeatureType structure is set to 0x00000001.

**unused2 (20 bits):** Undefined, and MUST be ignored.

**cbFmtInsertRow (4 bytes):** An unsigned integer that specifies the size, in bytes, of the **dxfFmtInsertRow** field.

**istnInsertRow (4 bytes):**  An unsigned integer that specifies the zero-based index of the Style record in the Globals Substream ABNF that is used for the [**insert row**](#gt_3b3c223b-83e0-4697-85eb-815af907b8a9) of the column. If this value equals 0xFFFFFFFF, the insert row of the column uses built-in table styles.

**strFieldName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the column, as provided by the data source. MUST contain at least one character and less than or equal to 255 characters. MUST be unique within the **FieldData** array in the containing TableFeatureType structure if the **lt** field of the containing TableFeatureType structure is set to 0x00000001 or 0x00000003.

**strCaption (variable):** An XLUnicodeString that specifies the caption of the column. MUST contain at least one character and less than or equal to 255 characters. MUST be unique within the **FieldData** array in the containing TableFeatureType structure. MUST be equal to the value within the header [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) at the location of the column title if the **crwHeader** field of the containing TableFeatureType structure is greater than 0. This field is present if and only if the **fSingleCell** field of the containing TableFeatureType structure is set to 0. MUST NOT contain the characters from the following table:

| Invalid Characters | Unicode range |
| --- | --- |
| Lower control characters | 0x0000-0x0031 |
| Invalid Unicode surrogate pairs | High surrogate with a value of 0xD800 to 0xDBFF followed by a low surrogate with a value of 0xDC00 to 0xDFFF. |
| Reserved characters | 0xFFFE, 0xFFFF, 0xF00B |

**dxfFmtAgg (variable):** A [DXFN12List](#Section_bb221dc1261a41f4a5b416e480b428e6) that specifies the formatting of the total row of the column, if different from the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) specified by **istnAgg** or built-in table styles. This field is present if and only if the **cbFmtAgg** field is greater than 0x00000000.

**dxfFmtInsertRow (variable):** A DXFN12List that specifies the formatting of the insert row of the column, if different from the style specified by **istnInsertRow** or built-in table styles. This field is present if and only if the **cbFmtInsertRow** field is more than 0x00000000.

**AutoFilter (variable):** A [Feat11FdaAutoFilter](#Section_c469083158af493c84209503b86a5628) that specifies the characteristics of the AutoFilter for the column. This field is present if and only if the **fAutoFilter** field of the containing TableFeatureType structure is set to 1.

**rgXmap (variable):** A [Feat11XMap](#Section_066ea69abca9499cb28b79594a2155be) structure that specifies the mapping to the column data within an XML data source. This field is present if and only if the **fLoadXmapi** bit is set to 1.

**fmla (variable):** A [Feat11Fmla](#Section_c24e94adbdaf40d181a76b103b74ed2e) structure that specifies the [**column formula**](#gt_7b63f871-4ee8-4516-94b7-4087034fd569) whose data source is a Web based data provider list. The specified formula applies to every row of the column, except the total row and the [**header row**](#gt_42711baf-2679-445d-a994-0eadd91b1a38). This field is present if and only if the **fLoadFmla** bit is set to 1.

**totalFmla (variable):** A [Feat11TotalFmla](#Section_5a3dec0710c645f49be072f7fcd71c2c) structure that specifies the formula to use for the total row of the column. This field is present if and only if the **fLoadTotalFmla** bit is set to 1.

**strTotal (variable):** An XLUnicodeString structure that specifies the text to use for the total row of the column. MUST contain less than or equal to 32767 characters. This field is present if and only if the **fLoadTotalStr** bit is set to 1.

**wssInfo (variable):** A [Feat11WSSListInfo](#Section_10faac19f44e4203970532a432f01871) that specifies the relationship between the column and a Web based data provider list. This field is present if and only if the **lt** field of the containing TableFeatureType structure is set to 0x00000001.

**qsif (4 bytes):** An unsigned integer that specifies the relationship between the column and its Microsoft Query data source. MUST be equal to the **idField** field of a [Qsif](#Section_4eac5c646b994ccd9665be0dde5ff648) record within the [Worksheet Substream](#Section_f41c06f2905749a18c3fa4a4d211fc56). This field is present if and only if the **lt** field of the containing TableFeatureType structure is set to 0x00000003 (External data source). MUST be greater than zero and MUST be unique within the **FieldData** array in the containing TableFeatureType structure.

**dskHdrCache (variable):** A [CachedDiskHeader](#Section_45d52687cff145a989c99279bb24fa78) that specifies the column header formatting information. This field is present if and only if the **crwHeader** field of the containing TableFeatureType structure is set to 0x0000 and the **fSingleCell** field of the containing TableFeatureType structure is set to 0.

### 2.5.114 Feat11Fmla

The **Feat11Fmla** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that is used as a [**column formula**](#gt_7b63f871-4ee8-4516-94b7-4087034fd569).

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

**cbFmla (2 bytes):** An unsigned integer that specifies the size, in bytes, of the **rgbFmla** field.

**rgbFmla (variable):** A [ListParsedFormula](#Section_ba60ac3843124ae9892a0a0687b82d4d) that specifies the [parsed expression](#Section_a795978bfa7845788e2dc07d78edae0e) of the column formula.

### 2.5.115 Feat11RgInvalidCells

The **Feat11RgInvalidCells** structure specifies the [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) linked to a Web-based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e) [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) which could not be synchronized.

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

**cCellInvalid (2 bytes):** An unsigned integer that specifies the number of items in the **rgCellInvalid** field.

**rgCellInvalid (variable):** An array of [Feat11CellStruct](#Section_b5fa2e8c017948fdaa5d2705be474c7a) that specifies the cells that could not be synchronized with a Web-based data provider data source.

### 2.5.116 Feat11RgSharepointIdChange

The **Feat11RgSharepointIdChange** structure specifies the identifier of modified rows in a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) linked to a Web-based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e). This information is used when synchronizing between the local copy of the table, and the Web-based data provider.

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

**cId (2 bytes):** An unsigned integer that specifies the number of elements in **rgId**.

**rgId (variable):**  An array of 4-byte unsigned integers that specifies identifiers of rows that were modified. The length of the array is specified by the **cId** field, and each entry of the array specifies the identifier of one row. The row identifier specified in this field MUST match a row identifier stored in the **LISTDATA** element of the [List Data](#Section_914f09bd8c944c099e8631dfe058f037) stream, as well as the row identifier stored in the column with a title "ID" in the table.

### 2.5.117 Feat11RgSharepointIdDel

The **Feat11RgSharepointIdDel** structure specifies the identifier of deleted rows in a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) linked to a Web-based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e). This information is used when synchronizing between the local copy of the table, and the Web-based data provider.

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

**cId (2 bytes):** An unsigned integer that specifies the number of elements in **rgId**.

**rgId (variable):** An array of 4-byte unsigned integers that specifies identifiers of rows that were deleted. The length of the array is specified by the **cId** field, and each entry of the array specifies the identifier of one row. The row identifier specified in this field MUST match a row identifier stored in the **LISTDATA** element of the [List Data](#Section_914f09bd8c944c099e8631dfe058f037) stream.

### 2.5.118 Feat11TotalFmla

The **Feat11TotalFmla** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that can be used as a [**total row**](#gt_95e9bcf4-d644-4e96-9070-dbc80b4d1b28) formula[<166>](#Appendix_A_166" \o "Product behavior note 166).

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

**rgbFmlaTotal (variable):** A [ListParsedFormula](#Section_ba60ac3843124ae9892a0a0687b82d4d) or [ListParsedArrayFormula](#Section_cdb2c99e3784416db7b3eeb19bc66445) that specifies the [parsed expression](#Section_a795978bfa7845788e2dc07d78edae0e) of the total row formula. When the **fLoadTotalArray** field of the containing [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) structure is set to 1, this field is a ListParsedArrayFormula; otherwise, it is a ListParsedFormula.

### 2.5.119 Feat11WSSListInfo

The **Feat11WSSListInfo** structure specifies the relationship between a table column and a Web-based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e) list.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| LCID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cDec | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | | E | F | G | unused1 | | | | | | | | | | | | | | | | | | | | | | | |
| H | I | J | K | L | M | N | O | bDefaultType | | | | | | | | unused2 | | | | | | | | | | | | | | | |
| rgbDV (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| strFormula (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**LCID (4 bytes):** An unsigned integer that specifies the [**language code identifier (LCID)**](#gt_c7f99c66-592f-4053-b62a-878c189653b6) of the source data.

**cDec (4 bytes):** An unsigned integer that specifies the number of decimal places for a numeric column.

**A - fPercent (1 bit):** A bit that specifies whether the numeric values in the column are displayed as percentages.

**B - fDecSet (1 bit):** A bit that specifies whether the numeric values in the column are displayed with a fixed decimal point. The position of the decimal point is specified by the **cDec** field.

**C - fDateOnly (1 bit):** A bit that specifies whether only the date part of date/time values is displayed.

**D - fReadingOrder (2 bits):** An unsigned integer that specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Reading order is determined by the application based on the reading order of the [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) surrounding the table. |
| 0x1 | Reading order is [**left-to-right**](#gt_b8c262f8-6c09-457a-9b68-4bf3a08ab067). |
| 0x2 | Reading order is [**right-to-left**](#gt_91359688-7863-4e88-b507-f57b3dada5ec). |

**E - fRichText (1 bit):** A bit that specifies whether the column contains rich text.

**F - fUnkRTFormatting (1 bit):** A bit that specifies whether the column contains unrecognized rich text formatting.

**G - fAlertUnkRTFormatting (1 bit):** A bit that specifies whether the column contains unrecognized rich text formatting that requires notifying the user.

**unused1 (24 bits):** Undefined and MUST be ignored.

**H - fReadOnly (1 bit):** A bit that specifies whether the column is read only.

**I - fRequired (1 bit):** A bit that specifies whether every item in this column has to contain data.

**J - fMinSet (1 bit):** A bit that specifies whether a minimum numeric value for the column exists. The minimum value is stored in the [List Data](#Section_914f09bd8c944c099e8631dfe058f037) stream within the LISTSCHEMA element, under the Field node's Min attribute.

**K - fMaxSet (1 bit):** A bit that specifies whether a maximum numeric value for the column exists. The maximum value is stored in the List Data stream within the LISTSCHEMA element, under the Field node's Max attribute.

**L - fDefaultSet (1 bit):** A bit that specifies whether there is a default value for the column.

**M - fDefaultDateToday (1 bit):** A bit that specifies whether the default value for the column is the current date.

**N - fLoadFormula (1 bit):** A bit that specifies whether a validation formula exists for this column. The formula is specified by the **strFormula** field.

**O - fAllowFillIn (1 bit):** A bit that specifies whether a choice field allows custom user entries.

**bDefaultType (8 bits):** An unsigned integer that specifies the type of the **rgbDV** default value. This field MUST be ignored if **fDefaultSet** is not 0x1; otherwise, it MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | There is no default value specified. |
| 0x01 | **rgbDV** is a string. |
| 0x02 | **rgbDV** is a Boolean. |
| 0x03 | **rgbDV** is a number. |

**unused2 (16 bits):** Undefined, MUST be ignored.

**rgbDV (variable):** A field of variable data type that specifies the default value for the column. The data type is specified in the **lfdt** field of the containing [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) structure. MUST be one of the data types specified in the following table:

| lfdt of the containing Feat11FieldDataItem | Data Type | rgbDV data type and meaning |
| --- | --- | --- |
| 0x00000001 | Short Text | An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) with a maximum length of 255 [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters. |
| 0x00000002 | Number | An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)). |
| 0x00000003 | Yes/No | A 32-bit Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)). |
| 0x00000004 | Date time | A [DateAsNum](#Section_f8099a22ecdf407ea1ef2f38cb5d211e). |
| 0x00000005 | Invalid | **rgbDV** does not exist. |
| 0x00000006 | Currency | An Xnum. |
| 0x00000007 | Invalid | **rgbDV** does not exist. |
| 0x00000008 | Choice | An XLUnicodeString with a maximum length of 255 Unicode characters. |
| 0x00000009 | Invalid | **rgbDV** does not exist. |
| 0x0000000A | Invalid | **rgbDV** does not exist. |
| 0x0000000B | Multi-choice | An XLUnicodeString with a maximum length of 255 Unicode characters. |

**strFormula (variable):** An XLUnicodeString that specifies the validation formula as defined by the Web based data provider. This field exists if and only if **fLoadFormula** is set to 0x1.

**reserved (4 bytes):** MUST be 0x00000000, and MUST be ignored.

### 2.5.120 Feat11XMap

The **Feat11XMap** structure specifies the mapping between a table column’s data and an XML [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075).

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

**iXmapMac (2 bytes):** An unsigned integer that specifies the number of items in the **rgXmap** array. MUST be less than or equal to 0x0001.

**rgXmap (variable):** An array of [Feat11XMapEntry](#Section_1a52ddc29aca4ccb834fb4ccc425f3a4) that specifies the mapping between the current table column and an XML data source. The number of items in **rgXmap** MUST be equal to **iXmapMac**.

### 2.5.121 Feat11XMapEntry

The **Feat11XMapEntry** structure specifies a mapping to an XML [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | reserved3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| details (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

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

**C - fCanBeSingle (1 bit):** A bit that specifies whether **details**.**rgbXPath** resolves to a single [**XML node**](#gt_76e94022-1e78-4323-b8ba-cf7776e6b8d4) or a collection of XML nodes. This field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Specifies that **details**.**rgbXPath** resolves to a collection of XML nodes. |
| 1 | Specifies that **details**.**rgbXPath** resolves to a single XML node. |

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

**reserved3 (28 bits):** MUST be zero, and MUST be ignored.

**details (variable):** A [Feat11XMapEntry2](#Section_3dc19246acb4400598ec7dcf3ef5b44c) that specifies the mapping between the data and the XML data source.

### 2.5.122 Feat11XMapEntry2

The **Feat11XMapEntry2** structure specifies the mapping to an [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075).

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

**dwMapId (4 bytes):** An unsigned integer that specifies the [**XML schema**](#gt_bd0ce6f9-c350-4900-827e-951265294067) associated with this [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) column. The value MUST equal the value of the **ID** attribute of a **Map** element contained within the **XML stream** (section [2.1.7.22](#Section_e25e01370b9c4429bd260eed92e01c35)).

**rgbXPath (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that contains the [**XPath expression**](#gt_02004611-da4e-45c1-a960-d268be5bb72c) that specifies the mapped element in the XML schema specified by **dwMapId**. The length of this string MUST be less than 32000.

### 2.5.123 FeatFormulaErr2

The **FeatFormulaErr2** structure specifies formula evaluation information for a [Shared Feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) of type ISFFEC2 as specified in [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8).

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

**grffecIgnore (4 bytes):** A [FFErrorCheck](#Section_79eea9e1aa9041b09679d95604ee1ce3) that specifies the type of errors that will be ignored.

### 2.5.124 FeatProtection

The **FeatProtection** structure specifies data for a [shared feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| wPassword | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stTitle (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sdContainer (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fSD (1 bit):** A bit that specifies whether this structure contains self-relative [**security descriptor**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350) data. For more information about self-relative security descriptors see [[MSDN-ASRSD]](https://go.microsoft.com/fwlink/?LinkId=119907).

**reserved (31 bits):** MUST be zero, and MUST be ignored.

**wPassword (4 bytes):** An unsigned integer that specifies the verifier for the password required to edit the referenced [**ranges**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of a [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829) [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). A value of zero indicates that the password is empty. The algorithm to generate the password verifier is documented in the [password verifier algorithm](#Section_e8a5fbec6cdc40d89fef9ad80e4172f4).

**stTitle (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the title for this [**protection**](#gt_dbeb9653-2ab1-4ec4-b64e-e77a8951c499) feature.

**sdContainer (variable):** An [SDContainer](#Section_40ea85c2451f4b1583e13adc1b1e285e) that specifies security information that identifies who can edit the referenced ranges of a protected sheet without needing a password.

### 2.5.125 FeatSmartTag

The **FeatSmartTag** structure specifies data for a [Shared Feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2) of type ISFFACTOID as described in [SharedFeatureType](#Section_4dc13a80f10a46e6b55d1df4c90508e8).

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

**hashValue (4 bytes):** An unsigned integer that specifies a [**hash**](#gt_b7e2b611-0af5-4fec-8af2-3f9ce7bad205) value for the string representation of the content of a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). This hash value is used to detect cell changes with the purpose of validating, updating or removing the [**smart tags**](#gt_2f57a49a-d503-4605-8798-0e53bd637609) associated with the cell. If the string representation of the cell content is the empty string, **hashValue** MUST be 0; otherwise, **hashValue** MUST be computed using the following algorithm:

SET hashValue to zero

FOR each byteValue (1-byte unsigned integer) in the input string

Bitwise shift hashValue to the left by 4 and add byteValue

SET overflow (4-byte unsigned integer) to the bitwise AND of hashValue and 0xF0000000

IF overflow is not zero THEN

SET the most significant 4 bits of hashValue to zero

Bitwise shift overflow to the right by 24

SET hashValue to XOR of hashValue and overflow

END IF

END FOR

IF hashValue is zero

SET hashValue to 1

END IF

**cSmartTags (1 byte):** An unsigned integer that specifies the number of items in the **rgFactoid** array.

**rgFactoid (variable):** An array of [FactoidData](#Section_3fd600e44da74e11b6f5c24a3cdc7cb6). Each element specifies data for a smart tag.

### 2.5.126 FFErrorCheck

The **FFErrorCheck** structure specifies the types of error conditions that can be checked in a formula evaluation for a [Shared Feature](#Section_86882c8e8d6d46b3aafe006b9e1f18e2).

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

**A - ffecCalcError (1 bit):** A bit that specifies whether to check for calculation errors.

**B - ffecEmptyCellRef (1 bit):** A bit that specifies whether to check for references to empty cells.

**C - ffecNumStoredAsText (1 bit):** A bit that specifies whether to check the format of numeric values.

**D - ffecInconsistRange (1 bit):**  A bit that specifies whether to check formulas in the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of the shared feature with references to less than the entirety of a range containing continuous data.

**E - ffecInconsistFmla (1 bit):**  A bit that specifies whether to check formulas in the range of the shared feature that are inconsistent with formulas in neighboring cells.

**F - ffecTextDateInsuff (1 bit):** A bit that specifies whether to check the format of date/time values.

**G - ffecUnprotFmla (1 bit):** A bit that specifies whether to check for unprotected formulas.

**H - ffecDataValidation (1 bit):** A bit that specifies whether to perform data validation.

**reserved (24 bits):** MUST be zero, and MUST be ignored.

### 2.5.127 FillPattern

The **FillPattern** enumeration specifies the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e).[<167>](#Appendix_A_167" \o "Product behavior note 167)

| Name | Value | Meaning |
| --- | --- | --- |
| **FLSNULL** | 0x00 | No fill pattern |
| **FLSSOLID** | 0x01 | Solid |
| **FLSMEDGRAY** | 0x02 | 50% gray |
| **FLSDKGRAY** | 0x03 | 75% gray |
| **FLSLTGRAY** | 0x04 | 25% gray |
| **FLSDKHOR** | 0x05 | Horizontal stripe |
| **FLSDKVER** | 0x06 | Vertical stripe |
| **FLSDKDOWN** | 0x07 | Reverse diagonal stripe |
| **FLSDKUP** | 0x08 | Diagonal stripe |
| **FLSDKGRID** | 0x09 | Diagonal crosshatch |
| **FLSDKTRELLIS** | 0x0A | Thick Diagonal crosshatch |
| **FLSLTHOR** | 0x0B | Thin horizontal stripe |
| **FLSLTVER** | 0x0C | Thin vertical stripe |
| **FLSLTDOWN** | 0x0D | Thin reverse diagonal stripe |
| **FLSLTUP** | 0x0E | Thin diagonal stripe |
| **FLSLTGRID** | 0x0F | Thin horizontal crosshatch |
| **FLSLTTRELLIS** | 0x10 | Thin diagonal crosshatch |
| **FLSGRAY125** | 0x11 | 12.5% gray |
| **FLSGRAY0625** | 0x12 | 6.25% gray |

### 2.5.128 FillStylePropertiesForShapePropsStreamChecksum

The **FillStylePropertiesForShapPropsStreamChecksum** structure specifies the fill-style data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [ShapePropsStream](#Section_d4c083e5e7b54728b145d1735485616e) record.

The related [GelFrame](#Section_fd655637a8e94d4e85880a02afc99fae) record referenced in the following field specifications is the GelFrame record that exists along with the ShapePropsStream record in one of the following sets of records.

 A sequence of records that conforms to the [FRAME](#section_732ff614d939416bb7c76d983471ff11) rule.

 A sequence of records that conforms to the DROPBAR rule.

 A sequence of records that conforms to the AXS rule if the **wObjContext** field in the ShapePropsStream record is equal to 0x0003.

 A sequence of records that conforms to the SS rule. If multiple ShapePropsStream records exist in the set, then the ShapePropsStream record related to the GelFrame record MUST contain a **wObjContext** field value equal to 0x0001. If a single ShapePropsStream record exists in the set, it is related to the GelFrame 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 |
| fillTypeOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillType | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillColorOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillColor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillOpacityOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillOpacity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackColorOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackColor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackOpacityOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackOpacity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillCrModOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillCrMod | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlipOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlip | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlip\_complex\_md4uid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlipNameOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlipName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlipName\_complex (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlipFlagsOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBlipFlags | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillWidthOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillWidth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillHeightOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillHeight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillAngleOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillAngle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillFocusOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillFocus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToLeftOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToLeft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToTopOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToTop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToRightOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToRight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToBottomOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillToBottom | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectLeftOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectLeft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectTopOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectTop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectRightOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectRight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectBottompOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillRectBottom | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillDztypeOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillDztype | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadePresetOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadePreset | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadeColorsOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadeColors | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadeColors\_complex (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillOriginXOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillOriginX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillOriginYOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillOriginY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShapeOriginXOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShapeOriginX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShapeOriginYOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShapeOriginY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadeTypeOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillShadeType | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillColorExtOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillColorExt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved415Opid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillColorExtModOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillColorExtMod | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved417Opid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackColorExtOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackColorExt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved419Opid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackColorExtModOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillBackColorExtMod | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved421Opid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved422Opid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved423Opid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillstyle\_fFilledOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillstyle\_fFilled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillstyle\_ffillShapeOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillstyle\_ffillShape | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillstyle\_ffillUseRectOpid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fillstyle\_ffillUseRect | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**fillTypeOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillType property. MUST be 0x0180, which is the same value as the **opid.opid** field of the fillType property as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.3.7.1.

**fillType (4 bytes):** An unsigned integer that specifies the fillType property. MUST equal the value specified by the **fillType** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillColorOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillColor property. MUST be 0x0181, which is the same value as the **opid.opid** field of the fillColor property as specified in [MS-ODRAW] section 2.3.7.2.

**fillColor (4 bytes):** An unsigned integer that specifies the fillColor property. MUST equal the value specified by the **fillColor** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillOpacityOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillOpacity property. MUST be 0x0182, which is the same value as the **opid.opid** field of the fillOpacity property as specified in [MS-ODRAW] section 2.3.7.3.

**fillOpacity (4 bytes):** An unsigned integer that specifies the fillOpacity property. MUST equal the value specified by the **fillOpacity** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillBackColorOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillBackColor property. MUST be 0x0183, which is the same value as the **opid.opid** field of the fillBackColor property as specified in [MS-ODRAW] section 2.3.7.4.

**fillBackColor (4 bytes):** An unsigned integer that specifies the fillBackColor property. MUST equal the value specified by the **fillBackColor** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillBackOpacityOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillBackOpacity property. MUST be 0x0184, which is the same value as the **opid.opid** field of the fillBackOpacity property as specified in [MS-ODRAW] section 2.3.7.5.

**fillBackOpacity (4 bytes):** An unsigned integer that specifies the fillBackOpacity property. MUST equal the value specified by the **fillBackOpacity** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillCrModOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillCrMod property. MUST be 0x0185, which is the same value as the **opid.opid** field of the fillCrMod property as specified in [MS-ODRAW] section 2.3.7.6.

**fillCrMod (4 bytes):** An unsigned integer that specifies the fillCrMod property. MUST equal the value specified by the **fillCrMod** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillBlipOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillBlip property. MUST be 0x0186, which is the same value as the **opid.opid** field of the fillBlip property as specified in [MS-ODRAW] section 2.3.7.7.

**fillBlip (4 bytes):** An unsigned integer that specifies the fillBlip property. MUST equal the value specified by the **fillBlip** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillBlip\_complex\_md4uid (16 bytes):** An MD4 digest, as specified in [[RFC1320]](https://go.microsoft.com/fwlink/?LinkId=90274), that MUST equal the value specified by the **fillBlip\_complex.rgbUid1** field of the related GelFrame record. This field MUST be present when **fillBlip** is greater than zero. MUST NOT be present when **fillBlip** is zero.

**fillBlipNameOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillBlipName property. MUST be 0x0187, which is the same value as the **opid.opid** field of the fillBlipName property as specified in [MS-ODRAW] section 2.3.7.9.

**fillBlipName (4 bytes):** An unsigned integer that specifies the fillBlipName property. MUST equal the value specified by the **fillBlipName** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillBlipName\_complex (variable):** A Unicode null-terminated string that MUST equal the value specified by the **fillBlipName\_complex** field of the related GelFrame record. This field MUST be present when **fillBlipName** is greater than zero. MUST NOT be present when **fillBlipName** is zero.

**fillBlipFlagsOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillBlipFlags property. MUST be 0x0188, which is the same value as the **opid.opid** field of the fillBlipFlags property as specified in [MS-ODRAW] section 2.3.7.11.

**fillBlipFlags (4 bytes):** An unsigned integer that specifies the fillBlipFlags property. MUST equal the value specified by the **fillBlipFlags** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillWidthOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillWidth property. MUST be 0x0189, which is the same value as the **opid.opid** field of the fillWidth property as specified in [MS-ODRAW] section 2.3.7.12.

**fillWidth (4 bytes):** An unsigned integer that specifies the fillWidth property. MUST equal the value specified by the **fillWidth** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillHeightOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillHeight property. MUST be 0x018A, which is the same value as the **opid.opid** field of the fillHeight property as specified in [MS-ODRAW] section 2.3.7.13.

**fillHeight (4 bytes):** An unsigned integer that specifies the fillHeight property. MUST equal the value specified by the **fillHeight** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillAngleOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillAngle property. MUST be 0x018B, which is the same value as the **opid.opid** field of the fillAngle property as specified in [MS-ODRAW] section 2.3.7.14.

**fillAngle (4 bytes):** An unsigned integer that specifies the fillAngle property. MUST equal the value specified by the **fillAngle** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillFocusOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillFocus property. MUST be 0x018C, which is the same value as the **opid.opid** field of the fillFocus property as specified in [MS-ODRAW] section 2.3.7.15.

**fillFocus (4 bytes):** An unsigned integer that specifies the fillFocus property. MUST equal the value specified by the **fillFocus** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillToLeftOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillToLeft property. MUST be 0x018D, which is the same value as the **opid.opid** field of the fillToLeft property as specified in [MS-ODRAW] section 2.3.7.16.

**fillToLeft (4 bytes):** An unsigned integer that specifies the fillToLeft property. MUST equal the value specified by the **fillToLeft** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillToTopOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillToTop property. MUST be 0x018E, which is the same value as the **opid.opid** field of the fillToTop property as specified in [MS-ODRAW] section 2.3.7.17.

**fillToTop (4 bytes):** An unsigned integer that specifies the fillToTop property. MUST equal the value specified by the **fillToTop** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillToRightOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillToRight property. MUST be 0x018F, which is the same value as the **opid.opid** field of the fillToRight property as specified in [MS-ODRAW] section 2.3.7.18.

**fillToRight (4 bytes):** An unsigned integer that specifies the fillToRight property. MUST equal the value specified by the **fillToRight** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillToBottomOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillToBottom property. MUST be 0x0190, which is the same value as the **opid.opid** field of the fillToBottom property as specified in [MS-ODRAW] section 2.3.7.19.

**fillToBottom (4 bytes):** An unsigned integer that specifies the fillToBottom property. MUST equal the value specified by the **fillToBottom** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillRectLeftOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillRectLeft property. MUST be 0x0191, which is the same value as the **opid.opid** field of the fillRectLeft property as specified in [MS-ODRAW] section 2.3.7.20.

**fillRectLeft (4 bytes):** An unsigned integer that specifies the fillRectLeft property. MUST equal the value specified by the **fillRectLeft** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillRectTopOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillRectTop property. MUST be 0x0192, which is the same value as the **opid.opid** field of the fillRectTop property as specified in [MS-ODRAW] section 2.3.7.21.

**fillRectTop (4 bytes):** An unsigned integer that specifies the fillRectTop property. MUST equal the value specified by the **fillRectTop** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillRectRightOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillRectRight property. MUST be 0x0193, which is the same value as the **opid.opid** field of the fillRectRight property as specified in [MS-ODRAW] section 2.3.7.22.

**fillRectRight (4 bytes):** An unsigned integer that specifies the fillRectRight property. MUST equal the value specified by the **fillRectRight** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillRectBottompOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillRectBottom property. MUST be 0x0194, which is the same value as the **opid.opid** field of the fillRectBottom property as specified in [MS-ODRAW] section 2.3.7.23.

**fillRectBottom (4 bytes):** An unsigned integer that specifies the fillRectBottom property. MUST equal the value specified by the **fillRectbottom** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillDztypeOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillDztype property. MUST be 0x0195, which is the same value as the **opid.opid** field of the fillDztype property as specified in [MS-ODRAW] section 2.3.7.24.

**fillDztype (4 bytes):** An unsigned integer that specifies the fillDztype property. MUST equal the value specified by the **fillDztype** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillShadePresetOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillShadePreset property. MUST be 0x0196, which is the same value as the **opid.opid** field of the fillShadePreset property as specified in [MS-ODRAW] section 2.3.7.25.

**fillShadePreset (4 bytes):** An unsigned integer that specifies the fillShadePreset property. MUST equal the value specified by the **fillShadePreset** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillShadeColorsOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillShadeColors property. MUST be 0x0197, which is the same value as the **opid.opid** field of the fillShadeColors property as specified in [MS-ODRAW] section 2.3.7.26.

**fillShadeColors (4 bytes):** An unsigned integer that specifies the number of bytes of data in the following **fillShadeColors\_complex** field.

**fillShadeColors\_complex (variable):** An IMsoArray as specified in [MS-ODRAW] section 2.2.51 that specifies the fillShadeColors\_complex property. This field MUST be present when **fillShadeColors** is greater than zero. MUST equal the value specified by the **fillShadeColors\_complex** field of the related GelFrame record. MUST NOT be present when **fillShadeColors** is zero.

**fillOriginXOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillOriginX property. MUST be 0x0198, which is the same value as the **opid.opid** field of the fillOriginX property as specified in [MS-ODRAW] section 2.3.7.28.

**fillOriginX (4 bytes):** An unsigned integer that specifies the fillOriginX property. MUST equal the value specified by the **fillOriginX** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillOriginYOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillOriginY property. MUST be 0x0199, which is the same value as the **opid.opid** field of the fillOriginY property as specified in [MS-ODRAW] section 2.3.7.29.

**fillOriginY (4 bytes):** An unsigned integer that specifies the fillOriginY property. MUST equal the value specified by the **fillOriginY** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillShapeOriginXOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillShapeOriginX property. MUST be 0x019A, which is the same value as the **opid.opid** field of the fillShapeOriginX property as specified in [MS-ODRAW] section 2.3.7.30.

**fillShapeOriginX (4 bytes):** An unsigned integer that specifies the fillShapeOriginX property. MUST equal the value specified by the **fillShapeOriginX** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillShapeOriginYOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillShapeOriginY property. MUST be 0x019B, which is the same value as the **opid.opid** field of the fillShapeOriginY property as specified in [MS-ODRAW] section 2.3.7.31.

**fillShapeOriginY (4 bytes):** An unsigned integer that specifies the fillShapeOriginY property. MUST equal the value specified by the **fillShapeOriginY** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillShadeTypeOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillShadeType property. MUST be 0x019C, which is the same value as the **opid.opid** field of the fillShadeType property as specified in [MS-ODRAW] section 2.3.7.32.

**fillShadeType (4 bytes):** An unsigned integer that specifies the fillShadeType property. MUST equal the value specified by the **fillShadeType** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillColorExtOpid (4 bytes):** An unsigned integer that specifies the identifier of the fillColorExt property. MUST be 0x019E, which is the same value as the **opid.opid** field of the fillColorExt property as specified in [MS-ODRAW] section 2.3.7.33.

**fillColorExt (4 bytes):** An unsigned integer that specifies the fillColorExt property. MUST equal the value specified by the **fillColorExt** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**reserved415Opid (4 bytes):** An unsigned integer that specifies the identifier of the reserved415 property. MUST be 0x019F, which is the same value as the **opid.opid** field of the reserved415 property as specified in [MS-ODRAW] section 2.3.7.34.

**reserved1 (4 bytes):** MUST be 0xFFFFFFFF.

**fillColorExtModOpid (4 bytes):** An unsigned integer that specifies the identifier of fillColorExtMod property. MUST be 0x01A0, which is the same value as the **opid.opid** field of the fillColorExtMod property as specified in [MS-ODRAW] section 2.3.7.35.

**fillColorExtMod (4 bytes):** An unsigned integer that specifies the fillColorExtMod property. MUST equal the value specified by the **fillColorExtMod** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**reserved417Opid (4 bytes):** An unsigned integer that specifies the identifier of the reserved417 property. MUST be 0x01A1, which is the same value as the **opid.opid** field of the reserved417 property as specified in [MS-ODRAW] section 2.3.7.36.

**reserved2 (4 bytes):** MUST be 0x00000000.

**fillBackColorExtOpid (4 bytes):** An unsigned integer that specifies the identifier of fillBackColorExt property. MUST be 0x01A2, which is the same value as the **opid.opid** field of the fillBackColorExt property as specified in [MS-ODRAW] section 2.3.7.37.

**fillBackColorExt (4 bytes):** An unsigned integer that specifies the fillBackColorExt property. MUST equal the value specified by the **fillBackcolorExt** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**reserved419Opid (4 bytes):** An unsigned integer that specifies the identifier of the reserved419 property. MUST be 0x01A3, which is the same value as the **opid.opid** field of the reserved419 property as specified in [MS-ODRAW] section 2.3.7.38.

**reserved3 (4 bytes):** MUST be 0xFFFFFFFF.

**fillBackColorExtModOpid (4 bytes):** An unsigned integer that specifies the identifier of fillBackColorExtMod property. MUST be 0x01A4, which is the same value as the **opid.opid** field of the fillBackColorExtMod property as specified in [MS-ODRAW] section 2.3.7.39.

**fillBackColorExtMod (4 bytes):** An unsigned integer that specifies the fillBackColorExtMod property. MUST equal the value specified by the **fillBackColorExtMod** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**reserved421Opid (4 bytes):** An unsigned integer that specifies the identifier of the reserved421 property. MUST be 0x01A5, which is the same value as the **opid.opid** field of the reserved421 property as specified in [MS-ODRAW] section 2.3.7.40.

**reserved4 (4 bytes):** MUST be 0x00000000.

**reserved422Opid (4 bytes):** An unsigned integer that specifies the identifier of the reserved422 property. MUST be 0x01A6, which is the same value as the **opid.opid** field of the reserved422 property as specified in [MS-ODRAW] section 2.3.7.41.

**reserved5 (4 bytes):** MUST be 0xFFFFFFFF.

**reserved423Opid (4 bytes):** An unsigned integer that specifies the identifier of the reserved423 property. MUST be 0x01A7, which is the same value as the **opid.opid** field of the reserved423 property as specified in [MS-ODRAW] section 2.3.7.42.

**reserved6 (4 bytes):** MUST be 0xFFFFFFFF.

**fillstyle\_fFilledOpid (4 bytes):** An unsigned integer that specifies the identifier of the fFilled property. MUST be 0x01BB.

**fillstyle\_fFilled (4 bytes):** An unsigned integer that specifies the fFilled property. MUST equal the value specified by the **fFilled** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillstyle\_ffillShapeOpid (4 bytes):** An unsigned integer that specifies the identifier of the ffillShape property. MUST be 0x01BD.

**fillstyle\_ffillShape (4 bytes):** An unsigned integer that specifies the ffillShape property. MUST equal the value specified by the **ffillShape** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

**fillstyle\_ffillUseRectOpid (4 bytes):** An unsigned integer that specifies the identifier of the ffillUseRect property. MUST be 0x01BE.

**fillstyle\_ffillUseRect (4 bytes):** An unsigned integer that specifies the ffillUseRect property. MUST equal the value specified by the **ffillUseRect** field of the related GelFrame record or the default value if the field is not present in the GelFrame record.

### 2.5.129 FontIndex

The **FontIndex** structure specifies a [Font](#Section_291a910ccb694799875ea201845d4fd1) record 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 |
| ifnt | | | | | | | | | | | | | | | |

**ifnt (2 bytes):**  An unsigned integer. If this value is less than 4, then it specifies a zero-based index of a Font record in the collection of Font records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). If this value is greater than 4, then it specifies a one-based index of a Font record in the collection of Font records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). MUST NOT equal 4, and MUST be less than or equal to 1022. SHOULD[<168>](#Appendix_A_168" \o "Product behavior note 168) be less than or equal to 510.

The Font records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) are organized into two sections. The first section contains four Font records which MUST be present and MUST be ordered as follows[<169>](#Appendix_A_169" \o "Product behavior note 169):

| Ifnt value | Meaning |
| --- | --- |
| 0 | Default [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) |
| 1 | Default font, bold |
| 2 | Default font, italic |
| 3 | Default font, bold and italic |

The second section, which is optional, contains Font records for any additional font formatting properties present in the file. For example, the 5th Font record in the file is referred to by **ifnt** value 5.

### 2.5.130 FontInfo

The **FontInfo** structure specifies a [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) entry used by the [FrtFontList](#Section_417cb30701994f86baf86daa77359f28) 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 | reserved | | | | | | | | | | | | | | | ifnt | | | | | | | | | | | | | | | |

**A - fScaled (1 bit):**  A bit that specifies whether the fonts are scaled. MUST be a value from the following table[<170>](#Appendix_A_170" \o "Product behavior note 170):

| Value | Meaning |
| --- | --- |
| 0x0 | Font has fixed size |
| 0x1 | Font scales with [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)) in a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), or [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) |

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

**ifnt (2 bytes):**  A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) that specifies the font used by the FrtFontList record.

### 2.5.131 FontScheme

The **FontScheme** enumeration specifies the [**font scheme**](#gt_d2cfdc52-4222-46a7-8c1e-fffdcadcb973) to which this [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) belongs. When a font is part of a theme as specified in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) part 1, section 14.2.7, the font is categorized as a [**major scheme**](#gt_62199344-845e-47bc-84c0-8261e3820666) or a [**minor scheme**](#gt_04094b39-b410-4e14-99a0-a78e88b283f6).

| Name | Value | Meaning |
| --- | --- | --- |
| **XFSNONE** | 0x00 | No font scheme |
| **XFSMAJOR** | 0x01 | Major scheme |
| **XFSMINOR** | 0x02 | Minor scheme |
| **XFSNIL** | 0xFF | [**Ninched**](#gt_111030f3-1e81-469e-9b6e-f42f501189b1) state |

### 2.5.132 FormatRun

The **FormatRun** structure specifies formatting information for a [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553).

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

**ich (2 bytes):** An unsigned integer that specifies the zero-based index of the first character of the text that contains the text run. When this record is used in an array, this value MUST be in strictly increasing order.

**ifnt (2 bytes):** A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) structure that specifies the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2). If **ich** is equal to the length of the text, this recordis undefined and MUST be ignored.

### 2.5.133 FormulaValue

The **FormulaValue** structure specifies the current value of a formula. It can be a numeric value, a Boolean value, an error value, a string value, or a blank string value. If **fExprO** is not 0xFFFF, the 8 bytes of this structure specify an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)). If **fExprO** is 0xFFFF, this structure specifies a Boolean value, an error value, a string value, or a blank 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 |
| byte1 | | | | | | | | byte2 | | | | | | | | byte3 | | | | | | | | byte4 | | | | | | | |
| byte5 | | | | | | | | byte6 | | | | | | | | fExprO | | | | | | | | | | | | | | | |

**byte1 (1 byte):**  If **fExprO** is 0xFFFF, **byte1** is an unsigned integer that specifies the formula value type and MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | String value. The string value is stored in a [String](#Section_504b6cfcd57b429692f4ceefc0a2ca9b) record that immediately follows this record. |
| 0x01 | Boolean value. |
| 0x02 | Error value. |
| 0x03 | Blank string value. |

If **fExprO** is not 0xFFFF, **byte1** specifies the first byte of the Xnum.

**byte2 (1 byte):**  If **fExprO** is 0xFFFF, **byte2** is undefined and MUST be ignored. If **fExprO** is not 0xFFFF, **byte2** specifies the second byte of the Xnum (section 2.5.342).

**byte3 (1 byte):**  The meaning of byte3 is specified in the following table:

| Value | Meaning |
| --- | --- |
| **fExprO** is 0xFFFF and **byte1** is 0x00 | **byte3** is undefined and MUST be ignored. |
| **fExprO** is 0xFFFF and **byte1** is 0x01 | **byte3** specifies a Boolean value. |
| **fExprO** is 0xFFFF and **byte1** is 0x02 | **byte3** specifies a [BErr](#Section_91beb411d1754c4eb65fe3bfbc53064c). |
| **fExprO** is 0xFFFF and **byte1** is 0x03 | **byte3** is undefined and MUST be ignored. |
| **fExprO** is not 0xFFFF | **byte3** specifies the third byte of the Xnum. |

**byte4 (1 byte):**  If **fExprO** is 0xFFFF, **byte4** is undefined and MUST be ignored. If **fExprO** is not 0xFFFF, **byte4** specifies the fourth byte of the Xnum.

**byte5 (1 byte):**  If **fExprO** is 0xFFFF, **byte5** is undefined and MUST be ignored. If **fExprO** is not 0xFFFF, **byte5** specifies the fifth byte of the Xnum.

**byte6 (1 byte):**  If **fExprO** is 0xFFFF, **byte6** is undefined and MUST be ignored. If **fExprO** is not 0xFFFF, **byte6** specifies the sixth byte of the Xnum.

**fExprO (2 bytes):** If **fExprO** is 0xFFFF, this structure specifies a Boolean value, an error value, a string value, or a blank string value. If **fExprO** is not 0xFFFF, **fExprO** specifies the last two bytes of the Xnum.

### 2.5.134 FrtFlags

The **FrtFlags** structure specifies flags used in [future record](#Section_b660b67822684414839ed1ae9a4e4e85) headers.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 - fFrtRef (1 bit):**  A bit that specifies whether the containing record specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The containing record does not specify a range of cells. The containing record’s ref8.rwFirst, ref8.rwLast, ref8.colFirst, and ref8.colLast fields SHOULD[<171>](#Appendix_A_171" \o "Product behavior note 171) all be zero. |
| 1 | The containing record specifies a range of cells. |

**B - fFrtAlert (1 bit):**  A bit that specifies whether to alert the user of possible problems when saving the file without having recognized this record.

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

### 2.5.135 FrtHeader

The **FrtHeader** structure specifies a [future record](#Section_b660b67822684414839ed1ae9a4e4e85) type header.

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

**rt (2 bytes):** An unsigned integer that specifies the record type identifier. MUST be identical to the record type identifier of the containing record.

**grbitFrt (2 bytes):**  An [FrtFlags](#Section_4ba52910e74d484d9a6d4588e054561e) that specifies attributes for this record. The value of **grbitFrt.fFrtRef** MUST be zero. The value of **grbitFrt.fFrtAlert** MUST be zero.

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

### 2.5.136 FrtHeaderOld

The **FrtHeaderOld** structure specifies a [future record](#Section_b660b67822684414839ed1ae9a4e4e85) type header.

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

**rt (2 bytes):**  An unsigned integer that specifies the record type identifier. MUST be identical to the record type identifier of the containing record.

**grbitFrt (2 bytes):**  An [FrtFlags](#Section_4ba52910e74d484d9a6d4588e054561e) that specifies attributes for this record. The value of **grbitFrt.fFrtRef** MUST be zero. The value of **grbitFrt.fFrtAlert** MUST be zero.

### 2.5.137 FrtRefHeader

The **FrtRefHeader** structure specifies a [future record](#Section_b660b67822684414839ed1ae9a4e4e85) type header.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | |
| ref8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rt (2 bytes):**  An unsigned integer that specifies the record type identifier. MUST be identical to the record type identifier of the containing record.

**grbitFrt (2 bytes):**  A [FrtFlags](#Section_4ba52910e74d484d9a6d4588e054561e) that specifies attributes for this record. The value of **grbitFrt.fFrtAlert** MUST be zero.

**ref8 (8 bytes):**  A [Ref8](#Section_ccb1ac4e95794278a2050945e7fcf13d) that references the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with the containing record. If **grbitFrt.fFrtRef** is zero then **ref8.rwFirst** MUST be zero, **ref8.rwLast** MUST be zero, **ref8.colFirst** MUST be zero, and **ref8.colLast** MUST be zero.

### 2.5.138 FrtRefHeaderNoGrbit

The **FrtRefHeaderNoGrbit** structure specifies a [future record](#Section_b660b67822684414839ed1ae9a4e4e85) type header.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | ref8 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**rt (2 bytes):**  An unsigned integer that specifies the record type identifier. MUST be identical to the record type identifier of the containing record.

**ref8 (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) that references the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with the containing record.

### 2.5.139 FrtRefHeaderU

The **FrtRefHeaderU** structure specifies a [future record](#Section_b660b67822684414839ed1ae9a4e4e85) type header.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | |
| ref8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rt (2 bytes):**  An unsigned integer that specifies the record type identifier. MUST be identical to the record type identifier of the containing record.

**grbitFrt (2 bytes):**  A [FrtFlags](#Section_4ba52910e74d484d9a6d4588e054561e) that specifies attributes for this record. The value of **grbitFrt.fFrtAlert** MUST be zero.

**ref8 (8 bytes):**  A [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) that references the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with the containing record. If **rt** is [Feature11](#Section_4c78a7d3a3ff48e28e2cc89785519322) (0x0872) or [Feature12](#Section_4c95f0ddd35745758b77792dbe2c0d5e) (0x0878), this field MUST be ignored.

### 2.5.140 FtCbls

The **FtCbls** structure appears as part of an [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that represents a checkbox or radio button.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x000A.

**cb (2 bytes):**  Reserved. MUST be 0x000C.

**unused1 (4 bytes):**  Undefined and MUST be ignored.

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

**unused3 (4 bytes):**  Undefined and MUST be ignored.

### 2.5.141 FtCblsData

The **FtCblsData** structure specifies the properties of the checkbox or radio button [Obj](#Section_dd34df60825040a983a3911476a31ea7) that contains this FtCblsData.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| fChecked | | | | | | | | | | | | | | | | accel | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | A | unused | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0012.

**cb (2 bytes):**  Reserved. MUST be 0x0008.

**fChecked (2 bytes):**  An unsigned integer that specifies the state of the checkbox or radio button control. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | The control is in an unchecked state. |
| 0x0001 | The control is in a checked state. |
| 0x0002 | The control is in a mixed state. The **fChecked** field MUST NOT have this value if the **cmo.ot** field of the Obj record that contains this FtPioGrbit is not equal to 0x0B. |

**accel (2 bytes):** An unsigned integer that specifies the [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) character of the control’s [**accelerator key**](#gt_d61b4a07-b6c1-4c08-9ebd-1d00b360f953). A value of 0x0000 specifies there is no accelerator associated with this control. This field MUST be ignored unless this structure is used in the [Dialog Sheet Substream](#Section_da37feb48b9a462d87772a5fddd4866e).

**reserved (2 bytes):** Reserved. MUST be 0x0000.

**A - fNo3d (1 bit):**  A bit that specifies whether the control is expected to be displayed without three-dimensional effects.

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

### 2.5.142 FtCf

The **FtCf** structure specifies the clipboard format of the picture-type [Obj](#Section_dd34df60825040a983a3911476a31ea7) record containing this FtCf.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| cf | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0007.

**cb (2 bytes):**  Reserved. MUST be 0x0002.

**cf (2 bytes):** An unsigned integer that specifies the Windows clipboard format of the data associated with the picture. This field’s value MUST be in the following table:

| Value | Format |
| --- | --- |
| 0x0002 | Specifies the format of the picture is an enhanced [**metafile**](#gt_ae5f028e-7e28-4a0b-bec6-2c87913f7db7). |
| 0x0009 | Specifies the format of the picture is a bitmap. |
| 0xFFFF | Specifies the picture is in an unspecified format that is neither and enhanced metafile nor a bitmap. |

### 2.5.143 FtCmo

The **FtCmo** structure specifies the common properties of the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that contains this FtCmo.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| ot | | | | | | | | | | | | | | | | id | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | unused8 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | unused9 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | unused10 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ft (2 bytes):** Reserved. MUST be 0x15.

**cb (2 bytes):**  Reserved. MUST be 0x12.

**ot (2 bytes):** An unsigned integer that specifies the type of object represented by the Obj record that contains this FtCmo. MUST be a value from the following table:

| Value | Type of Object |
| --- | --- |
| 0x0000 | Group |
| 0x0001 | Line |
| 0x0002 | Rectangle |
| 0x0003 | Oval |
| 0x0004 | Arc |
| 0x0005 | Chart |
| 0x0006 | Text |
| 0x0007 | Button |
| 0x0008 | Picture |
| 0x0009 | Polygon |
| 0x000B | Checkbox |
| 0x000C | Radio button |
| 0x000D | Edit box |
| 0x000E | Label |
| 0x000F | Dialog box |
| 0x0010 | Spin control |
| 0x0011 | Scrollbar |
| 0x0012 | List |
| 0x0013 | Group box |
| 0x0014 | Dropdown list |
| 0x0019 | Note |
| 0x001E | OfficeArt object |

**id (2 bytes):** An unsigned integer that specifies the identifier of this object. This object identifier is used by other types to refer to this object. The value of **id** MUST be unique among all Obj records within 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.

**A - fLocked (1 bit):** A bit that specifies whether this object is [**locked**](#gt_7795ac77-550e-4531-9ce5-327bbde6fa81).

**B - reserved (1 bit):** Reserved. MUST be 0.

**C - fDefaultSize (1 bit):** A bit that specifies whether the application is expected to choose the object’s size.

**D - fPublished (1 bit):** A bit that specifies whether this is a [chart](#Section_8f56b001f57445e0932f84cf30408323) object that is expected to be [**published**](#gt_8ffc383a-d4f1-4515-a8b5-874d84ab2d2b) the next time the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) containing it is published[<172>](#Appendix_A_172" \o "Product behavior note 172). This bit is ignored if the **fPublishedBookItems** field of the [BookExt\_Conditional12](#Section_714e951cff5a48769e01bdfa1b548141) structureis zero.

**E - fPrint (1 bit):** A bit that specifies whether the image of this object is intended to be included when printed.

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

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

**H - fDisabled (1 bit):** A bit that specifies whether this object has been disabled.

**I - fUIObj (1 bit):** A bit that specifies whether this is an auxiliary object that can only be automatically inserted by the application (as opposed to an object that can be inserted by a user).

**J - fRecalcObj (1 bit):** A bit that specifies whether this object is expected to be updated on load to reflect the values in the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) associated with the object. This field MUST be ignored unless the **pictFmla.key** field of the containing Obj exists and **pictFmla.key.fmlaListFillRange.cbFmla** of the containing Obj is not equal to 0.

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

**L - unused4 (1 bit):** Undefined and MUST be ignored.

**M - fRecalcObjAlways (1 bit):** A bit that specifies whether this object is expected to be updated whenever the value of a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the range associated with the object changes. This field MUST be ignored unless the **pictFmla.key** field of the containing Obj exists and **pictFmla.key.fmlaListFillRange.cbFmla** of the containing Obj is not equal to 0.

**N - unused5 (1 bit):**  Undefined and MUST be ignored.

**O - unused6 (1 bit):**  Undefined and MUST be ignored.

**P - unused7 (1 bit):** Undefined and MUST be ignored.

**unused8 (4 bytes):**  Undefined and MUST be ignored.

**unused9 (4 bytes):**  Undefined and MUST be ignored.

**unused10 (4 bytes):**  Undefined and MUST be ignored.

### 2.5.144 FtEdoData

This structure specifies the properties of the edit box [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that contains this FtEdoData.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| ivtEdit | | | | | | | | | | | | | | | | fMultiLine | | | | | | | | | | | | | | | |
| fVScroll | | | | | | | | | | | | | | | | id | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0010.

**cb (2 bytes):**  Reserved. MUST be 0x0008.

**ivtEdit (2 bytes):** An unsigned integer that specifies what input [**data validation**](#gt_1db94de4-1b5d-40aa-a7d9-617078ebb237) is expected to be performed by this edit box. MUST be a value from the following table:

| Value | Strings accepted by validation |
| --- | --- |
| 0x0000 | Any string; no validation is expected. |
| 0x0001 | An integer. |
| 0x0002 | A number. |
| 0x0003 | A [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) reference. |
| 0x0004 | A formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). |

**fMultiLine (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether this edit box supports multiple lines of text. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Only one line is supported. |
| 0x0001 | Multiple lines are supported. |

**fVScroll (2 bytes):**  A Boolean that specifies whether this edit box contains a vertical scrollbar. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | Scrollbar is expected not to be displayed. |
| 0x0001 | Scrollbar is expected to be displayed. |

**id (2 bytes):** An [ObjId](#Section_16a9e44a84a34b1dbb5f36c1966d2ce1) that specifies the associated list control. The associated list control is the control specified by the Obj record whose **cmo.id** field is equal to **id.id**. A value of **id.id** equal to 0 specifies that there is no list control associated with this edit box.

### 2.5.145 FtGboData

The **FtGboData** structure specifies the properties of the group box [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that contains this FtGboData.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| accel | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| A | unused2 | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x000F.

**cb (2 bytes):**  Reserved. MUST be 0x0006.

**accel (2 bytes):**  An unsigned integer that specifies the [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) character of the object’s [**accelerator key**](#gt_d61b4a07-b6c1-4c08-9ebd-1d00b360f953). A value of 0x0000 specifies there is no accelerator key associated with this object. This field MUST be ignored unless this object is in a [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8).

**reserved (2 bytes):**  Reserved. MUST be 0x0000.

**A - fNo3d (1 bit):** A bit that specifies whether this control is expected to be displayed without three-dimensional effects.

**unused2 (15 bits):** Undefined and MUST be ignored.

### 2.5.146 FtGmo

The **FtGmo** structure appears in a group-type [Obj](#Section_dd34df60825040a983a3911476a31ea7) 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 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0006.

**cb (2 bytes):**  Reserved. MUST be 0x0002

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

### 2.5.147 FtLbsData

The **FtLbsData** structure specifies the properties of a list or drop-down list [**embedded object**](#gt_708607be-8655-416e-93f3-b434e9ecbd56) 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 |
| ft | | | | | | | | | | | | | | | | cbFContinued | | | | | | | | | | | | | | | |
| fmla (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cLines | | | | | | | | | | | | | | | | iSel | | | | | | | | | | | | | | | |
| A | B | C | D | E | | F | G | lct | | | | | | | | idEdit | | | | | | | | | | | | | | | |
| dropData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgLines (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bsels (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0013.

**cbFContinued (2 bytes):**  An unsigned integer that indirectly specifies whether some of the data in this structure appear in a subsequent [Continue](#Section_999fae21d3d942e88290639782460c67) record. If **cbFContinued** is 0x0000, all of the fields in this structure except **ft** and **cbFContinued** MUST NOT exist. If this entire structure is contained within the same record, then **cbFContinued** MUST be greater than or equal to the size, in bytes, of this structure, not including the four bytes for the **ft** and **cbFContinued** fields. If part of this structure is in one or more subsequent Continue records, then the **cbFContinued** field MUST hold the value calculated according to the following formula:

**cbFContinued** = size of the fields of this structure in the current record - 1.

**fmla (variable):**  An [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) that specifies the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) values that are the items in this list.

**cLines (2 bytes):** An unsigned integer that specifies the number of items in the list. MUST be less than or equal to 0x7FFF.

**iSel (2 bytes):** An unsigned integer that specifies the one-based index of the first selected item in this list. A value of 0x0000 specifies there is no currently [**selected**](#gt_f27adb49-1bec-4bfa-a1a8-0eb4db1ba595) item. MUST be less than or equal to **cLines**.

**A - fUseCB (1 bit):** A bit that specifies whether the **lct** field MUST be ignored. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The **lct** field MUST be ignored. |
| 1 | The **lct** field MUST NOT be ignored. |

**B - fValidPlex (1 bit):** A bit that specifies whether the **rgLines** field exists.

**C - fValidIds (1 bit):** A bit that specifies whether the **idEdit** field MUST be ignored. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The **idEdit** field MUST be ignored. |
| 1 | The **idEdit** field MUST NOT be ignored. |

**D - fNo3d (1 bit):** A bit that specifies whether this control is displayed without 3-dimensional effects. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The control is displayed with 3-dimentional effects. |
| 1 | The control is not displayed with 3-dimentional effects. |

**E - wListSelType (2 bits):** An unsigned integer that specifies the type of [**selection**](#gt_8a241461-3c59-45fb-9094-b6692a0c27fe) behavior this list control is expected to support. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The list control is only allowed to have one selected item. |
| 1 | The list control is allowed to have multiple items selected by clicking on each item. |
| 2 | The list control is allowed to have multiple items selected by holding the CTRL key and clicking on each item. |

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

**G - reserved (1 bit):**  MUST be zero, and MUST be ignored.

**lct (8 bits):** An unsigned integer that specifies the behavior class of this list. MUST be ignored if the **fUseCB** field is 0. Otherwise, MUST be a value from the following table:

| Value | Expected behavior of the control |
| --- | --- |
| 0x00 | Regular sheet dropdown control (like a list box object). |
| 0x01 | [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) page field dropdown. |
| 0x03 | [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35) dropdown. The lct field MUST NOT have this value unless this object is in a [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615) or [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491). |
| 0x05 | [**AutoComplete**](#gt_28a56cd0-e544-405c-8d41-b95ed015c0cc) dropdown. |
| 0x06 | [**Data validation**](#gt_1db94de4-1b5d-40aa-a7d9-617078ebb237) list dropdown. The lct field MUST NOT have this value unless this object is in a worksheet or macro sheet. |
| 0x07 | PivotTable row or column field dropdown. |
| 0x09 | Dropdown for the Total Row of a table. |

**idEdit (2 bytes):** An [ObjId](#Section_16a9e44a84a34b1dbb5f36c1966d2ce1) that specifies the edit box associated with this list. A value of **idEdit.id** equal to 0x0000 or a value of **fValidIds** equal to 0 specifies that there is no edit box associated with this list.

**dropData (variable):** An optional [LbsDropData](#Section_521a20b7fd7d412f93351686ce814f08) that specifies properties for this dropdown control. This field MUST exist if and only if the containing [Obj’s](#Section_dd34df60825040a983a3911476a31ea7) **cmo.ot** is equal to 0x0014.

**rgLines (variable):** An optional array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671). Each string in this array specifies an item in the list. This array MUST exist if and only if the **fValidPlex** field is equal to 1. The number of elements in this array, if it exists, MUST be **cLines**. The **cch** field of each string in this array MUST be less than or equal to 0x00FF. If this array does not fit in the owning Obj record, Continue records are used. Each string in this array MUST be entirely contained within the same record.

**bsels (variable):** An optional array of one-byte Booleans (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies which items in the list are part of a multiple selection. This array MUST exist if and only if the **wListSelType** field is not equal to 0. The number of elements in this array, if it exists, MUST be **cLines**. The nth byte in this array specifies whether the nth list item is part of the multiple selection. The value of each element MUST be taken from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | List item is not part of the multiple selection. |
| 0x01 | List item is part of the multiple selection. |

If this array does not fit in the current record, or would come within eight bytes of the end of the maximum allowable size of that record, Continue records are used.

### 2.5.148 FtMacro

The **FtMacro** structure specifies an action associated with this control.

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

**ft (2 bytes):**  Reserved. MUST be 0x0004.

**fmla (variable):** An [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) that specifies the name of a macro. The **fmla** field MUST refer to a name defined through an [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) whose **fProc** field is 1.

### 2.5.149 FtNts

The **FtNts** structure specifies the properties of the note-type [Obj](#Section_dd34df60825040a983a3911476a31ea7) record containing this FtNts.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| guid (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fSharedNote | | | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x000D.

**cb (2 bytes):**  Reserved. MUST be 0x0016.

**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 Globally Unique identifier of this [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d).

**fSharedNote (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the comment is shared. MUST be a value from the following table:

| Value of fSharedNote | Meaning |
| --- | --- |
| 0x0000 | Not shared |
| 0x0001 | Shared |

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

### 2.5.150 FtPictFmla

The **FtPictFmla** structure specifies the location of the data associated with the picture [Obj](#Section_dd34df60825040a983a3911476a31ea7) that contains this FtPictFmla.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| fmla (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| lPosInCtlStm (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbBufInCtlStm (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| key (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0009.

**cb (2 bytes):**  An unsigned integer that specifies the length, in bytes of this FtPicFmla, not including **ft** and **cb** fields.

**fmla (variable):**  An [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) that specifies the location of the data for the object associated with the Obj record that contains this FtPictFmla. If the **pictFlags.fDde** field of the Obj record that contains this FtPictFmla is 1, **fmla** MUST refer to a name which is defined in an [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) record whose **fOle** field is 1. If the **pictFlags.fCamera** field of the Obj record that contains this FtPictFmla is 1, **fmla** MUST refer to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). Otherwise, the **fmla.cce** field of this **fmla** MUST be 0x5 and the **fmla.rgce** field of this **fmla** MUST contain a [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7) followed by four bytes that are undefined and MUST be ignored.

**lPosInCtlStm (4 bytes):** An optional unsigned integer whose meaning depends on the value of the **cmo.fPrstm** field of the Obj record that contains this FtPictFmla. This field MUST exist if and only if this structure’s **fmla.fmla.rgce** field starts with a PtgTbl. The following table explains the two possible meanings of **lPosInCtlStm**:

| Value of cmo.fPrstm | Meaning of lPosInCtlStm |
| --- | --- |
| 0 | The object’s data MUST reside in an [embedding storage](#Section_b406ade0fb1c4512bff2b576fdfff545) whose name is the concatenation of "MBD" and the eight byte hexadecimal representation of **lPosInCtlStm’s** value**.** |
| 1 | **lPosInCtlStm** specifies the zero-based offset of this object’s data within the [control stream (Ctls)](#Section_ce07d64476c84d368badb6419bd152fe). |

**cbBufInCtlStm (4 bytes):** An optional unsigned integer that specifies the size of this object’s data within the control stream. This field MUST exist if and only if the **pictFlags.fPrstm** field of the Obj record that contains this FtPictFmla equals 1.

**key (variable):** An optional [PictFmlaKey](#Section_df0fcf2f60284ca5b8e8e0e79296260c). MUST exist if and only if the **pictFlags.fCtl** field of the Obj record that contains this FtPictFmla equals 1.

### 2.5.151 FtPioGrbit

The **FtPioGrbit** structure specifies Boolean properties of the picture [Obj](#Section_dd34df60825040a983a3911476a31ea7) containing this FtPioGrbit.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | unused2 | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0008.

**cb (2 bytes):**  Reserved. MUST be 0x0002.

**A - fAutoPict (1 bit):** A bit that specifies whether the picture’s aspect ratio is preserved when rendered in different views ([**Normal view**](#gt_b3c343ae-05ca-4b91-9cc1-383ee3563990), [**Page Break Preview view**](#gt_a7342c25-b4fd-4c84-9922-ae9c4a92d180), [**Page Layout view**](#gt_c5ea3e6c-db72-4a85-b273-596e95a3841e) and printing).

**B - fDde (1 bit):**  A bit that specifies whether the **pictFmla** field of the Obj record that contains this FtPioGrbit specifies a [**DDE**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) reference.

**C - fPrintCalc (1 bit):**  A bit that specifies whether this object is expected to be updated on print to reflect the values in the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with the object.

**D - fIcon (1 bit):** A bit that specifies whether the picture is displayed as an icon.

**E - fCtl (1 bit):** A bit that specifies whether this object is an [**ActiveX control**](#gt_f3dcc35f-8f80-474e-ac39-106a23f059c2). It MUST NOT be the case that both **fCtl** and **fDde** are equal to 1.

**F - fPrstm (1 bit):** A bit that specifies whether the object data are stored in an [embedding storage](#Section_b406ade0fb1c4512bff2b576fdfff545) or in the [controls stream (ctls)](#Section_ce07d64476c84d368badb6419bd152fe). See [FtPictFmla](#Section_00f89d3267b0408e9eaff4fecbddb089)’s **lPosInCtlStm** and **cbBufInCtlStm** fields for more detail.

| Value of fPrstm | Location of object data |
| --- | --- |
| 0 | An embedding storage. |
| 1 | The controls stream (ctls). |

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

**H - fCamera (1 bit):** A bit that specifies whether this is a [**camera picture**](#gt_ccb0da7f-aa4d-481c-b46c-e96c220869e1).

**I - fDefaultSize (1 bit):** A bit that specifies whether this picture’s size has been explicitly set. The value of **fDefaultSize** MUST be taken from the following table:

| Value | Meaning |
| --- | --- |
| 0 | This picture’s size has been explicitly set. |
| 1 | This picture’s size has not been explicitly set. |

**J - fAutoLoad (1 bit):**  A bit that specifies whether the [**OLE server**](#gt_8032f3a8-7274-45a4-aa01-5e7d8645f0c0) for the object is called to load the object’s data automatically when the parent [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) is opened.

**unused2 (6 bits):**  Undefined and MUST be ignored.

### 2.5.152 FtRbo

The **FtRbo** structure appears as part of an [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that represents a radio button.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x000B.

**cb (2 bytes):**  Reserved. MUST be 0x0006.

**unused1 (4 bytes):**  Undefined and MUST be ignored.

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

### 2.5.153 FtRboData

The **FtRboData** structure specifies the properties of the radio button [Obj](#Section_dd34df60825040a983a3911476a31ea7) containing this FtRboData.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| idRadNext | | | | | | | | | | | | | | | | fFirstBtn | | | | | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x0011.

**cb (2 bytes):**  Reserved. MUST be 0x0004.

**idRadNext (2 bytes):** An [ObjId](#Section_16a9e44a84a34b1dbb5f36c1966d2ce1) that specifies the next radio button in a group of radio buttons. A value of **idRadNext.id** equal to 0 or equal to the containing Obj’s **cmo.id** specifies there is no next radio button.

**fFirstBtn (2 bytes):** A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether this is the first radio button in its group. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 | This is not the first radio button. |
| 0x0001 | This is the first radio button in the group. |

### 2.5.154 FtSbs

The **FtSbs** structure specifies the properties of the scrollable control represented by the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that contains this FtSbs.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ft | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iVal | | | | | | | | | | | | | | | | iMin | | | | | | | | | | | | | | | |
| iMax | | | | | | | | | | | | | | | | dInc | | | | | | | | | | | | | | | |
| dPage | | | | | | | | | | | | | | | | fHoriz | | | | | | | | | | | | | | | |
| dxScroll | | | | | | | | | | | | | | | | A | B | C | D | unused2 | | | | | | | | | | | |

**ft (2 bytes):**  Reserved. MUST be 0x000C.

**cb (2 bytes):**  Reserved. MUST be 0x0014.

**unused1 (4 bytes):**  Undefined and MUST be ignored.

**iVal (2 bytes):** A signed integer that specifies the current value of the control. This value MUST be greater than or equal to **iMin**. This value MUST be less than or equal to **iMax**.

**iMin (2 bytes):** A signed integer that specifies the minimum allowable value of the control.

**iMax (2 bytes):** A signed integer that specifies the maximum allowable value of the control. This value MUST be greater than or equal to **iMin**.

**dInc (2 bytes):** A signed integer that specifies the amount by which the control’s value is changed when the user clicks on one of the control’s minor increment regions. MUST be greater than or equal to 0x0000.

**dPage (2 bytes):** A signed integer that specifies the amount by which the control’s value is changed when the user clicks on the scrollbar’s page up or page down region. MUST be greater than or equal to 0x0000.

**fHoriz (2 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether this control scrolls horizontally or vertically. MUST be a value from the following table:

|  |  |
| --- | --- |
| 0x0000 | Vertical scrolling |
| 0x0001 | Horizontal scrolling |

**dxScroll (2 bytes):** A signed integer that specifies the width in pixels of the scrollbar. MUST be greater than or equal to 0x0000.

**A - fDraw (1 bit):** A bit that specifies whether this control is expected to be displayed.

**B - fDrawSliderOnly (1 bit):** A bit that specifies whether only the slider portion of this control is expected to be displayed.

**C - fTrackElevator (1 bit):** A bit that specifies whether the control is expected to interactively track a mouse drag of the control’s scroll thumb (aka elevator).

**D - fNo3d (1 bit):** A bit that specifies whether the control is expected to be displayed without three-dimensional effects.

**unused2 (12 bits):**  Undefined and MUST be ignored.

### 2.5.155 FullColorExt

The **FullColorExt** structure specifies a color.

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

**xclrType (2 bytes):** An [**XColorType**](#Section_7f0948f77e7a4ae785e77cdf9b83c22a) that specifies how the color information is stored.

**nTintShade (2 bytes):** A signed integer that specifies the tint of the color. Positive values lighten the color, and negative values darken the color.

**xclrValue (4 bytes):**  An unsigned integer that specifies the color data. If **xclrType** equals 0x00 or 0x04, this value MUST be 0. If **xclrType** equals 0x01, this field contains an [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) that specifies a color in the color table. If **xclrType** equals 0x02, this field contains a [LongRGBA](#Section_ef480296bdc34bcbbd1ecd354b79d7c2) that specifies an [**red-green-blue-alpha (RGBA)**](#gt_86add9f3-4083-49ce-a1b3-359595c14b65) value. If **xclrType** equals 0x03, this field contains a [ColorTheme](#Section_839c782d4d1a4e88bac58c2335fb7b70) that specifies a theme color.

**unused (8 bytes):** Undefined and MUST be ignored.

### 2.5.156 GradStop

The **GradStop** structure specifies a [**gradient stop**](#gt_35b983af-d590-4f93-87cb-94786924511f) for a [**gradient fill**](#gt_35280309-5b22-4c17-be48-f06c37ffc685).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| xclrType | | | | | | | | | | | | | | | | xclrValue | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | numPosition | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | numTint | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**xclrType (2 bytes):**  An [**XColorType**](#Section_7f0948f77e7a4ae785e77cdf9b83c22a) that specifies how the color information is stored.

**xclrValue (4 bytes):** An unsigned integer that specifies the color data. If **xclrType** equals 0x00 or 0x04, this value MUST be 0. If **xclrType** equals 0x01, this field contains an [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) that specifies color in the color table. If **xclrType** equals 0x02, this field contains a [LongRGBA](#Section_ef480296bdc34bcbbd1ecd354b79d7c2) that specifies an [**RGBA**](#gt_86add9f3-4083-49ce-a1b3-359595c14b65) value. If **xclrType** equals 0x03, this field contains a [ColorTheme](#Section_839c782d4d1a4e88bac58c2335fb7b70) that specifies a theme color

**numPosition (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the gradient stop position as the percentage of the gradient range. The gradient stop position is the position within the gradient range where this gradient stop’s color begins. MUST be greater than or equal to 0.0 and less than or equal to 1.0.

**numTint (8 bytes):** An Xnum that specifies the tint of the color. MUST be greater than or equal to -1.0 and less than or equal to 1.0. Positive values lighten the color, and negative values darken the color.

### 2.5.157 HiddenMemberSet

The **HiddenMemberSet** structure specifies [**OLAP members**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd) from a [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37) that are in the same level in an [**OLAP hierarchy**](#gt_1e0ca171-3095-4e3c-9c69-65148df00a9c).

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

**cMemberName (4 bytes):** An unsigned integer that specifies the number of elements in **rgMemberName**.

**rgMemberName (variable):** An array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) structures. Each element specifies the name of a hidden OLAP member. MUST exist if and only if the value of **cMemberName** is greater than 0.

### 2.5.158 HideObjEnum

The **HideObjEnum** enumeration 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).

| Name | Value | Meaning |
| --- | --- | --- |
| **SHOWALL** | 0x0000 | ActiveX objects, OLE objects, and drawing objects are displayed in the window that contains the workbook. |
| **SHOWPLACEHOLDER** | 0x0001 | Placeholders are displayed in place of ActiveX objects, OLE objects, and drawing objects in the window that contains the workbook. |
| **HIDEALL** | 0x0002 | ActiveX objects, OLE objects, and drawing objects are not displayed in the window that contains the workbook. |

### 2.5.159 HorizAlign

The **HorizAlign** enumeration specifies the horizontal alignment.

| Name | Value | Meaning |
| --- | --- | --- |
| **ALCNIL** | 0xFF | Alignment not specified |
| **ALCGEN** | 0x00 | [**General alignment**](#gt_3ee6d1d4-830b-4dc2-b8be-751665f8045f) |
| **ALCLEFT** | 0x01 | Left alignment |
| **ALCCTR** | 0x02 | [**Centered alignment**](#gt_876925bf-49bc-4edb-a3fa-963f4cc8c0cc) |
| **ALCRIGHT** | 0x03 | Right alignment |
| **ALCFILL** | 0x04 | [**Fill alignment**](#gt_cfc4e171-6104-470e-9ebb-812afea17078) |
| **ALCJUST** | 0x05 | Justify alignment |
| **ALCCONTCTR** | 0x06 | [**Center-across-selection alignment**](#gt_ef7324bd-dac8-46e2-8df5-db44d8b925a8) |
| **ALCDIST** | 0x07 | Distributed alignment |

### 2.5.160 HorzBrk

The **HorzBrk** structure specifies one horizontal [**page break**](#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 |
| row | | | | | | | | | | | | | | | | colStart | | | | | | | | | | | | | | | |
| colEnd | | | | | | | | | | | | | | | |

**row (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the zero-based index of the first row below the page break.

**colStart (2 bytes):**  An unsigned integer that specifies the zero-based index of the first column on the page. MUST be less than or equal to 16383.

**colEnd (2 bytes):**  An unsigned integer that specifies the zero-based index of the last column on the page. The value MUST be greater than **colStart** andless than or equal to 16383.

### 2.5.161 Icv

The **Icv** structure specifies a color in the color 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 |
| icv | | | | | | | | | | | | | | | |

**icv (2 bytes):** An unsigned integer that specifies a color from the color table. The value MUST be one of the following values: a value greater than or equal to 0x000 and less than or equal to 0x0041, a value greater than or equal to 0x004D and less than or equal to 0x004F, 0x0051, or 0x7FFF.

The values that are greater than or equal to 0x0000 and less than or equal to 0x0007 specify built-in color constants. This part of the color table is:

| **icv value** | **Color description** | **Red value** | **Green value** | **Blue value** |
| --- | --- | --- | --- | --- |
| 0x0000 | Black | 0 | 0 | 0 |
| 0x0001 | White | 255 | 255 | 255 |
| 0x0002 | Red | 255 | 0 | 0 |
| 0x0003 | Green | 0 | 255 | 0 |
| 0x0004 | Blue | 0 | 0 | 255 |
| 0x0005 | Yellow | 255 | 255 | 0 |
| 0x0006 | Magenta | 255 | 0 | 255 |
| 0x0007 | Cyan | 0 | 255 | 255 |

The next 56 values in the table, the **icv** values greater than or equal to 0x0008 and less than or equal to 0x003F, specify the palette colors in the table. If a [Palette](#Section_bf61236aa89e4425967934992c61ae5e) record exists in this file, these **icv** values specify colors from the **rgColor** array in the Palette record. If no Palette record exists, these values specify colors in the default palette. The next 56 values in this part of the color table specify the following:

| **Value** | **If a palette record exists in this file:** | **Default**  **red value**  **(if no palette record in file)** | **Default**  **green value**  **(if no palette record in file)** | **Default**  **blue value**  **(if no palette record in file)** |
| --- | --- | --- | --- | --- |
| 0x0008 | Field **rgColor**[0] of Palette | 0 | 0 | 0 |
| 0x0009 | Field **rgColor**[1] of Palette | 255 | 255 | 255 |
| 0x000A | Field **rgColor**[2] of Palette | 255 | 0 | 0 |
| 0x000B | Field **rgColor**[3] of Palette | 0 | 255 | 0 |
| 0x000C | Field **rgColor**[4] of Palette | 0 | 0 | 255 |
| 0x000D | Field **rgColor**[5] of Palette | 255 | 255 | 0 |
| 0x000E | Field **rgColor**[6] of Palette | 255 | 0 | 255 |
| 0x000F | Field **rgColor**[7] of Palette | 0 | 255 | 255 |
| 0x0010 | Field **rgColor**[8] of Palette | 128 | 0 | 0 |
| 0x0011 | Field **rgColor**[9] of Palette | 0 | 128 | 0 |
| 0x0012 | Field **rgColor**[10] of Palette | 0 | 0 | 128 |
| 0x0013 | Field **rgColor**[11] of Palette | 128 | 128 | 0 |
| 0x0014 | Field **rgColor**[12] of Palette | 128 | 0 | 128 |
| 0x0015 | Field **rgColor**[13] of Palette | 0 | 128 | 128 |
| 0x0016 | Field **rgColor**[14] of Palette | 192 | 192 | 192 |
| 0x0017 | Field **rgColor**[15] of Palette | 128 | 128 | 128 |
| 0x0018 | Field **rgColor**[16] of Palette | 153 | 153 | 255 |
| 0x0019 | Field **rgColor**[17] of Palette | 153 | 51 | 102 |
| 0x001A | Field **rgColor**[18] of Palette | 255 | 255 | 204 |
| 0x001B | Field **rgColor**[19] of Palette | 204 | 255 | 255 |
| 0x001C | Field **rgColor**[20] of Palette | 102 | 0 | 102 |
| 0x001D | Field **rgColor**[21] of Palette | 255 | 128 | 128 |
| 0x001E | Field **rgColor**[22] of Palette | 0 | 102 | 204 |
| 0x001F | Field **rgColor**[23] of Palette | 204 | 204 | 255 |
| 0x0020 | Field **rgColor**[24] of Palette | 0 | 0 | 128 |
| 0x0021 | Field **rgColor**[25] of Palette | 255 | 0 | 255 |
| 0x0022 | Field **rgColor**[26] of Palette | 255 | 255 | 0 |
| 0x0023 | Field **rgColor**[27] of Palette | 0 | 255 | 255 |
| 0x0024 | Field **rgColor**[28] of Palette | 128 | 0 | 128 |
| 0x0025 | Field **rgColor**[29] of Palette | 128 | 0 | 0 |
| 0x0026 | Field **rgColor**[30] of Palette | 0 | 128 | 128 |
| 0x0027 | Field **rgColor**[31] of Palette | 0 | 0 | 255 |
| 0x0028 | Field **rgColor**[32] of Palette | 0 | 204 | 255 |
| 0x0029 | Field **rgColor**[33] of Palette | 204 | 255 | 255 |
| 0x002A | Field **rgColor**[34] of Palette | 204 | 255 | 204 |
| 0x002B | Field **rgColor**[35] of Palette | 255 | 255 | 153 |
| 0x002C | Field **rgColor**[36] of Palette | 153 | 204 | 255 |
| 0x002D | Field **rgColor**[37] of Palette | 255 | 153 | 204 |
| 0x002E | Field **rgColor**[38] of Palette | 204 | 153 | 255 |
| 0x002F | Field **rgColor**[39] of Palette | 255 | 204 | 153 |
| 0x0030 | Field **rgColor**[40] of Palette | 51 | 102 | 255 |
| 0x0031 | Field **rgColor**[41] of Palette | 51 | 204 | 204 |
| 0x0032 | Field **rgColor**[42] of Palette | 153 | 204 | 0 |
| 0x0033 | Field **rgColor**[43] of Palette | 255 | 204 | 0 |
| 0x0034 | Field **rgColor**[44] of Palette | 255 | 153 | 0 |
| 0x0035 | Field **rgColor**[45] of Palette | 255 | 102 | 0 |
| 0x0036 | Field **rgColor**[46] of Palette | 102 | 102 | 153 |
| 0x0037 | Field **rgColor**[47] of Palette | 150 | 150 | 150 |
| 0x0038 | Field **rgColor**[48] of Palette | 0 | 51 | 102 |
| 0x0039 | Field **rgColor**[49] of Palette | 51 | 153 | 102 |
| 0x003A | Field **rgColor**[50] of Palette | 0 | 51 | 0 |
| 0x003B | Field **rgColor**[51] of Palette | 51 | 51 | 0 |
| 0x003C | Field **rgColor**[52] of Palette | 153 | 51 | 0 |
| 0x003D | Field **rgColor**[53] of Palette | 153 | 51 | 102 |
| 0x003E | Field **rgColor**[54] of Palette | 51 | 51 | 153 |
| 0x003F | Field **rgColor**[55] of Palette | 51 | 51 | 51 |

The remaining values in the color table specify colors associated with application display settings as follows:

| Value | Meaning |
| --- | --- |
| 0x0040 | Default foreground color. This is the window text color in the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) display. |
| 0x0041 | Default background color. This is the window background color in the sheet display and is the default background color for a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). |
| 0x004D | Default [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) foreground color. This is the window text color in the chart display. |
| 0x004E | Default chart background color. This is the window background color in the chart display. |
| 0x004F | Chart neutral color which is black, an RGB value of (0,0,0). |
| 0x0051 | [**ToolTip**](#gt_5100b5cd-9168-4f0c-a088-a143921b8640) text color. This is the automatic [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) color for comments. |
| 0x7FFF | Font automatic color. This is the window text color. |

### 2.5.162 IcvChart

The **IcvChart** structure specifies a color in the [Chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) color table. The Chart color table is a subset of the full color table. See [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) for more information about the colors in the Chart color 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 |
| icv | | | | | | | | | | | | | | | |

**icv (2 bytes):** An Icv that specifies a color from the chart color table. This value MUST be greater than or equal to 0x0000 and less than or equal to 0x0041, or greater than or equal to 0x004D and less than or equal to 0x00004F. This value SHOULD NOT[<173>](#Appendix_A_173" \o "Product behavior note 173) be less than 0x0008.

### 2.5.163 IcvFont

The **IcvFont** structure specifies a color that is used by [**fonts**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2). The font colors are a subset of the full color 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 |
| icv | | | | | | | | | | | | | | | |

**icv (2 bytes):** An [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) that specifies a font color. MUST be greater than or equal to 0x0008 and less than or equal to 0x003F or 0x0051 or 0x7FFF.

### 2.5.164 IcvXF

The **IcvXF** structure specifies a color in the color table used by [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) and [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) formatting 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 |
| icv | | | | | | |

**icv (7 bits):** An unsigned integer that specifies a formatting property color. The value MUST be 0x48, or an [Icv](#Section_b7160f4eabe8444da76c8f076a007d98) with a value greater than or equal to 0x01 and less than or equal to 0x3F, the default foreground color (0x40), or the default background color (0x41). This value SHOULD NOT[<174>](#Appendix_A_174" \o "Product behavior note 174) be 0x48, or less than or equal to 0x07.

### 2.5.165 IFmt

The **IFmt** structure specifies the identifier of 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 | | | | | | | | | | | | | | | |

**ifmt (2 bytes):** An unsigned integer that specifies the identifier of a number format. The identifier specified by this field MUST be a valid built-in number format identifier or the identifier of a custom number format as specified using a [Format](#Section_300280fde4fe4675a9244d383af48d3b) record. Custom number format identifiers MUST be greater than or equal to 0x00A4 and less than or equal to 0x0188, and SHOULD[<175>](#Appendix_A_175" \o "Product behavior note 175) be less than or equal to 0x017E. The built-in number formats are listed in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4: Markup Language Reference, section 3.8.30.

### 2.5.166 InteriorColorPropertiesForShapePropsStreamChecksum

The **InteriorColorPropertiesForShapePropsStreamChecksum** structure specifies the interior color data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [ShapePropsStream](#Section_d4c083e5e7b54728b145d1735485616e) record.

The related [AreaFormat](#Section_affb9fe34721495a9e5351c7d3c65480) record referenced in the following field specifications is the AreaFormat record that exists along with the ShapePropsStream record in one of the following sets of records.

 A sequence of records that conforms to the [FRAME](#section_732ff614d939416bb7c76d983471ff11) rule.

 A sequence of records that conforms to the DROPBAR rule.

 A sequence of records that conforms to the AXS rule if the field **wObjContext** in the ShapePropsStream record is equal to 0x0003.

 A sequence of records that conforms to the SS rule.

 If the field **wObjContext** in the ShapePropsStream record is equal to 0x0001, then the **foregroundColor** and **backgroundColor** properties are obtained from the [MarkerFormat](#Section_28ad6229e22f477dbc1403cd93220277) record in the sequence of records that conforms to the SS rule instead.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| foregroundColor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| backgroundColor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fls | | | | | | | |

**foregroundColor (4 bytes):** A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) that specifies the [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a) of the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e). MUST equal the value specified by the **rgbFore** field of the related AreaFormat or MarkerFormat records.

**backgroundColor (4 bytes):** A LongRGB that specifies the [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c) of the fill pattern. MUST equal the value specified by the **rgbBack** field of the related AreaFormat or MarkerFormat records.

**fls (1 byte):** An unsigned integer that specifies the type of the fill pattern. MUST equal the value specified by the **fls** field of the related AreaFormat record.

### 2.5.167 ISSTInf

The **ISSTInf** structure is the array element used in the **rgISSTinf** field of the [ExtSST](#Section_5d981e629e25490a9a75b177373e2d79) record. **ib** and **cbOffset** provide a way to access the first string in the set of strings specified by this 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 |
| ib | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbOffset | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

**ib (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 zero-based offset into the [workbook stream](#Section_f682f4b08c6b444e83f852d156f1e8ba) where the first string in the set of strings starts.

**cbOffset (2 bytes):** An unsigned integer that specifies the zero-based offset into the [SST](#Section_b6231b92d32e4626baddc3310a672bab) or [Continue](#Section_999fae21d3d942e88290639782460c67) record, in which the first string in the set of strings starts. MUST be less than **ib**. The size of the SST or Continue record is determined by reading the record header at the location specified by the following formula:

**ib – cbOffset**

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

### 2.5.168 IXFCell

The **IXFCell** structure specifies the index of a [cell XF](#Section_518a740d71c640c8bb97e7df6915861a).

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

**ixfe (2 bytes):** An unsigned integer that specifies a zero-based index of a cell XF record in the collection of [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). Cell XF records are the subset of XF records with an **fStyle** field equal to 0. This value MUST be greater than or equal to 15, or equal to 0. The value 0 indicates that this value MUST be ignored. See [XFIndex](#Section_0b683865eeee4621a3d8b18d20a2afd9) for more information about the organization of XF records in the file.

### 2.5.169 KPIProp

The **KPIProp** enumeration specifies the types of [MDX KPI properties](#Section_db8664f2502b43d2aa88274035b52570).

| Name | Value | Meaning |
| --- | --- | --- |
| **KPIPROPVALUE** | 0x01 | Value. |
| **KPIPROPGOAL** | 0x02 | Goal. |
| **KPIPROPSTATUS** | 0x03 | Status. |
| **KPIPROPTREND** | 0x04 | Trend. |
| **KPIPROPWEIGHT** | 0x05 | Weight. |
| **KPIPROPCURRENTTIMEMEMBER** | 0x06 | Current time [**member (2)**](#gt_5d78ca78-a9b1-4791-8126-bf9494304b11). |

### 2.5.170 KPISets

The **KPISets** structure specifies icon sets.

| Name | Value | Meaning |
| --- | --- | --- |
| **KPINIL** | 0xFFFFFFFF | Sort by no-icon |
| **KPI3ARROWS** | 0x00000000 | Kpi3 Arrows set |
| **KPI3ARROWSGRAY** | 0x00000001 | Kpi3 Arrows Gray set |
| **KPI3FLAGS** | 0x00000002 | Kpi3 Flags set |
| **KPI3TRAFFICLIGHTS1** | 0x00000003 | Kpi3 Traffic Lights 1 set |
| **KPI3TRAFFICLIGHTS2** | 0x00000004 | Kpi3 Traffic Lights 2 set |
| **KPI3SIGNS** | 0x00000005 | Kpi3 Signs set |
| **KPI3SYMBOLS** | 0x00000006 | Kpi3 Symbols set |
| **KPI3SYMBOLS2** | 0x00000007 | Kpi3 Symbols 2 set |
| **KPI4ARROWS** | 0x00000008 | Kpi4 Arrows set |
| **KPI4ARROWSGRAY** | 0x00000009 | Kpi4 Arrows Gray set |
| **KPI4REDTOBLACK** | 0x0000000A | Kpi4 Red To Black set |
| **KPI4RATING** | 0x0000000B | Kpi4 Rating set |
| **KPI4TRAFFICLIGHTS** | 0x0000000C | Kpi4 Traffic Lights set |
| **KPI5ARROWS** | 0x0000000D | Kpi5 Arrows set |
| **KPI5ARROWSGRAY** | 0x0000000E | Kpi5 Arrows Gray set |
| **KPI5RATING** | 0x0000000F | Kpi5 Rating set |
| **KPI5QUARTERS** | 0x00000010 | Kpi5 Quarters set |

### 2.5.171 LbsDropData

The **LbsDropData** structure specifies properties of the dropdown [Obj](#Section_dd34df60825040a983a3911476a31ea7) that contains this LbsDropData.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | unused2 | | | | | | | | | | | | cLine | | | | | | | | | | | | | | | |
| dxMin | | | | | | | | | | | | | | | | str (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused3 (optional) | | | | | | | |

**A - wStyle (2 bits):** An unsigned integer that specifies the style of this dropdown. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Combo dropdown control |
| 1 | Combo Edit dropdown control |
| 2 | Simple dropdown control (just the dropdown button) |

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

**C - fFiltered (1 bit):** A bit that specifies whether the data displayed by the dropdown has been filtered in some way.

**unused2 (12 bits):**  Undefined and MUST be ignored.

**cLine (2 bytes):** An unsigned integer that specifies the number of lines to be displayed in the dropdown. If there are more lines than that in the list, a scrollbar can appear. MUST be less than or equal to 0x7FFF.

**dxMin (2 bytes):** An unsigned integer that specifies the smallest width in pixels allowed for the dropdown window. MUST be less than or equal to 0x7FFF.

**str (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the current string value in the dropdown.

**unused3 (1 byte):** Optional, undefined and MUST be ignored. This field MUST exist if and only if the size of **str** in bytes is an odd number.

### 2.5.172 LEMMode

The **LEMMode** enumeration specifies the different edit modes for a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

| Name | Value | Meaning |
| --- | --- | --- |
| **LEMNORMAL** | 0x00000000 | The table can be directly edited inline. |
| **LEMREFRESHCOPY** | 0x00000001 | The table is refreshed before editing is allowed because is it a copy of a table whose source is a Web based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e) list. |
| **LEMREFRESHCACHE** | 0x00000002 | The table is refreshed before editing is allowed because caching a user change failed. |
| **LEMREFRESHCACHEUNDO** | 0x00000003 | The table is refreshed before editing is allowed because undoing a cached user change failed. |
| **LEMREFRESHLOADED** | 0x00000004 | The table is refreshed before editing is allowed because on load the table source could not be re-connected. |
| **LEMREFRESHTEMPLATE** | 0x00000005 | The table is refreshed before editing is allowed because it was saved without having its data cached. |
| **LEMREFRESHREFRESH** | 0x00000006 | The table is refreshed before editing is allowed because a previous [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) failed. |
| **LEMNOINSROWSSPREQUIRED** | 0x00000007 | Rows cannot be inserted into this web based data provider list because there are hidden required columns. |
| **LEMNOINSROWSSPDOCLIB** | 0x00000008 | Rows cannot be inserted into this Web based data provider list because it is a [**document library**](#gt_d9f07822-aeb0-4642-ab51-95cb724fbf35). |
| **LEMREFRESHLOADDISCARDED** | 0x00000009 | The table is refreshed before editing is allowed because the user selected to discard cached changes upon loading. |
| **LEMREFRESHLOADHASHVALIDATION** | 0x0000000A | The table is refreshed before editing is allowed because the validation of the table's data area failed upon loading. |
| **LEMNOEDITSPMODVIEW** | 0x0000000B | Cannot allow the user to edit this table because of the type of moderated Web based data provider list it is. |

### 2.5.173 LinePropertiesForShapePropsStreamChecksum

The **LinePropertiesForShapePropsStreamChecksum** record specifies the line properties data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [ShapePropsStream](#Section_d4c083e5e7b54728b145d1735485616e) record.

The related [LineFormat](#Section_1bff256238664b958a6bf3fea1659f6d) record referenced in the following field specifications is the LineFormat record that exists along with the ShapePropsStream record in one of the following sets of records.

 A set of records in a [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) but not in the sequence of records that conforms to the [LD](#section_732ff614d939416bb7c76d983471ff11) rule or the sequence of records that conforms to the DROPBAR rule.

 If more than one LineFormat and ShapePropsStream records exist in the set, then a pair of LineFormat and ShapePropsStream records are related when the chart element identified by the **ID** field of the [CrtLine](#Section_c267eaa5224143d2bfebf851418b52ee) record preceding the LineFormat record is the same chart element as the one identified by the **wObjContext** field of the ShapePropsStream record.

 A sequence of records that conforms to the FRAME rule.

 A sequence of records that conforms to the DROPBAR rule.

 A sequence of records that conforms to the AXS rule.

 If more than one LineFormat and ShapePropsStream records exist in the sequence of records, then a pair of LineFormat and ShapePropsStream records are related when the chart element identified by the **ID** field of the [AxisLine](#Section_d59921ddf25e45729d6adee440bb2d67) record preceding the LineFormat record is be the same chart element as the one identified by the **wObjContext** field of the ShapePropsStream record.

 A sequence of records that conforms to the SS rule when the **wObjContext** field of the ShapePropsStream record is 0x0000.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| icv | | | | | | | | pattern | | | | | | | | thickness | | | | | | | | A | unused | | | | | | |
| color | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**icv (1 byte):**  An [IcvChart](#Section_ab0d01c3cf5945b4aef14e02811b61cb) that specifies the [**palette color**](#gt_be899517-b752-44f1-8c38-2561d17a8a7f) value for the line. The color MUST match the color specified by **color** field. MUST equal the value specified by the **icv** field of the related LineFormat record.

**pattern (1 byte):** An unsigned integer that specifies the pattern of the line. MUST equal the value specified by the **lns** field of the related LineFormat record.

**thickness (1 byte):** A signed integer that specifies the thickness of the line. MUST equal the value specified by the **we** field of the related LineFormat record plus one.

**A - fIsLineStyleAutomatic (1 bit):** A bit that specifies whether the line has default formatting. MUST contain the value specified by the **fAuto** field of the related LineFormat record.

**unused (7 bits):** Unused and MUST be zero.

**color (4 bytes):** A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) that specifies the color of the line. The color MUST match the color specified by **icv**. MUST equal the value specified by the **rgb** field of the related LineFormat record.

### 2.5.174 List12BlockLevel

The **List12BlockLevel** structure specifies default [**block-level formatting**](#gt_4ad37d18-8570-450e-8376-9606e8ff98b4) information for a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7), to be applied when the table expands. [Style](#Section_13bec5ebe6ec4dc192350e7f9e5426a1) gets applied before [DXFN12List](#Section_bb221dc1261a41f4a5b416e480b428e6) for each table region.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cbdxfHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istnHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbdxfData | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istnData | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbdxfAgg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| istnAgg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbdxfBorder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbdxfHeaderBorder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbdxfAggBorder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfHeader (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfAgg (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfBorder (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfHeaderBorder (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dxfAggBorder (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stHeader (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stAgg (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**istnHeader (4 bytes):**  A signed integer that specifies a zero-based index to a Style record in the collection of Style records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced Style specifies the [cell style XF](#Section_3d5348ded9df4c31b1fd9f9377273152) used for the table’s [**header row**](#gt_42711baf-2679-445d-a994-0eadd91b1a38) [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). If the value is -1, no style is specified for the table’s header row cells.

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

**istnData (4 bytes):**  A signed integer that specifies a zero-based index to a Style record in the collection of Style records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced Style specifies the [cell style](#Section_f9425d3f127545be8389bf80f65b56b7) used for the table’s data cells. If the value is -1, no style is specified for the table’s data cells.

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

**istnAgg (4 bytes):**  A signed integer that specifies a zero-based index to a Style record in the collection of Style records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced Style specifies the cell style used for the table’s [**total row**](#gt_95e9bcf4-d644-4e96-9070-dbc80b4d1b28). If the value is -1, no style is specified for the table’s total row.

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

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

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

**dxfHeader (variable):** An optional DXFN12List that specifies the formatting for the table’s header row cells. MUST exist if and only if **cbdxfHeader** is nonzero.

**dxfData (variable):**  An optional DXFN12List that specifies the formatting for the table’s data cells. MUST exist if and only if **cbdxfData** is nonzero.

**dxfAgg (variable):**  An optional DXFN12List that specifies the formatting for the table’s total row. MUST exist if and only if **cbdxfAgg** is nonzero.

**dxfBorder (variable):**  An optional DXFN12 that specifies the formatting for the [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c) of the table’s data cells. MUST exist if and only if **cbdxfBorder** is nonzero.

**dxfHeaderBorder (variable):**  An optional DXFN12List that specifies the formatting for the border of the table’s header row cells. MUST exist if and only if **cbdxfHeaderBorder** is nonzero.

**dxfAggBorder (variable):**  An optional DXFN12List that specifies the formatting for the border of the table’s total row. MUST exist if and only if **cbdxfAggBorder** is nonzero.

**stHeader (variable):** An optional [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) for the table’s header row cells. MUST exist if and only if **istnHeader** is not equal to -1. MUST be equal to the name of the Style record specified by **istnHeader**. If the style is a user-defined style, **stHeader** MUST be equal to the **user** field of the Style record.

**stData (variable):**  An optional XLUnicodeString that specifies the name of the style for the table’s data cells. MUST exist if and only if **istnData** is not equal to -1. MUST be equal to the name of the Style record specified by **istnData**. If the style is a user-defined style, **stData** MUST be equal to the **user** field of the Style record.

**stAgg (variable):**  An optional XLUnicodeString that specifies the name of the style for the table’s total row. MUST exist if and only if **istnAgg** is not equal to -1. MUST be equal to the name of the Style record specified by **istnAgg**. If the style is a user-defined style, **stAgg** MUST be equal to the **user** field of the Style record.

### 2.5.175 List12DisplayName

The **List12DisplayName** structure specifies the name and comment strings for the [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

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

**stListName (variable):** An [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) that specifies the table name. MUST be an empty string if the **rgbName** field of the [TableFeatureType](#Section_0db919872a05497cac1cfbd588e10047) structure embedded in the [Feature11](#Section_4c78a7d3a3ff48e28e2cc89785519322) or [Feature12](#Section_4c95f0ddd35745758b77792dbe2c0d5e) record that specifies the table is not empty. If the table name is not the same as the **rgbName** field of the TableFeatureType structure for this table, the table name is specified in **stListName** which is a case-insensitive unique name among all table names and [**defined names**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

**stListComment (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies a comment about the table.

### 2.5.176 List12TableStyleClientInfo

The **List12TableStyleClientInfo** record specifies information about the style applied to a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | unused2 | | | | | | | | | stListStyleName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fFirstColumn (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 0x00000003 will be applied.

**B - fLastColumn (1 bit):** A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000004 will be applied.

**C - fRowStripes (1 bit):** A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000005 or 0x00000006 will be applied.

**D - fColumnStripes (1 bit):** A bit that specifies whether any table style elements (as specified by TableStyleElement) with a **tseType** field equal to 0x00000007 or 0x00000008 will be applied.

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

**F - fDefaultStyle (1 bit):** A bit that specifies whether the style whose name is specified by **stListStyleName** is the default [table style](#Section_4ac7212b4aa74ece962526c58224ae80).

**unused2 (9 bits):** Undefined and MUST be ignored.

**stListStyleName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the table style for the table. Length MUST be greater than zero and less than or equal to 255 characters. If the table style is a custom style, it is defined in a [TableStyle](#Section_32b77a6330c54885bc94434923002d6d) record that has **rgchName** equal to this value.

### 2.5.177 LongRGB

The **LongRGB** structure specifies a color as a combination of red, green, and blue.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| red | | | | | | | | green | | | | | | | | blue | | | | | | | | reserved | | | | | | | |

**red (1 byte):**  An unsigned integer that specifies the relative intensity of red.

**green (1 byte):**  An unsigned integer that specifies the relative intensity of green.

**blue (1 byte):**  An unsigned integer that specifies the relative intensity of blue.

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

### 2.5.178 LongRGBA

The **LongRGBA** structure specifies a color as a combination of red, green, blue and alpha values.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| red | | | | | | | | green | | | | | | | | blue | | | | | | | | alpha | | | | | | | |

**red (1 byte):** An unsigned integer that specifies the relative intensity of red.

**green (1 byte):** An unsigned integer that specifies the relative intensity of green.

**blue (1 byte):** An unsigned integer that specifies the relative intensity of blue.

**alpha (1 byte):** An unsigned integer that specifies the alpha value.

### 2.5.179 LPWideString

The **LPWideString** type specifies a [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) string which is prefixed by a length.

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

**cchCharacters (2 bytes):** An unsigned integer that specifies the number of characters.

**rgchData (variable):** An array of Unicode characters that specifies the characters of the string.  The size of this array in bytes MUST equal the following formula:

**cchCharacters** \* 2

### 2.5.180 MDir

The **MDir** structure specifies the [MDTInfoIndex](#Section_c8ef7d38dd8c4ba2ad3fd2ca349088e3) and the index of a specific [MDX metadata](#Section_0f7583182c0b4155bf75c7399f89305c) 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 |
| imdt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| mdd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**imdt (4 bytes):** An MDTInfoIndex that identifies the [MDTInfo](#Section_915ac793a5364c45b699aa97a9d2bec5) record.

**mdd (4 bytes):** An unsigned integer that specifies the zero-based index of an MDX metadata record in the collection of MDX metadata records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced record specifies a MDX metadata record corresponding to the record type specified by **imdt**. The MDX metadata records include [MDXTuple](#Section_d5cd418ff9c04542a5bd03dbb12c72fa), [MDXSet](#Section_f9628c3f30f94072a4b0c11bf66c3cfc), [MDXProp](#Section_a286d6eb77204abfb383c494c0db35e3) and [MDXKPI](#Section_08059ef97776497aafa77f40c0b045f6) records.

### 2.5.181 MDTInfoIndex

The **MDTInfoIndex** structure specifies an index which identifies an [MDTInfo](#Section_915ac793a5364c45b699aa97a9d2bec5) 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 |
| index | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**index (4 bytes):** A signed integer that specifies the one-based index of an MDTInfo record in the collection of MDTInfo records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The value MUST be greater than 0 and less than or equal to the total number of the MDTInfo records in the file.

### 2.5.182 MDXStrIndex

The **MDXStrIndex** structure specifies the index of an [MDXStr](#Section_c801e9fde2b1419ea1b45c098aa241e5) 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 |
| index | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**index (4 bytes):** A signed integer that specifies the zero-based index of an MDXStr record in the collection of MDXStr records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The value MUST be greater than or equal to 0 and less than the total number of the MDXStr records that have been read so far.

### 2.5.183 MOper

The **MOper** structure specifies multiple operands of an [**OLE link**](#gt_63bdff5e-89bb-4e82-bc5d-ab1de245efff) or a [**DDE link**](#gt_0aa0fad9-afc1-4433-b772-2dc11e641721) for the [ExternOleDdeLink](#Section_9a6cd7f4944040248c31f8c239fedd9d) 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 |
| colLast | | | | | | | | rowLast | | | | | | | | | | | | | | | | extOper (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**colLast (1 byte):**  A [ColByteU](#Section_3eb5ecb1fbba49c3b8e3ede2096ff5a0) that specifies the zero-based index of last column associated with the link.

**rowLast (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the zero-based index of last row associated with the link.

**extOper (variable):** This array specifies current values for the linked data. Each [SerAr](#Section_69ff31ac671b4aafa3b5a01e9e283a03) specifies a cell value. The number of elements in the array is

(**colLast** + 1) \* (**rowLast** + 1).

If this array does not fit in the owning [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) record, [Continue](#Section_999fae21d3d942e88290639782460c67) records are used. Each SerAr MUST stay in the same record.

### 2.5.184 NilChartNum

The **NilChartNum** structure specifies a non-numeric value (also known as "NaN" or "Not a Number") that is used in place of a numeric 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 |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| type | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |

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

**type (2 bytes):** An unsigned integer that specifies the interpretation of this value. This field is undefined and MUST be ignored, unless otherwise defined by the containing record.

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

### 2.5.185 NoteRR

The **NoteRR** structure specifies a [revision record](#Section_d120a1ffd2e6488381a507236f1994b0) for a [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) associated with 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 |
| rrd (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | A | B | reserved1 | | | | | | | | | | | | | |
| row | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |
| C | D | reserved3 | | | | | E | F | G | | H | I | | | | guid (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ichEnd | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | cchNote | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stAuthor (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | |

**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.revt** MUST be equal to 0x000D. The **rrd.tabid** MUST NOT be 0xFFFF.

**A - bitfDelNote (1 bit):** A bit that specifies whether the revision record deletes the comment.

**B - bitfAddNote (1 bit):** A bit that specifies whether the revision record adds text to the comment.

| Value | Meaning |
| --- | --- |
| 0 | Text has not been added to the comment. |
| 1 | A new comment is being added or additional text is being appended to an existing comment. |

**reserved1 (14 bits):** MUST be 0 and MUST be ignored.

**row (2 bytes):** A [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the row of the cell associated with the comment.

**col (2 bytes):** A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) that specifies the column of the cell associated with the comment.

**C - reserved2 (1 bit):** MUST be 0 and MUST be ignored.

**D - fShow (1 bit):** A bit that specifies whether the comment is shown.

**reserved3 (5 bits):** MUST be 0 and MUST be ignored.

**E - fRwHidden (1 bit):** A bit that specifies whether the row specified by **row** is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd).

**F - fColHidden (1 bit):** A bit that specifies whether the column specified by **col** is hidden.

**G - reserved4 (2 bits):** MUST be 0 and MUST be ignored.

**H - unused1 (1 bit):** Unused and MUST be ignored.

**I - reserved5 (4 bits):** MUST be 0 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 identifies the comment, specified by a [NoteSh](#Section_3a610bb39d35435f92efcdbc42974404) structure, which is modified by this revision record. The GUID for a comment is specified in the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record specified by the **idObj** field in the NoteSh structure. In the Obj record, the GUID is stored in the **nts.guid** field. If **bitfDelNote** is 1, this field MUST be zero.

**ichEnd (4 bytes):** An unsigned integer that specified the length of the comment before the revision is made.

**cchNote (4 bytes):** An unsigned integer that specifies the length of the string that was added to the comment in the revision record. The sum of **ichEnd** and **cchNote** MUST be less than or equal to 32767.

**stAuthor (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the original author of the comment. The length MUST be greater than or equal to 1 and less than or equal to 54.

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

### 2.5.186 NoteSh

The **NoteSh** structure specifies a [**comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) associated with 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 |
| row | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |
| A | B | C | D | E | | | F | G | reserved4 | | | | | | | idObj | | | | | | | | | | | | | | | |
| stAuthor (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused2 | | | | | | | |

**row (2 bytes):** A [RW](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) that specifies the row of the cell to which this comment is associated.

**col (2 bytes):** A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) that specifies the column of the cell to which this comment is associated.

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

**B - fShow (1 bit):** A bit that specifies whether the comment is shown at all times.

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

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

**E - reserved3 (3 bits):** MUST be zero and MUST be ignored.

**F - fRwHidden (1 bit):** A bit that specifies whether the row specified by **row** is [**hidden**](#gt_6928fba3-3deb-453c-82ed-ecac33026ffd).

**G - fColHidden (1 bit):** A bit that specifies whether the column specified by **col** is hidden.

**reserved4 (7 bits):** MUST be zero and MUST be ignored.

**idObj (2 bytes):** An [ObjId](#Section_16a9e44a84a34b1dbb5f36c1966d2ce1) that specifies the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that specifies the comment text.

**stAuthor (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the comment author. String length MUST be greater than or equal to 1 and less than or equal to 54.

**unused2 (1 byte):** Undefined and MUST be ignored.

### 2.5.187 ObjFmla

The **ObjFmla** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in an [Obj](#Section_dd34df60825040a983a3911476a31ea7) 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 |
| cbFmla | | | | | | | | | | | | | | | | fmla (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| embedInfo (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| padding (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cbFmla (2 bytes):** An unsigned integer that specifies the number of bytes in this ObjFmla, not counting the two bytes of the **cbFmla** field itself. This number MUST be even.

**fmla (variable):** An optional [ObjectParsedFormula](#Section_61494913879b4a14b0cbb7a94fce4692) that specifies the formula. This field MUST exist if and only if **cbFmla** is greater than 0x0000.

**embedInfo (variable):** An optional [PictFmlaEmbedInfo](#Section_8a89203ca8664695b7da1e659cb3f235). This field MUST exist if and only if the structure containing this ObjFmla is an [FtPictFmla](#Section_00f89d3267b0408e9eaff4fecbddb089), the **fmla** field exists, and the **fmla.rgce** field starts with a [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7).

**padding (variable):** An array of bytes whose size is given by:  
**cbFmla** minus size of **fmla** minus size of **embedInfo**.

It is possible for this array to be empty. The value of the elements in this array are undefined and MUST be ignored.

### 2.5.188 ObjId

The **ObjId** structure specifies a reference to an [Obj](#Section_dd34df60825040a983a3911476a31ea7).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 value of the **cmo.id** field of an Obj in the same [**drawing**](#gt_4b4d1a42-c4a2-464d-ad16-d53b5c493fd3). A value of 0 specifies that this ObjId does not reference an Obj.

### 2.5.189 ObjLinkFmla

The **ObjLinkFmla** structure specifies the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) that specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) which contains a value that is linked to the control represented by the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record containing this ObjLinkFmla.

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

**ft (2 bytes):**  Reserved. MUST be 0x0014 if the **cmo.ot** of the containing Obj is equal to 0x0B or 0x0C. MUST be 0x000E if the **cmo.ot** field of the containing Obj is equal to 0x10, 0x11, 0x12, or 0x14. Note that this ObjLinkFmla MUST NOT exist if **cmo.ot** is any other value.

**fmla (variable):**  An [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) that specifies the formula which specifies a range which contains a value that is linked to the state of the control.

### 2.5.190 ODBCType

The **ODBCType** structure specifies an [**ODBC**](#gt_7883fa02-8dc0-4154-894f-fe3a7bff153e) data type identifier.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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):** A signed integer that specifies an ODBC data type. The following are example data types supported by ODBC. For more information about ODBC, see [[MSDN-OpenDBConnectivity]](https://go.microsoft.com/fwlink/?LinkId=114655).

| Value | SQL Type | Data Type |
| --- | --- | --- |
| 0x0000 | SQL\_TYPE\_NULL | Undetermined type, [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) does not support typed data. Data type determined based on data content: date and time, decimal or text. |
| 0x0001 | SQL\_CHAR | Fixed-length string of ANSI characters |
| 0x0003 | SQL\_DECIMAL | Fixed-precision, Fixed-scale numbers |
| 0x0004 | SQL\_INTEGER | 32-bit signed integer |
| 0x0005 | SQL\_SMALLINT | 16-bit signed integer |
| 0x0006 | SQL\_FLOAT | User-specified precision floating-point |
| 0x0007 | SQL\_REAL | 7-digits precision floating-point |
| 0x0008 | SQL\_DOUBLE | 15-digits precision floating-point |
| 0x000B | SQL\_TIMESTAMP | Date and Time |
| 0x000C | SQL\_VARCHAR | Variable-length string of ANSI characters |
| 0xFFF9 | SQL\_BIT | Bit (1 or 0) |
| 0xFFFE | SQL\_BINARY | Fixed-length binary data |

### 2.5.191 OfficeArtClientAnchorChart

The **OfficeArtClientAnchorChart** structure specifies the anchor position of a [**drawing object**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac) embedded in 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 |
| rh | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | unused | | | | | | | | | | | lx1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ly1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | lx2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ly2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**rh (8 bytes):** An OfficeArtRecordHeader as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.2.1 that specifies the header for this structure. **rh.recVer** MUST be 0x0. **rh.recInstance** MUST be 0x0. **rh.recType** MUST be 0xF010. **rh.recLen** MUST be 0x0012.

**A - fMove (1 bit):** MUST be 0 and MUST be ignored.

**B - fSize (1 bit):**  A bit that specifies whether the drawing object resizes with the [**chart area**](#gt_5524dd6c-3d8d-4784-bfca-a3323acceb39) (section [2.2.3.17](#Section_73c3fa9c39be46f6bbf32ee5977a2d7d)). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The drawing object resizes with the chart area (section 2.2.3.17). |
| 0x1 | The drawing object does not resize with the chart area (section 2.2.3.17). |

**C - reserved1 (1 bit):** MUST be 0 and MUST be ignored.

**D - reserved2 (1 bit):** Undefined and MUST be ignored.

**E - reserved3 (1 bit):** MUST be 0 and MUST be ignored.

**unused (11 bits):** Undefined and MUST be ignored.

**lx1 (4 bytes):** A signed integer that specifies the horizontal offset of the logical upper-left corner of the [**bounding rectangle**](#gt_e349a155-0fb9-4ba1-abd4-e363e21abcd1) of the drawing object, relative to the upper-left corner of the chart area (section 2.2.3.17) in [SPRC](#Section_d5fc728e68de4972905a975bcef8c82d).

**ly1 (4 bytes):** A signed integer that specifies the vertical offset of the logical upper-left corner of the bounding rectangle of the drawing object, relative to the upper-left corner of the chart area (section 2.2.3.17) in SPRC.

**lx2 (4 bytes):** A signed integer that specifies the horizontal offset of the logical bottom-right corner of the bounding rectangle of the drawing object, relative to the upper-left corner of the chart area (section 2.2.3.17) in SPRC.

**ly2 (4 bytes):** A signed integer that specifies the vertical offset of the logical bottom-right corner of the bounding rectangle of the drawing object, relative to the upper-left corner of the chart area (section 2.2.3.17) in SPRC.

### 2.5.192 OfficeArtClientAnchorHF

The **OfficeArtClientAnchorHF** structure specifies the dimension information of a picture specified in a [HFPicture](#Section_20401a12d4a245a9ba65d4d12e82010e)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 |
| rh | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| width | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| height | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rh (8 bytes):** An OfficeArtRecordHeader as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) that specifies the header for this structure. The sub-fields of OfficeArtRecordHeader are further specified in the following table:

| Field | Meaning |
| --- | --- |
| **rh.recVer** | MUST be 0x0. |
| **rh.recInstance** | MUST be 0x0. |
| **rh.recType** | MUST be 0xF010. |
| **rh.recLen** | MUST be 8. |

**width (4 bytes):** A signed integer that specifies the width of the picture in pixels. This value MUST be greater than 0.

**height (4 bytes):** A signed integer that specifies the height of the picture in pixels. This value MUST be greater than 0.

### 2.5.193 OfficeArtClientAnchorSheet

The **OfficeArtClientAnchorSheet** structure specifies the anchor position of a [**drawing object**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac) embedded 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 |
| rh | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | unused | | | | | | | | | | | colL | | | | | | | | | | | | | | | |
| dxL | | | | | | | | | | | | | | | | rwT | | | | | | | | | | | | | | | |
| dyT | | | | | | | | | | | | | | | | colR | | | | | | | | | | | | | | | |
| dxR | | | | | | | | | | | | | | | | rwB | | | | | | | | | | | | | | | |
| dyB | | | | | | | | | | | | | | | |

**rh (8 bytes):** An OfficeArtRecordHeader as defined in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) that specifies the header for this structure. The sub-fields of OfficeArtRecordHeader are further specified in the following table:

| Field | Meaning |
| --- | --- |
| **rh.recVer** | MUST be 0x0. |
| **rh.recInstance** | MUST be 0x0. |
| **rh.recType** | MUST be 0xF010. |
| **rh.recLen** | An unsigned integer that specifies the number of bytes following the header. The value MUST be equal to 18. |

**A - fMove (1 bit):** A bit that specifies whether the [**shape**](#gt_d0e38aa4-2c71-4a6f-b5e6-75766fa9409e) will be kept intact when the [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) are moved.

**B - fSize (1 bit):** A bit that specifies whether the shape will be kept intact when the cells are resized. If **fMove** is 1, the value MUST be 1.

**C - reserved1 (1 bit):** MUST be 0 and MUST be ignored.

**D - reserved2 (1 bit):** MUST be 0 and MUST be ignored

**E - reserved3 (1 bit):** MUST be 0 and MUST be ignored.

**unused (11 bits):** Undefined and MUST be ignored.

**colL (2 bytes):**  A [Col256U](#Section_5574907b97e64e79845d0ecef9d56038) that specifies the column of the cell under the top left corner of the [**bounding rectangle**](#gt_e349a155-0fb9-4ba1-abd4-e363e21abcd1) of the shape.

**dxL (2 bytes):** A signed integer that specifies the x coordinate of the top left corner of the bounding rectangle relative to the corner of the underlying cell. The value is expressed as 1024th’s of that cell’s width.

**rwT (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the row of the cell under the top left corner of the bounding rectangle of the shape.

**dyT (2 bytes):**  A signed integer that specifies the y coordinate of the top left corner of the bounding rectangle relative to the corner of the underlying cell. The value is expressed as 256th’s of that cell’s height.

**colR (2 bytes):**  A Col256U that specifies the column of the cell under the bottom right corner of the bounding rectangle of the shape.

**dxR (2 bytes):**  A signed integer that specifies the x coordinate of the bottom right corner of the bounding rectangle relative to the corner of the underlying cell. The value is expressed as 1024th’s of that cell’s width.

**rwB (2 bytes):**  A RwU that specifies the row of the cell under the bottom right corner of the bounding rectangle of the shape.

**dyB (2 bytes):**  A signed integer that specifies the y coordinate of the bottom right corner of the bounding rectangle relative to the corner of the underlying cell. The value is expressed as 256th’s of that cell’s height.

### 2.5.194 OfficeArtClientData

The **OfficeArtClientData** structure specifies the client data of an [**drawing object**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac). MUST be the last structure of the **rgChildRec** field of the current [MsoDrawing](#Section_1b0b0ea35e1d41ce8e79e27f1041331e) record. And the next record MUST be [**Obj**](#Section_dd34df60825040a983a3911476a31ea7), which contains the detailed data information about this drawing object.

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

**rh (8 bytes):**  An OfficeArtRecordHeader as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.2.1 that specifies the header for this structure. The subfields of OfficeArtRecordHeader are further specified in the following table:

| Field | Meaning |
| --- | --- |
| **rh.recVer** | MUST be 0x0. |
| **rh.recInstance** | MUST be 0x0. |
| **rh.recType** | MUST be 0xF011. |
| **rh.recLen** | An unsigned integer that specifies the number of bytes following the header. The value MUST be equal to 0. |

### 2.5.195 OfficeArtClientTextbox

The **OfficeArtClientTextbox** structure specifies the client textbox of an [**drawing object**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac). MUST be the last structure of the **rgChildRec** field of the [MsoDrawing](#Section_1b0b0ea35e1d41ce8e79e27f1041331e) record. And the next record MUST be [**TxO**](#Section_638c08e629424783b71b144ccf758fc7), which contains the detailed textbox information about this drawing object.

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

**rh (8 bytes):**  An OfficeArtRecordHeader as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.2.1 that specifies the header for this structure. The subfields of OfficeArtRecordHeader are further specified in the following table:

| Field | Meaning |
| --- | --- |
| **rh.recVer** | MUST be 0x0. |
| **rh.recInstance** | MUST be 0x0. |
| **rh.recType** | MUST be 0xF00D. |
| **rh.recLen** | An unsigned integer that specifies the number of bytes following the header. The value MUST be equal to 0. |

### 2.5.196 PaneType

The **PaneType** enumeration specifies the different types of [**panes**](#gt_fa363a22-6c89-4829-86aa-09f939f40a54).

| Name | Value | Meaning |
| --- | --- | --- |
| **REVTPNNBOTRIGHT** | 0x00 | logical bottom-right pane |
| **REVTPNNTOPRIGHT** | 0x01 | logical top-right pane |
| **REVTPNNBOTLEFT** | 0x02 | logical bottom-left pane |
| **REVTPNNTOPLEFT** | 0x03 | logical top-left pane |

### 2.5.197 PARAMQRY\_Fixed

**PARAMQRY\_Fixed** structure contains information about [**SQL**](#gt_37416b0f-ca5b-4fac-96e5-082eb80a3d84) query parameters.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | pbt | | A | B | unused2 | | | | | | | | | | | |
| grbit | | | | | | | | | | | | | | | | fVal | | | | | | | | | | | | | | | |

**wTypeSql (2 bytes):** An [ODBCType](#Section_e6f9dc20275f42d991952a1c68536166) structure that specifies the SQL data type.

**pbt (2 bits):** An unsigned integer that specifies the parameter type. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Prompt. User is prompted for the value of the parameter. |
| 1 | Value. The parameter value is specified in the query. |
| 2 | Reference. The parameter value is specified in a cell. |

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

**B - fNonDefaultName (1 bit):** A bit that specifies whether to use the default prompt if **pbt** is equal to 0. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | User entered prompt is used |
| 1 | Application’s default prompt is used |

**unused2 (12 bits):**  Undefined and MUST be ignored.

**grbit (2 bytes):** An unsigned integer that specifies the type of data that follows this structure as specified in the following table or the presence of a Boolean value in **fVal** if **pbt** equals 1**.** MUST be a value from the following table if **pbt** equals 1:

| Value | Meaning |
| --- | --- |
| 0x001 | Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) |
| 0x002 | [SXString](#Section_0b135d8b213f4d54970bd7a934a79f36) |
| 0x004 | Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) value in **fVal.** |
| 0x800 | 4 byte unsigned integer |

**fVal (2 bytes):** A Boolean that specifies value such that if **pbt** equals 1 and **grbit** equals 4. MUST be equal to 0 or 1 if **pbt** equals 1 and **grbit** equals 4. MUST be ignored if **pbt** is not equal to 1 or **grbit** is not equal to 4.

### 2.5.198 Parsed Expressions

#### 2.5.198.1 ArrayParsedFormula

The **ArrayParsedFormula** structure specifies an array 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 |
| cce | | | | | | | | | | | | | | | | rgce (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgcb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula (section 2.2.2). MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032), [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86), or [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d).

**rgcb (variable):**  An [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) that specifies ancillary data for the formula.

#### 2.5.198.2 BErr

The **BErr** structure is a 1 byte unsigned integer that specifies an error. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | #NULL! |
| 0x07 | #DIV/0! |
| 0x0F | #VALUE! |
| 0x17 | #REF! |
| 0x1D | #NAME? |
| 0x24 | #NUM! |
| 0x2A | #N/A |

#### 2.5.198.3 CellParsedFormula

The **CellParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) stored in 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 |
| cce | | | | | | | | | | | | | | | | rgce (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgcb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032), [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86), or [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d).

The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

**rgcb (variable):**  An [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) that specifies ancillary data for the formula.

#### 2.5.198.4 Cetab

The **Cetab** structure specifies a function that can be called from a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). The definition of each function specifies the function name and the valid sequence of arguments.

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

**cetab (2 bytes):**  An unsigned integer that specifies the function to be called. MUST be a value from the following table:

The elements [ref](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) and val are specified in Rgce.

| Value | Meaning |
| --- | --- |
| 0x0000 | BEEP |
|  | beep-params = [val] |
| 0x0001 | OPEN |
|  | open-params = \*17(val) |
| 0x0002 | OPEN.LINKS |
|  | open-links-params = \*15(val) |
| 0x0003 | CLOSE.ALL |
|  | This function takes no parameters |
| 0x0004 | SAVE |
|  | This function takes no parameters |
| 0x0005 | SAVE.AS |
|  | save-as-params = \*7(val) |
| 0x0006 | FILE.DELETE |
|  | file-delete-params = [val] |
| 0x0007 | PAGE.SETUP |
|  | page-setup-params = \*30(val) |
| 0x0008 | PRINT |
|  | print-params = \*17(val) |
| 0x0009 | PRINTER.SETUP |
|  | printer-setup-params = [val] |
| 0x000A | QUIT |
|  | This function takes no parameters |
| 0x000B | NEW.WINDOW |
|  | This function takes no parameters |
| 0x000C | ARRANGE.ALL |
|  | arrange-All-params = \*4(val) |
| 0x000D | WINDOW.SIZE |
|  | window-size-params = \*3(val) |
| 0x000E | WINDOW.MOVE |
|  | window-move-params = \*3(val) |
| 0x000F | FULL |
|  | full-params = [val] |
| 0x0010 | CLOSE |
|  | close-params = \*2(val) |
| 0x0011 | RUN |
|  | run-params = [(ref / val), [val]] |
| 0x0016 | SET.PRINT.AREA |
|  | set-print-area-params = [ref / val] |
| 0x0017 | SET.PRINT.TITLES |
|  | set-print-titles-params = \*2(ref / val) |
| 0x0018 | SET.PAGE.BREAK |
|  | This function takes no parameters |
| 0x0019 | REMOVE.PAGE.BREAK |
|  | remove-page-break-params = \*2(val) |
| 0x001A | FONT |
|  | font-params = \*2(val) |
| 0x001B | DISPLAY |
|  | display-params = \*9(val) |
| 0x001C | PROTECT.DOCUMENT |
|  | protect-document-params = \*7(val) |
| 0x001D | PRECISION |
|  | precision-params = [val] |
| 0x001E | A1.R1C1 |
|  | a1-r1c1-params = [val] |
| 0x001F | CALCULATE.NOW |
|  | This function takes no parameters |
| 0x0020 | CALCULATION |
|  | calculation-params = \*11(val) |
| 0x0022 | DATA.FIND |
|  | data-find-params = [val] |
| 0x0023 | EXTRACT |
|  | extract-params = [val] |
| 0x0024 | DATA.DELETE |
|  | This function takes no parameters |
| 0x0025 | SET.DATABASE |
|  | This function takes no parameters |
| 0x0026 | SET.CRITERIA |
|  | This function takes no parameters |
| 0x0027 | SORT |
|  | sort-params = [val, [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), \*10(val)]]]]]]] |
| 0x0028 | DATA.SERIES |
|  | data-series-params = \*6(val) |
| 0x0029 | TABLE |
|  | table-params = \*2(ref / val) |
| 0x002A | FORMAT.NUMBER |
|  | format-number-params = [val] |
| 0x002B | ALIGNMENT |
|  | alignment-params = \*10(val) |
| 0x002C | STYLE |
|  | style-params = \*2(val) |
| 0x002D | BORDER |
|  | border-params = \*27(val) |
| 0x002E | CELL.PROTECTION |
|  | [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461)-protection-params = \*2(val) |
| 0x002F | COLUMN.WIDTH |
|  | column-width-params = [val, \*4(ref / val)] |
| 0x0030 | UNDO |
|  | This function takes no parameters |
| 0x0031 | CUT |
|  | cut-params = \*2(ref / val) |
| 0x0032 | COPY |
|  | copy-params = \*2(ref / val) |
| 0x0033 | PASTE |
|  | paste-params = [ref / val] |
| 0x0034 | CLEAR |
|  | clear-params = [val] |
| 0x0035 | PASTE.SPECIAL |
|  | paste-special-params = \*7(val) |
| 0x0036 | EDIT.DELETE |
|  | edit-delete-params = [val] |
| 0x0037 | INSERT |
|  | insert-params = \*2(val) |
| 0x0038 | FILL.RIGHT |
|  | This function takes no parameters |
| 0x0039 | FILL.DOWN |
|  | This function takes no parameters |
| 0x003D | DEFINE.NAME |
|  | define-name-params = [val, [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [val]]]]]]] |
| 0x003E | CREATE.NAMES |
|  | create-names-params = \*4(val) |
| 0x003F | FORMULA.GOTO |
|  | formula-goto-params = [(ref / val), [val]] |
| 0x0040 | FORMULA.FIND |
|  | formula-find-params = \*12(val) |
| 0x0041 | SELECT.LAST.CELL |
|  | This function takes no parameters |
| 0x0042 | SHOW.ACTIVE.CELL |
|  | This function takes no parameters |
| 0x0043 | GALLERY.AREA |
|  | gAllery-area-params = \*2(val) |
| 0x0044 | GALLERY.BAR |
|  | gAllery-bar-params = \*2(val) |
| 0x0045 | GALLERY.COLUMN |
|  | gAllery-column-params = \*2(val) |
| 0x0046 | GALLERY.LINE |
|  | gAllery-line-params = \*2(val) |
| 0x0047 | GALLERY.PIE |
|  | gAllery-pie-params = \*2(val) |
| 0x0048 | GALLERY.SCATTER |
|  | gAllery-scatter-params = \*2(val) |
| 0x0049 | COMBINATION |
|  | combination-params = [val] |
| 0x004A | PREFERRED |
|  | This function takes no parameters |
| 0x004B | ADD.OVERLAY |
|  | This function takes no parameters |
| 0x004C | GRIDLINES |
|  | gridlines-params = \*7(val) |
| 0x004D | SET.PREFERRED |
|  | set-preferred-params = [val] |
| 0x004E | AXES |
|  | axes-params = \*6(val) |
| 0x004F | LEGEND |
|  | legend-params = [val] |
| 0x0050 | ATTACH.TEXT |
|  | attach-text-params = \*3(val) |
| 0x0051 | ADD.ARROW |
|  | This function takes no parameters |
| 0x0052 | SELECT.CHART |
|  | This function takes no parameters |
| 0x0053 | SELECT.PLOT.AREA |
|  | This function takes no parameters |
| 0x0054 | PATTERNS |
|  | patterns-params = \*13(val) |
| 0x0055 | MAIN.CHART |
|  | main-chart-params = \*10(val) |
| 0x0056 | OVERLAY |
|  | overlay-params = \*12(val) |
| 0x0057 | SCALE |
|  | scale-params = \*10(val) |
| 0x0058 | FORMAT.LEGEND |
|  | format-legend-params = [val] |
| 0x0059 | FORMAT.TEXT |
|  | format-text-params = \*11(val) |
| 0x005A | EDIT.REPEAT |
|  | This function takes no parameters |
| 0x005B | PARSE |
|  | parse-params = [val, [ref / val]] |
| 0x005C | JUSTIFY |
|  | This function takes no parameters |
| 0x005D | HIDE |
|  | This function takes no parameters |
| 0x005E | UNHIDE |
|  | unhide-params = [val] |
| 0x005F | WORKSPACE |
|  | workspace-params = \*16(val) |
| 0x0060 | FORMULA |
|  | formula-params = [val, [ref / val]] |
| 0x0061 | FORMULA.FILL |
|  | formula-fill-params = [val, [ref / val]] |
| 0x0062 | FORMULA.ARRAY |
|  | formula-array-params = [val, [ref / val]] |
| 0x0063 | DATA.FIND.NEXT |
|  | This function takes no parameters |
| 0x0064 | DATA.FIND.PREV |
|  | This function takes no parameters |
| 0x0065 | FORMULA.FIND.NEXT |
|  | This function takes no parameters |
| 0x0066 | FORMULA.FIND.PREV |
|  | This function takes no parameters |
| 0x0067 | ACTIVATE |
|  | activate-params = \*2(val) |
| 0x0068 | ACTIVATE.NEXT |
|  | activate-next-params = [val] |
| 0x0069 | ACTIVATE.PREV |
|  | activate-prev-params = [val] |
| 0x006A | UNLOCKED.NEXT |
|  | This function takes no parameters |
| 0x006B | UNLOCKED.PREV |
|  | This function takes no parameters |
| 0x006C | COPY.PICTURE |
|  | copy-picture-params = \*3(val) |
| 0x006D | SELECT |
|  | select-params = \*2(ref / val) |
| 0x006E | DELETE.NAME |
|  | delete-name-params = [val] |
| 0x006F | DELETE.FORMAT |
|  | delete-format-params = [val] |
| 0x0070 | VLINE |
|  | vline-params = [val] |
| 0x0071 | HLINE |
|  | hline-params = [val] |
| 0x0072 | VPAGE |
|  | vpage-params = [val] |
| 0x0073 | HPAGE |
|  | hpage-params = [val] |
| 0x0074 | VSCROLL |
|  | vscroll-params = \*2(val) |
| 0x0075 | HSCROLL |
|  | hscroll-params = \*2(val) |
| 0x0076 | ALERT |
|  | alert-params = \*3(val) |
| 0x0077 | NEW |
|  | new-params = \*3(val) |
| 0x0078 | CANCEL.COPY |
|  | cancel-copy-params = [val] |
| 0x0079 | SHOW.CLIPBOARD |
|  | This function takes no parameters |
| 0x007A | MESSAGE |
|  | message-params = \*2(val) |
| 0x007C | PASTE.LINK |
|  | This function takes no parameters |
| 0x007D | APP.ACTIVATE |
|  | app-activate-params = \*2(val) |
| 0x007E | DELETE.ARROW |
|  | This function takes no parameters |
| 0x007F | ROW.HEIGHT |
|  | row-height-params = [val, \*3(ref / val)] |
| 0x0080 | FORMAT.MOVE |
|  | format-move-params = [val, \*2(ref / val)] |
| 0x0081 | FORMAT.SIZE |
|  | format-size-params = [val, \*2(ref / val)] |
| 0x0082 | FORMULA.REPLACE |
|  | formula-replace-params = \*11(val) |
| 0x0083 | SEND.KEYS |
|  | send-keys-params = \*2(val) |
| 0x0084 | SELECT.SPECIAL |
|  | select-special-params = \*3(val) |
| 0x0085 | APPLY.NAMES |
|  | apply-names-params = \*7(val) |
| 0x0086 | REPLACE.FONT |
|  | replace-font-params = \*10(val) |
| 0x0087 | FREEZE.PANES |
|  | freeze-panes-params = \*3(val) |
| 0x0088 | SHOW.INFO |
|  | show-info-params = [val] |
| 0x0089 | SPLIT |
|  | split-params = \*2(val) |
| 0x008A | ON.WINDOW |
|  | on-window-params = \*2(val) |
| 0x008B | ON.DATA |
|  | on-data-params = \*2(val) |
| 0x008C | DISABLE.INPUT |
|  | disable-input-params = [val] |
| 0x008E | OUTLINE |
|  | outline-params = \*4(val) |
| 0x008F | LIST.NAMES |
|  | This function takes no parameters |
| 0x0090 | FILE.CLOSE |
|  | file-close-params = \*2(val) |
| 0x0091 | SAVE.WORKBOOK |
|  | save-[**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe)-params = \*6(val) |
| 0x0092 | DATA.FORM |
|  | This function takes no parameters |
| 0x0093 | COPY.CHART |
|  | copy-chart-params = [val] |
| 0x0094 | ON.TIME |
|  | on-time-params = \*4(val) |
| 0x0095 | WAIT |
|  | wait-params = [val] |
| 0x0096 | FORMAT.FONT |
|  | format-font-params = \*15(val) |
| 0x0097 | FILL.UP |
|  | This function takes no parameters |
| 0x0098 | FILL.LEFT |
|  | This function takes no parameters |
| 0x0099 | DELETE.OVERLAY |
|  | This function takes no parameters |
| 0x009B | SHORT.MENUS |
|  | short-menus-params = [val] |
| 0x009F | SET.UPDATE.STATUS |
|  | set-update-status-params = \*3(val) |
| 0x00A1 | COLOR.PALETTE |
|  | color-palette-params = [val] |
| 0x00A2 | DELETE.STYLE |
|  | delete-style-params = [val] |
| 0x00A3 | WINDOW.RESTORE |
|  | window-restore-params = [val] |
| 0x00A4 | WINDOW.MAXIMIZE |
|  | window-maximize-params = [val] |
| 0x00A6 | CHANGE.LINK |
|  | change-link-params = \*3(val) |
| 0x00A7 | CALCULATE.DOCUMENT |
|  | This function takes no parameters |
| 0x00A8 | ON.KEY |
|  | on-key-params = \*2(val) |
| 0x00A9 | APP.RESTORE |
|  | This function takes no parameters |
| 0x00AA | APP.MOVE |
|  | app-move-params = \*2(val) |
| 0x00AB | APP.SIZE |
|  | app-size-params = \*2(val) |
| 0x00AC | APP.MINIMIZE |
|  | This function takes no parameters |
| 0x00AD | APP.MAXIMIZE |
|  | This function takes no parameters |
| 0x00AE | BRING.TO.FRONT |
|  | This function takes no parameters |
| 0x00AF | SEND.TO.BACK |
|  | This function takes no parameters |
| 0x00B9 | MAIN.CHART.TYPE |
|  | main-chart-type-params = [val] |
| 0x00BA | OVERLAY.CHART.TYPE |
|  | overlay-chart-type-params = [val] |
| 0x00BB | SELECT.END |
|  | select-end-params = [val] |
| 0x00BC | OPEN.MAIL |
|  | open-mail-params = \*2(val) |
| 0x00BD | SEND.MAIL |
|  | send-mail-params = [(ref / val), \*2(val)] |
| 0x00BE | STANDARD.FONT |
|  | standard-font-params = \*9(val) |
| 0x00BF | CONSOLIDATE |
|  | consolidate-params = \*5(val) |
| 0x00C0 | SORT.SPECIAL |
|  | sort-special-params = [val, [val, [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), \*6(val)]]]]]]]] |
| 0x00C1 | GALLERY.3D.AREA |
|  | gAllery-3d-area-params = [val] |
| 0x00C2 | GALLERY.3D.COLUMN |
|  | gAllery-3d-column-params = [val] |
| 0x00C3 | GALLERY.3D.LINE |
|  | gAllery-3d-line-params = [val] |
| 0x00C4 | GALLERY.3D.PIE |
|  | gAllery-3d-pie-params = [val] |
| 0x00C5 | VIEW.3D |
|  | view-3d-params = \*6(val) |
| 0x00C6 | GOAL.SEEK |
|  | goal-seek-params = \*3(ref / val) |
| 0x00C7 | WORKGROUP |
|  | workgroup-params = [val] |
| 0x00C8 | FILL.GROUP |
|  | fill-group-params = [val] |
| 0x00C9 | UPDATE.LINK |
|  | update-link-params = \*2(val) |
| 0x00CA | PROMOTE |
|  | promote-params = [val] |
| 0x00CB | DEMOTE |
|  | demote-params = [val] |
| 0x00CC | SHOW.DETAIL |
|  | show-detail-params = \*4(val) |
| 0x00CE | UNGROUP |
|  | This function takes no parameters |
| 0x00CF | OBJECT.PROPERTIES |
|  | object-properties-params = \*2(val) |
| 0x00D0 | SAVE.NEW.OBJECT |
|  | save-new-object-params = [val] |
| 0x00D1 | SHARE |
|  | This function takes no parameters |
| 0x00D2 | SHARE.NAME |
|  | share-name-params = [val] |
| 0x00D3 | DUPLICATE |
|  | This function takes no parameters |
| 0x00D4 | APPLY.STYLE |
|  | apply-style-params = [val] |
| 0x00D5 | ASSIGN.TO.OBJECT |
|  | assign-to-object-params = [ref / val] |
| 0x00D6 | OBJECT.PROTECTION |
|  | object-protection-params = \*2(val) |
| 0x00D7 | HIDE.OBJECT |
|  | hide-object-params = \*2(val) |
| 0x00D8 | SET.EXTRACT |
|  | This function takes no parameters |
| 0x00D9 | CREATE.PUBLISHER |
|  | create-publisher-params = \*4(val) |
| 0x00DA | SUBSCRIBE.TO |
|  | subscribe-to-params = \*2(val) |
| 0x00DB | ATTRIBUTES |
|  | attributes-params = \*2(val) |
| 0x00DC | SHOW.TOOLBAR |
|  | show-toolbar-params = \*10(val) |
| 0x00DE | PRINT.PREVIEW |
|  | print-preview-params = [val] |
| 0x00DF | EDIT.COLOR |
|  | edit-color-params = \*4(val) |
| 0x00E0 | SHOW.LEVELS |
|  | show-levels-params = \*2(val) |
| 0x00E1 | FORMAT.MAIN |
|  | format-main-params = \*14(val) |
| 0x00E2 | FORMAT.OVERLAY |
|  | format-overlay-params = \*14(val) |
| 0x00E3 | ON.RECALC |
|  | on-recalc-params = \*2(val) |
| 0x00E4 | EDIT.SERIES |
|  | edit-series-params = [val, \*6(ref / val)] |
| 0x00E5 | DEFINE.STYLE |
|  | define-style-params = \*14(val) |
| 0x00F0 | LINE.PRINT |
|  | line-print-params = \*11(val) |
| 0x00F3 | ENTER.DATA |
|  | enter-data-params = [ref / val] |
| 0x00F9 | GALLERY.RADAR |
|  | gAllery-radar-params = \*2(val) |
| 0x00FA | MERGE.STYLES |
|  | merge-styles-params = [val] |
| 0x00FB | EDITION.OPTIONS |
|  | edition-options-params = [val, \*6(ref / val)] |
| 0x00FC | PASTE.PICTURE |
|  | This function takes no parameters |
| 0x00FD | PASTE.PICTURE.LINK |
|  | This function takes no parameters |
| 0x00FE | SPELLING |
|  | spelling-params = \*6(val) |
| 0x0100 | ZOOM |
|  | zoom-params = [val] |
| 0x0103 | INSERT.OBJECT |
|  | insert-object-params = [val, [val, [val, [val, [val, [val, [val, [(ref / val), [val, [val, [(ref / val), \*2(val)]]]]]]]]]]] |
| 0x0104 | WINDOW.MINIMIZE |
|  | window-minimize-params = [val] |
| 0x0109 | SOUND.NOTE |
|  | sound-note-params = [(ref / val), \*2(val)] |
| 0x010A | SOUND.PLAY |
|  | sound-play-params = [(ref / val), \*2(val)] |
| 0x010B | FORMAT.SHAPE |
|  | format-shape-params = [val, [val, [(ref / val), \*2(val)]]] |
| 0x010C | EXTEND.POLYGON |
|  | extend-polygon-params = [val] |
| 0x010D | FORMAT.AUTO |
|  | format-auto-params = \*7(val) |
| 0x0110 | GALLERY.3D.BAR |
|  | gAllery-3d-bar-params = [val] |
| 0x0111 | GALLERY.3D.SURFACE |
|  | gAllery-3d-surface-params = [val] |
| 0x0112 | FILL.AUTO |
|  | fill-auto-params = [(ref / val), [val]] |
| 0x0114 | CUSTOMIZE.TOOLBAR |
|  | customize-toolbar-params = [val] |
| 0x0115 | ADD.TOOL |
|  | add-tool-params = \*3(val) |
| 0x0116 | EDIT.OBJECT |
|  | edit-object-params = [val] |
| 0x0117 | ON.DOUBLECLICK |
|  | on-doubleclick-params = \*2(val) |
| 0x0118 | ON.ENTRY |
|  | on-entry-params = \*2(val) |
| 0x0119 | WORKBOOK.ADD |
|  | workbook-add-params = \*3(val) |
| 0x011A | WORKBOOK.MOVE |
|  | workbook-move-params = \*3(val) |
| 0x011B | WORKBOOK.COPY |
|  | workbook-copy-params = \*3(val) |
| 0x011C | WORKBOOK.OPTIONS |
|  | workbook-options-params = \*3(val) |
| 0x011D | SAVE.WORKSPACE |
|  | save-workspace-params = [val] |
| 0x0120 | CHART.WIZARD |
|  | chart-wizard-params = [val, [(ref / val), \*12(val)]] |
| 0x0121 | DELETE.TOOL |
|  | delete-tool-params = \*2(val) |
| 0x0122 | MOVE.TOOL |
|  | move-tool-params = \*6(val) |
| 0x0123 | WORKBOOK.SELECT |
|  | workbook-select-params = \*3(val) |
| 0x0124 | WORKBOOK.ACTIVATE |
|  | workbook-activate-params = \*2(val) |
| 0x0125 | ASSIGN.TO.TOOL |
|  | assign-to-tool-params = [val, [val, [ref / val]]] |
| 0x0127 | COPY.TOOL |
|  | copy-tool-params = \*2(val) |
| 0x0128 | RESET.TOOL |
|  | reset-tool-params = \*2(val) |
| 0x0129 | CONSTRAIN.NUMERIC |
|  | constrain-numeric-params = [val] |
| 0x012A | PASTE.TOOL |
|  | paste-tool-params = \*2(val) |
| 0x012E | WORKBOOK.NEW |
|  | workbook-new-params = \*3(val) |
| 0x0131 | SCENARIO.CELLS |
|  | scenario-cells-params = [ref / val] |
| 0x0132 | SCENARIO.DELETE |
|  | scenario-delete-params = [val] |
| 0x0133 | SCENARIO.ADD |
|  | scenario-add-params = [val, [val, [(ref / val), \*3(val)]]] |
| 0x0134 | SCENARIO.EDIT |
|  | scenario-edit-params = [val, [val, [val, [(ref / val), \*3(val)]]]] |
| 0x0135 | SCENARIO.SHOW |
|  | scenario-show-params = [val] |
| 0x0136 | SCENARIO.SHOW.NEXT |
|  | This function takes no parameters |
| 0x0137 | SCENARIO.SUMMARY |
|  | scenario-summary-params = [(ref / val), [val]] |
| 0x0138 | PIVOT.TABLE.WIZARD |
|  | pivot-table-wizard-params = [val, [(ref / val), [(ref / val), \*13(val)]]] |
| 0x0139 | PIVOT.FIELD.PROPERTIES |
|  | pivot-field-properties-params = \*7(val) |
| 0x013A | PIVOT.FIELD |
|  | pivot-field-params = \*4(val) |
| 0x013B | PIVOT.ITEM |
|  | pivot-item-params = \*4(val) |
| 0x013C | PIVOT.ADD.FIELDS |
|  | pivot-add-fields-params = \*5(val) |
| 0x013E | OPTIONS.CALCULATION |
|  | options-calculation-params = \*10(val) |
| 0x013F | OPTIONS.EDIT |
|  | options-edit-params = \*11(val) |
| 0x0140 | OPTIONS.VIEW |
|  | options-view-params = \*18(val) |
| 0x0141 | ADDIN.MANAGER |
|  | addin-manager-params = \*3(val) |
| 0x0142 | MENU.EDITOR |
|  | This function takes no parameters |
| 0x0143 | ATTACH.TOOLBARS |
|  | This function takes no parameters |
| 0x0144 | VBAActivate |
|  | vbaactivate-params = \*2(val) |
| 0x0145 | OPTIONS.CHART |
|  | options-chart-params = \*3(val) |
| 0x0148 | VBA.INSERT.FILE |
|  | vba-insert-file-params = [val] |
| 0x014A | VBA.PROCEDURE.DEFINITION |
|  | This function takes no parameters |
| 0x0150 | ROUTING.SLIP |
|  | routing-slip-params = [(ref / val), \*5(val)] |
| 0x0152 | ROUTE.DOCUMENT |
|  | This function takes no parameters |
| 0x0153 | MAIL.LOGON |
|  | mail-logon-params = [(ref / val), [(ref / val), [val]]] |
| 0x0156 | INSERT.PICTURE |
|  | insert-picture-params = \*2(val) |
| 0x0157 | EDIT.TOOL |
|  | edit-tool-params = \*2(val) |
| 0x0158 | GALLERY.DOUGHNUT |
|  | gAllery-doughnut-params = \*2(val) |
| 0x015E | CHART.TREND |
|  | chart-trend-params = \*8(val) |
| 0x0160 | PIVOT.ITEM.PROPERTIES |
|  | pivot-item-properties-params = \*7(val) |
| 0x0162 | WORKBOOK.INSERT |
|  | workbook-insert-params = [val] |
| 0x0163 | OPTIONS.TRANSITION |
|  | options-transition-params = \*5(val) |
| 0x0164 | OPTIONS.GENERAL |
|  | options-general-params = \*14(val) |
| 0x0172 | FILTER.ADVANCED |
|  | filter-advanced-params = [val, [(ref / val), [(ref / val), [(ref / val), [val]]]]] |
| 0x0175 | MAIL.ADD.MAILER |
|  | This function takes no parameters |
| 0x0176 | MAIL.DELETE.MAILER |
|  | This function takes no parameters |
| 0x0177 | MAIL.REPLY |
|  | This function takes no parameters |
| 0x0178 | MAIL.REPLY.ALL |
|  | This function takes no parameters |
| 0x0179 | MAIL.FORWARD |
|  | This function takes no parameters |
| 0x017A | MAIL.NEXT.LETTER |
|  | This function takes no parameters |
| 0x017B | DATA.LABEL |
|  | data-label-params = \*10(val) |
| 0x017C | INSERT.TITLE |
|  | insert-title-params = \*5(val) |
| 0x017D | FONT.PROPERTIES |
|  | font-properties-params = \*14(val) |
| 0x017E | MACRO.OPTIONS |
|  | macro-options-params = \*10(val) |
| 0x017F | WORKBOOK.HIDE |
|  | workbook-hide-params = \*2(val) |
| 0x0180 | WORKBOOK.UNHIDE |
|  | workbook-unhide-params = [val] |
| 0x0181 | WORKBOOK.DELETE |
|  | workbook-delete-params = [val] |
| 0x0182 | WORKBOOK.NAME |
|  | workbook-name-params = \*2(val) |
| 0x0184 | GALLERY.CUSTOM |
|  | gAllery-custom-params = [val] |
| 0x0186 | ADD.CHART.AUTOFORMAT |
|  | add-chart-autoformat-params = \*2(val) |
| 0x0187 | DELETE.CHART.AUTOFORMAT |
|  | delete-chart-autoformat-params = [val] |
| 0x0188 | CHART.ADD.DATA |
|  | chart-add-data-params = [val, [(ref / val), \*4(val)]] |
| 0x0189 | AUTO.OUTLINE |
|  | This function takes no parameters |
| 0x018A | TAB.ORDER |
|  | This function takes no parameters |
| 0x018B | SHOW.DIALOG |
|  | show-dialog-params = [val] |
| 0x018C | SELECT.ALL |
|  | This function takes no parameters |
| 0x018D | UNGROUP.SHEETS |
|  | This function takes no parameters |
| 0x018E | SUBTOTAL.CREATE |
|  | subtotal-create-params = \*6(val) |
| 0x018F | SUBTOTAL.REMOVE |
|  | This function takes no parameters |
| 0x0190 | RENAME.OBJECT |
|  | rename-object-params = [val] |
| 0x019C | WORKBOOK.SCROLL |
|  | workbook-scroll-params = \*2(val) |
| 0x019D | WORKBOOK.NEXT |
|  | This function takes no parameters |
| 0x019E | WORKBOOK.PREV |
|  | This function takes no parameters |
| 0x019F | WORKBOOK.TAB.SPLIT |
|  | workbook-tab-split-params = [val] |
| 0x01A0 | FULL.SCREEN |
|  | full-screen-params = [val] |
| 0x01A1 | WORKBOOK.PROTECT |
|  | workbook-protect-params = \*3(val) |
| 0x01A4 | SCROLLBAR.PROPERTIES |
|  | scrollbar-properties-params = \*7(val) |
| 0x01A5 | PIVOT.SHOW.PAGES |
|  | pivot-show-pages-params = \*2(val) |
| 0x01A6 | TEXT.TO.COLUMNS |
|  | text-to-columns-params = [val, [(ref / val), \*12(val)]] |
| 0x01A7 | FORMAT.CHARTTYPE |
|  | format-charttype-params = \*4(val) |
| 0x01A8 | LINK.FORMAT |
|  | This function takes no parameters |
| 0x01A9 | TRACER.DISPLAY |
|  | tracer-display-params = \*2(val) |
| 0x01AE | TRACER.NAVIGATE |
|  | tracer-navigate-params = \*3(val) |
| 0x01AF | TRACER.CLEAR |
|  | This function takes no parameters |
| 0x01B0 | TRACER.ERROR |
|  | This function takes no parameters |
| 0x01B1 | PIVOT.FIELD.GROUP |
|  | pivot-field-group-params = \*4(val) |
| 0x01B2 | PIVOT.FIELD.UNGROUP |
|  | This function takes no parameters |
| 0x01B3 | CHECKBOX.PROPERTIES |
|  | checkbox-properties-params = \*5(val) |
| 0x01B4 | LABEL.PROPERTIES |
|  | label-properties-params = \*3(val) |
| 0x01B5 | LISTBOX.PROPERTIES |
|  | listbox-properties-params = \*5(val) |
| 0x01B6 | EDITBOX.PROPERTIES |
|  | editbox-properties-params = \*4(val) |
| 0x01B7 | PIVOT.REFRESH |
|  | pivot-refresh-params = [val] |
| 0x01B8 | LINK.COMBO |
|  | link-combo-params = [val] |
| 0x01B9 | OPEN.TEXT |
|  | open-text-params = \*17(val) |
| 0x01BA | HIDE.DIALOG |
|  | hide-dialog-params = [val] |
| 0x01BB | SET.DIALOG.FOCUS |
|  | set-dialog-focus-params = [val] |
| 0x01BC | ENABLE.OBJECT |
|  | enable-object-params = \*2(val) |
| 0x01BD | PUSHBUTTON.PROPERTIES |
|  | pushbutton-properties-params = \*6(val) |
| 0x01BE | SET.DIALOG.DEFAULT |
|  | set-dialog-default-params = [val] |
| 0x01BF | FILTER |
|  | filter-params = \*6(val) |
| 0x01C0 | FILTER.SHOW.ALL |
|  | This function takes no parameters |
| 0x01C1 | CLEAR.OUTLINE |
|  | This function takes no parameters |
| 0x01C2 | FUNCTION.WIZARD |
|  | function-wizard-params = [val] |
| 0x01C3 | ADD.LIST.ITEM |
|  | add-list-item-params = \*2(val) |
| 0x01C4 | SET.LIST.ITEM |
|  | set-list-item-params = \*2(val) |
| 0x01C5 | REMOVE.LIST.ITEM |
|  | remove-list-item-params = \*2(val) |
| 0x01C6 | SELECT.LIST.ITEM |
|  | select-list-item-params = \*2(val) |
| 0x01C7 | SET.CONTROL.VALUE |
|  | set-control-value-params = [val] |
| 0x01C8 | SAVE.COPY.AS |
|  | save-copy-as-params = [val] |
| 0x01CA | OPTIONS.LISTS.ADD |
|  | options-lists-add-params = [val, [ref / val]] |
| 0x01CB | OPTIONS.LISTS.DELETE |
|  | options-lists-delete-params = [val] |
| 0x01CC | SERIES.AXES |
|  | series-axes-params = [val] |
| 0x01CD | SERIES.X |
|  | series-x-params = [ref / val] |
| 0x01CE | SERIES.Y |
|  | series-y-params = \*2(ref / val) |
| 0x01CF | ERRORBAR.X |
|  | errorbar-x-params = [val, [val, [val, [ref / val]]]] |
| 0x01D0 | ERRORBAR.Y |
|  | errorbar-y-params = [val, [val, [val, [ref / val]]]] |
| 0x01D1 | FORMAT.CHART |
|  | format-chart-params = [(ref / val), \*17(val)] |
| 0x01D2 | SERIES.ORDER |
|  | series-order-params = \*3(val) |
| 0x01D3 | MAIL.LOGOFF |
|  | This function takes no parameters |
| 0x01D4 | CLEAR.ROUTING.SLIP |
|  | clear-routing-slip-params = [val] |
| 0x01D5 | APP.ACTIVATE.MICROSOFT |
|  | app-activate-microsoft-params = [val] |
| 0x01D6 | MAIL.EDIT.MAILER |
|  | mail-edit-mailer-params = [val, [(ref / val), [(ref / val), [(ref / val), [val, [ref / val]]]]]] |
| 0x01D7 | ON.SHEET |
|  | on-sheet-params = \*3(val) |
| 0x01D8 | STANDARD.WIDTH |
|  | standard-width-params = [val] |
| 0x01D9 | SCENARIO.MERGE |
|  | scenario-merge-params = [val] |
| 0x01DA | SUMMARY.INFO |
|  | summary-info-params = \*5(val) |
| 0x01DB | FIND.FILE |
|  | This function takes no parameters |
| 0x01DC | ACTIVE.CELL.FONT |
|  | active-cell-font-params = \*14(val) |
| 0x01DD | ENABLE.TIPWIZARD |
|  | enable-tipwizard-params = [val] |
| 0x01DE | VBA.MAKE.ADDIN |
|  | vba-make-addin-params = [val] |
| 0x01E0 | INSERTDATATABLE |
|  | insertdatatable-params = [val] |
| 0x01E1 | WORKGROUP.OPTIONS |
|  | This function takes no parameters |
| 0x01E2 | MAIL.SEND.MAILER |
|  | mail-send-mailer-params = \*2(val) |
| 0x01E5 | AUTOCORRECT |
|  | autocorrect-params = \*2(val) |
| 0x01E9 | POST.DOCUMENT |
|  | post-document-params = [val] |
| 0x01EB | PICKLIST |
|  | This function takes no parameters |
| 0x01ED | VIEW.SHOW |
|  | view-show-params = [val] |
| 0x01EE | VIEW.DEFINE |
|  | view-define-params = \*3(val) |
| 0x01EF | VIEW.DELETE |
|  | view-delete-params = [val] |
| 0x01FD | SHEET.BACKGROUND |
|  | sheet-background-params = \*2(val) |
| 0x01FE | INSERT.MAP.OBJECT |
|  | This function takes no parameters |
| 0x01FF | OPTIONS.MENONO |
|  | options-menono-params = \*5(val) |
| 0x0205 | MSOCHECKS |
|  | This function takes no parameters |
| 0x0206 | NORMAL |
|  | This function takes no parameters |
| 0x0207 | LAYOUT |
|  | This function takes no parameters |
| 0x0208 | RM.PRINT.AREA |
|  | rm-print-area-params = [ref / val] |
| 0x0209 | CLEAR.PRINT.AREA |
|  | This function takes no parameters |
| 0x020A | ADD.PRINT.AREA |
|  | This function takes no parameters |
| 0x020B | MOVE.BRK |
|  | move-brk-params = \*4(val) |
| 0x0221 | HIDECURR.NOTE |
|  | hidecurr-note-params = [(ref / val), [val]] |
| 0x0222 | HIDEALL.NOTES |
|  | hideall-notes-params = [val] |
| 0x0223 | DELETE.NOTE |
|  | delete-note-params = [ref / val] |
| 0x0224 | TRAVERSE.NOTES |
|  | traverse-notes-params = [(ref / val), [val]] |
| 0x0225 | ACTIVATE.NOTES |
|  | activate-notes-params = [(ref / val), [val]] |
| 0x026C | PROTECT.REVISIONS |
|  | This function takes no parameters |
| 0x026D | UNPROTECT.REVISIONS |
|  | This function takes no parameters |
| 0x0287 | OPTIONS.ME |
|  | options-me-params = [(ref / val), \*8(val)] |
| 0x028D | WEB.PUBLISH |
|  | web-publish-params = \*9(val) |
| 0x029B | NEWWEBQUERY |
|  | newwebquery-params = [val] |
| 0x02A1 | PIVOT.TABLE.CHART |
|  | pivot-table-chart-params = [val, [(ref / val), [(ref / val), \*13(val)]]] |
| 0x02F1 | OPTIONS.SAVE |
|  | options-save-params = \*4(val) |
| 0x02F3 | OPTIONS.SPELL |
|  | options-spell-params = \*12(val) |
| 0x0328 | HIDEALL.INKANNOTS |
|  | hideall-inkannots-params = [val] |

The following grammar is used in the Rgce structure definition:

params-cetab = beep-params / open-params / open-links-params / save-as-params /

file-delete-params / page-setup-params / print-params /

printer-setup-params /

arrange-all-params / window-size-params / window-move-params /

full-params / close-params / run-params /

set-print-area-params / set-print-titles-params /

remove-page-break-params / font-params / display-params /

protect-document-params / precision-params / a1-r1c1-params / calculation-params / data-find-params /

extract-params / sort-params / data-series-params /

table-params / format-number-params / alignment-params /

style-params / border-params / cell-protection-params /

column-width-params / cut-params /

copy-params / paste-params / clear-params /

paste-special-params / edit-delete-params / insert-params / define-name-params /

create-names-params / formula-goto-params / formula-find-params / gallery-area-params /

gallery-bar-params / gallery-column-params / gallery-line-params /

gallery-pie-params / gallery-scatter-params / combination-params / gridlines-params /

set-preferred-params / axes-params / legend-params /

attach-text-params / patterns-params / main-chart-params /

overlay-params / scale-params / format-legend-params /

format-text-params / parse-params / unhide-params /

workspace-params / formula-params / formula-fill-params /

formula-array-params / activate-params /

activate-next-params / activate-prev-params / copy-picture-params / select-params /

delete-name-params / delete-format-params / vline-params /

hline-params / vpage-params / hpage-params /

vscroll-params / hscroll-params / alert-params /

new-params / cancel-copy-params /

message-params / app-activate-params / row-height-params / format-move-params /

format-size-params / formula-replace-params / send-keys-params /

select-special-params / apply-names-params / replace-font-params /

freeze-panes-params / show-info-params / split-params /

on-window-params / on-data-params / disable-input-params /

outline-params / file-close-params /

save-workbook-params / copy-chart-params /

on-time-params / wait-params / format-font-params /

short-menus-params / set-update-status-params / color-palette-params /

delete-style-params / window-restore-params / window-maximize-params /

change-link-params / on-key-params / app-move-params / app-size-params / main-chart-type-params / overlay-chart-type-params /

select-end-params / open-mail-params / send-mail-params /

standard-font-params / consolidate-params / sort-special-params /

gAllery-3d-area-params / gAllery-3d-column-params / gAllery-3d-line-params /

gallery-3d-pie-params / view-3d-params / goal-seek-params /

workgroup-params / fill-group-params / update-link-params /

promote-params / demote-params / show-detail-params / object-properties-params / save-new-object-params / share-name-params /

apply-style-params / assign-to-object-params / object-protection-params /

hide-object-params / create-publisher-params /

subscribe-to-params / attributes-params / show-toolbar-params /

print-preview-params / edit-color-params / show-levels-params /

format-main-params / format-overlay-params / on-recalc-params /

edit-series-params / define-style-params / line-print-params /

enter-data-params / gallery-radar-params / merge-styles-params /

edition-options-params /

spelling-params / zoom-params / insert-object-params /

window-minimize-params /

sound-note-params / sound-play-params / format-shape-params /

extend-polygon-params / format-auto-params / gallery-3d-bar-params /

gallery-3d-surface-params / fill-auto-params / customize-toolbar-params /

add-tool-params / edit-object-params / on-doubleclick-params /

on-entry-params / workbook-add-params / workbook-move-params /

workbook-copy-params / workbook-options-params / save-workspace-params /

chart-wizard-params / delete-tool-params / move-tool-params /

workbook-select-params / workbook-activate-params / assign-to-tool-params /

copy-tool-params / reset-tool-params / constrain-numeric-params /

paste-tool-params / placement-params /

workbook-new-params / scenario-cells-params / scenario-delete-params /

scenario-add-params / scenario-edit-params / scenario-show-params / scenario-summary-params / pivot-table-wizard-params /

pivot-field-properties-params / pivot-field-params / pivot-item-params /

pivot-add-fields-params / options-calculation-params / options-edit-params /

options-view-params / addin-manager-params / vbaactivate-params / options-chart-params /

vba-insert-file-params / routing-slip-params / mail-logon-params / insert-picture-params /

edit-tool-params / gallery-doughnut-params / chart-trend-params /

pivot-item-properties-params / workbook-insert-params / options-transition-params /

options-general-params / filter-advanced-params / data-label-params /

insert-title-params / font-properties-params / macro-options-params /

workbook-hide-params / workbook-unhide-params / workbook-delete-params /

workbook-name-params / gAllery-custom-params / add-chart-autoformat-params /

delete-chart-autoformat-params / chart-add-data-params / show-dialog-params / subtotal-create-params /

rename-object-params / workbook-scroll-params / workbook-tab-split-params / full-screen-params /

workbook-protect-params / scrollbar-properties-params / pivot-show-pages-params /

text-to-columns-params / format-charttype-params /

tracer-display-params / tracer-navigate-params / pivot-field-group-params /

checkbox-properties-params / label-properties-params / listbox-properties-params /

editbox-properties-params / pivot-refresh-params / link-combo-params /

open-text-params / hide-dialog-params / set-dialog-focus-params /

enable-object-params / pushbutton-properties-params / set-dialog-default-params /

filter-params /

function-wizard-params / add-list-item-params / set-list-item-params /

remove-list-item-params / select-list-item-params / set-control-value-params /

save-copy-as-params / options-lists-add-params / options-lists-delete-params /

series-axes-params / series-x-params / series-y-params /

errorbar-x-params / errorbar-y-params / format-chart-params /

series-order-params / clear-routing-slip-params /

app-activate-microsoft-params / mail-edit-mailer-params / on-sheet-params /

standard-width-params / scenario-merge-params / summary-info-params / active-cell-font-params / enable-tipwizard-params /

vba-make-addin-params / insertdatatable-params /

mail-send-mailer-params / autocorrect-params / post-document-params / view-show-params / view-define-params /

view-delete-params / sheet-background-params /

options-menono-params / rm-print-area-params / move-brk-params / hidecurr-note-params /

hideall-notes-params / delete-note-params / traverse-notes-params /

activate-notes-params /

options-me-params / web-publish-params / newwebquery-params /

pivot-table-chart-params / options-save-params / options-spell-params /

hideall-inkannots-params

#### 2.5.198.5 CFParsedFormula

The **CFParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in 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 |
| cce | | | | | | | | | | | | | | | | rgce (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f) structures for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d), [PtgIsect](#Section_477524a586b9474e89559ea77d659d79), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), or [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48). A [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) or a [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86) MUST NOT be the only Ptg structure in the sequence.

The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

#### 2.5.198.6 CFParsedFormulaNoCCE

The **CFParsedFormulaNoCCE** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in a [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) rule, in a [CF](#Section_d6dcadf27e074f7da60a0f643780225d) or [CF12](#Section_3b6a364e8c344830a8b15a51476a9934) record in which the size of the formula in bytes is specified.

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

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d), [PtgIsect](#Section_477524a586b9474e89559ea77d659d79), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), or [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48). A [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) or a [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86) MUST NOT be the only Ptg in the sequence.

The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

#### 2.5.198.7 CFVOParsedFormula

The **CFVOParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) without [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) that is used in 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 |
| cce | | | | | | | | | | | | | | | | rgce (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d), [PtgIsect](#Section_477524a586b9474e89559ea77d659d79), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), or [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48). A [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) or a [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86) MUST NOT be the only Ptg in the sequence.

If this field contains a [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055), then the **loc.column.colRelative** and **loc.column.rowRelative** fields in the PtgRef MUST be 0.

If this field contains a [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032), then the **loc.column.colRelative** and **loc.column.rowRelative** fields in the PtgRefN MUST be 0.

If this field contains a PtgArea, then the **area.columnFirst.colRelative**, **area.columnFirst.rowRelative**, **area.columnLast.colRelative**, and **area.columnLast.rowRelative** fields in the PtgArea MUST be 0**.**

If this field contains a PtgAreaN, then the **area.columnFirst.colRelative**, **area.columnFirst.rowRelative**, **area.columnLast.colRelative**, and **area.columnLast.rowRelative** fields in the PtgAreaN MUST be 0.

The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

#### 2.5.198.8 ChartParsedFormula

The **ChartParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in 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 |
| cce | | | | | | | | | | | | | | | | rgce (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST contain only the following Ptgs: [PtgParen](#Section_7a5b73dac5524fa7a4d01a36032a5622), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), or [PtgMemFunc](#Section_e4f8e3b40bb7410099ee1ac53acc9161).

#### 2.5.198.9 DVParsedFormula

The **DVParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in a [**data validation**](#gt_1db94de4-1b5d-40aa-a7d9-617078ebb237) 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 |
| cce | | | | | | | | | | | | | | | | unused | | | | | | | | | | | | | | | |
| rgce (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes.

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

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d), [PtgIsect](#Section_477524a586b9474e89559ea77d659d79), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), or [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48).

If the [Dv](#Section_862bbc7c009a4fd6a93e3e32e591c2f8) record that contains this **DVParsedFormula** in its Dv.**formula1** field has a Dv.**valType** not equal to 3, then the following MUST be true:

 **rgce** MUST NOT contain a [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) or a [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2).

 A [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3), a [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0), or a [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86), MUST NOT be the only Ptg in **rgce**.

 The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

If the Dv record that contains this **DVParsedFormula** in its Dv.**formula1** field has a Dv.**valType** equal to 3, then the following MUST be true:

 If **rgce** contains a PtgArea3d or a PtgAreaErr3d then the PtgArea3d or PtgAreaErr3d MUST be the only Ptg in **rgce**.

 The root node of the parse tree of this field MUST NOT be a VALUE\_TYPE, as described in Rgce.

If this **DVParsedFormula** is in Dv.**formula2** field, then the following MUST be true:

 **rgce** MUST NOT contain a PtgArea3d or a PtgAreaErr3d.

 A PtgArea, a PtgAreaErr, or a PtgAreaN, MUST NOT be the only Ptg in **rgce**.

 The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

#### 2.5.198.10 ExtNameParsedFormula

The **ExtNameParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cb | | | | | | | | | | | | | | | | extPtg (optional) | | | | | | | | val (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cb (2 bytes):** An unsigned integer that specifies the number of bytes in **extPtg** + the number of bytes in **val**. If the [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) that this external defined name specifies does not exist in its containing [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe), this value MUST be 0, and **extPtg** and **val** MUST NOT exist.

**extPtg (1 byte):** An unsigned integer that specifies the formula type of **val**. This field MUST exist if and only if **cb** is greater than 0. MUST be one of the values as specified in the table in the **val** field section.

**val (variable):** An optional field that specifies the formula of an external defined name. If the formula cannot be represented correctly with one formula types allowed in this field, then this field MUST specify an [ExtPtgErr](#Section_6037ca970e4648e09de88527f345b549) formula. This field MUST exist if and only if **cb** is greater than 0. The size and the type of the formula vary based on the value of **extPtg** as follows:

| extPtg value | Val field Data and Meaning |
| --- | --- |
| 0x3A | Specifies an [ExtPtgRef3D](#Section_03b41fde9697422096c7e2c86cedb30e) formula. |
| 0x3B | Specifies an [ExtPtgArea3D](#Section_d069151f23404a869a40372659b9baa9) formula. |
| 0x3C | Specifies an [ExtPtgRefErr3D](#Section_ebf366bbb39b453fa2c7b27d53d8e43f) formula. |
| 0x3D | Specifies an [ExtPtgAreaErr3D](#Section_55d25224b32b499e92879d429f2276a6) formula. |
| 0x1C | Specifies an ExtPtgErr formula. |

#### 2.5.198.11 ExtPtgArea3D

The **ExtPtgArea3D** structure is a variation of [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) that is used by formulas in an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2). It specifies a rectangular [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) range on one or more [**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 |
| iTabs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| area | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iTabs (4 bytes):** An [ExtSheetPair](#Section_bf9eaf171f7b4436bf9016531854f71f) that specifies the sheet or sheets containing the range.

**area (8 bytes):** A [RgceAreaRel](#Section_75afd109b1ce4511b56f2d63116f6647) that specifies the location of the range of cells within a sheet.

#### 2.5.198.12 ExtPtgAreaErr3D

The **ExtPtgAreaErr3D** structure is a variation of [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2) that is used by formulas in an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2). It specifies an invalid reference to a regular range of cells on one or more [**sheets**](#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 |
| iTabs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iTabs (4 bytes):** An [ExtSheetPair](#Section_bf9eaf171f7b4436bf9016531854f71f) that specifies the sheet or sheets containing the target of this reference.

**unused1 (4 bytes):** Undefined and MUST be ignored.

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

#### 2.5.198.13 ExtPtgErr

The **ExtPtgErr** structure is a variation of [PtgErr](#Section_4746c46e83014d72aaa8742f5404b5db) that is used by formulas in an external defined name. It specifies an invalid [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) reference.

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

**err (1 byte):** A [BErr](#Section_91beb411d1754c4eb65fe3bfbc53064c) that specifies the value of this error. The value MUST be 0x17.

#### 2.5.198.14 ExtPtgRef3D

The **ExtPtgRef3D** structure is a variation of [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577) that is used by formulas in an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2). It specifies the location of a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on one or more [**sheets**](#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 |
| iTabs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| loc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iTabs (4 bytes):** An [ExtSheetPair](#Section_bf9eaf171f7b4436bf9016531854f71f) that specifies the sheet or sheets containing the cell.

**loc (4 bytes):** A [RgceLocRel](#Section_2db37ba732f3439588fe6646034a5358) that specifies the location of a cell within a sheet.

#### 2.5.198.15 ExtPtgRefErr3D

The **ExtPtgRefErr3D** structure is a variation of [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4) that is used by formulas in an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2). It specifies an invalid single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) reference on one or more [**sheets**](#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 |
| iTabs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iTabs (4 bytes):** An [ExtSheetPair](#Section_bf9eaf171f7b4436bf9016531854f71f) that specifies the sheet or sheets containing the target of this reference.

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

#### 2.5.198.16 ExtSheetPair

The **ExtSheetPair** structure specifies a pair of [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) in the formulas of an [external defined name](#Section_3a459d7b05f54d7a9e0d0d62c5b2fbb2). The sheets are in the [External Workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc) as specified by the preceding [SupBook](#Section_31ed3738e4ff4b60804cac49ac1ee6c0) 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 |
| itabFirst | | | | | | | | | | | | | | | | itabLast | | | | | | | | | | | | | | | |

**itabFirst (2 bytes):** A signed integer that specifies the first sheet of a single or multi-sheet reference. It MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | Specifies that the first sheet of this reference could not be found. |
| >=0 | This value specifies the zero-based index of an [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) in the **rgst** field of the preceding SupBook record. The XLUnicodeString specifies the name of the first referenced sheet within the supporting workbook. This value MUST be less than the value of the **ctab** field in the preceding SupBook record. |

**itabLast (2 bytes):**  A signed integer that specifies the last sheet of a single or multi-sheet reference. The value MUST be greater than or equal to **itabFirst** if it is not -1 and MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -1 | Specifies that the last sheet of this reference could not be found. |
| >=0 | This value specifies the zero-based index of an XLUnicodeString in the **rgst** field of the preceding SupBook record. The XLUnicodeString specifies the name of the last referenced sheet within the supporting workbook. This value MUST be less than the value of the **ctab** field in the preceding SupBook record. |

#### 2.5.198.17 Ftab

The **Ftab** structure specifies a function which can be called from a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). The definition of each function specifies the function name and the valid sequence of arguments.

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

**iftab (2 bytes):** An unsigned integer that specifies the function to be called. MUST be a value from the following table:

The elements [ref](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) and val are specified in Rgce.

| Value | Meaning |
| --- | --- |
| 0x0000 | COUNT |
|  | count-params = (ref / val), \*29(ref / val) |
| 0x0001 | IF |
|  | if-params = val, \*2(ref / val) |
| 0x0002 | ISNA |
|  | isna-params = val |
| 0x0003 | ISERROR |
|  | iserror-params = val |
| 0x0004 | SUM |
|  | sum-params = (ref / val), \*29(ref / val) |
| 0x0005 | AVERAGE |
|  | average-params = (ref / val), \*29(ref / val) |
| 0x0006 | MIN |
|  | min-params = (ref / val), \*29(ref / val) |
| 0x0007 | MAX |
|  | max-params = (ref / val), \*29(ref / val) |
| 0x0008 | ROW |
|  | row-params = [ref] |
| 0x0009 | COLUMN |
|  | column-params = [ref] |
| 0x000A | NA |
|  | This function takes no parameters |
| 0x000B | NPV |
|  | npv-params = val, (ref / val), \*28(ref / val) |
| 0x000C | STDEV |
|  | stdev-params = (ref / val), \*29(ref / val) |
| 0x000D | DOLLAR |
|  | dollar-params = val, [val] |
| 0x000E | FIXED |
|  | fixed-params = val, [val, [val]] |
| 0x000F | SIN |
|  | sin-params = val |
| 0x0010 | COS |
|  | cos-params = val |
| 0x0011 | TAN |
|  | tan-params = val |
| 0x0012 | ATAN |
|  | atan-params = val |
| 0x0013 | PI |
|  | This function takes no parameters |
| 0x0014 | SQRT |
|  | sqrt-params = val |
| 0x0015 | EXP |
|  | exp-params = val |
| 0x0016 | LN |
|  | ln-params = val |
| 0x0017 | LOG10 |
|  | log10-params = val |
| 0x0018 | ABS |
|  | abs-params = val |
| 0x0019 | INT |
|  | int-params = val |
| 0x001A | SIGN |
|  | sign-params = val |
| 0x001B | ROUND |
|  | round-params = val, val |
| 0x001C | LOOKUP |
|  | lookup-params = val, (ref / val), [ref / val] |
| 0x001D | INDEX |
|  | index-params = (ref / val), val, \*2(val) |
| 0x001E | REPT |
|  | rept-params = val, val |
| 0x001F | MID |
|  | mid-params = val, val, val |
| 0x0020 | LEN |
|  | len-params = val |
| 0x0021 | VALUE |
|  | value-params = val |
| 0x0022 | TRUE |
|  | This function takes no parameters |
| 0x0023 | FALSE |
|  | This function takes no parameters |
| 0x0024 | AND |
|  | and-params = (ref / val), \*29(ref / val) |
| 0x0025 | OR |
|  | or-params = (ref / val), \*29(ref / val) |
| 0x0026 | NOT |
|  | not-params = val |
| 0x0027 | MOD |
|  | mod-params = val, val |
| 0x0028 | DCOUNT |
|  | dcount-params = ref, (ref / val), (ref / val) |
| 0x0029 | DSUM |
|  | dsum-params = ref, (ref / val), (ref / val) |
| 0x002A | DAVERAGE |
|  | daverage-params = ref, (ref / val), (ref / val) |
| 0x002B | DMIN |
|  | dmin-params = ref, (ref / val), (ref / val) |
| 0x002C | DMAX |
|  | dmax-params = ref, (ref / val), (ref / val) |
| 0x002D | DSTDEV |
|  | dstdev-params = ref, (ref / val), (ref / val) |
| 0x002E | VAR |
|  | var-params = (ref / val), \*29(ref / val) |
| 0x002F | DVAR |
|  | dvar-params = ref, (ref / val), (ref / val) |
| 0x0030 | TEXT |
|  | text-params = val, val |
| 0x0031 | LINEST |
|  | linest-params = (ref / val), [(ref / val), \*2(ref / val)] |
| 0x0032 | TREND |
|  | trend-params = (ref / val), [(ref / val), [(ref / val), [ref / val]]] |
| 0x0033 | LOGEST |
|  | logest-params = (ref / val), [(ref / val), \*2(ref / val)] |
| 0x0034 | GROWTH |
|  | growth-params = (ref / val), [(ref / val), [(ref / val), [ref / val]]] |
| 0x0035 | GOTO |
|  | goto-params = ref |
| 0x0036 | HALT |
|  | halt-params = [val] |
| 0x0037 | RETURN |
|  | return-params = [ref / val] |
| 0x0038 | PV |
|  | pv-params = val, val, val, \*2(val) |
| 0x0039 | FV |
|  | fv-params = val, val, val, \*2(val) |
| 0x003A | NPER |
|  | nper-params = val, val, val, \*2(val) |
| 0x003B | PMT |
|  | pmt-params = val, val, val, \*2(val) |
| 0x003C | RATE |
|  | rate-params = val, val, val, \*3(val) |
| 0x003D | MIRR |
|  | mirr-params = (ref / val), val, val |
| 0x003E | IRR |
|  | irr-params = (ref / val), [val] |
| 0x003F | RAND |
|  | This function takes no parameters |
| 0x0040 | MATCH |
|  | match-params = val, (ref / val), [ref / val] |
| 0x0041 | DATE |
|  | date-params = val, val, val |
| 0x0042 | TIME |
|  | time-params = val, val, val |
| 0x0043 | DAY |
|  | day-params = val |
| 0x0044 | MONTH |
|  | month-params = val |
| 0x0045 | YEAR |
|  | year-params = val |
| 0x0046 | WEEKDAY |
|  | weekday-params = val, [val] |
| 0x0047 | HOUR |
|  | hour-params = val |
| 0x0048 | MINUTE |
|  | minute-params = val |
| 0x0049 | SECOND |
|  | second-params = val |
| 0x004A | NOW |
|  | This function takes no parameters |
| 0x004B | AREAS |
|  | areas-params = ref |
| 0x004C | ROWS |
|  | rows-params = (ref / val) |
| 0x004D | COLUMNS |
|  | columns-params = (ref / val) |
| 0x004E | OFFSET |
|  | offset-params = ref, val, val, \*2(val) |
| 0x004F | ABSREF |
|  | absref-params = val, ref |
| 0x0050 | RELREF |
|  | relref-params = ref, ref |
| 0x0051 | ARGUMENT |
|  | argument-params = [val, [(ref / val), [ref]]] |
| 0x0052 | SEARCH |
|  | search-params = val, val, [val] |
| 0x0053 | TRANSPOSE |
|  | transpose-params = val |
| 0x0054 | ERROR |
|  | error-params = [val, [ref / val]] |
| 0x0055 | STEP |
|  | This function takes no parameters |
| 0x0056 | TYPE |
|  | type-params = val |
| 0x0057 | ECHO |
|  | echo-params = [val] |
| 0x0058 | SET.NAME |
|  | set-name-params = val, [ref / val] |
| 0x0059 | CALLER |
|  | This function takes no parameters |
| 0x005A | DEREF |
|  | deref-params = ref |
| 0x005B | WINDOWS |
|  | windows-params = [val, [val]] |
| 0x005C | SERIES |
|  | series-params = (ref / val), (ref / val), (ref / val), val, [ref / val] |
| 0x005D | DOCUMENTS |
|  | documents-params = [val, [val]] |
| 0x005E | ACTIVE.CELL |
|  | This function takes no parameters |
| 0x005F | SELECTION |
|  | This function takes no parameters |
| 0x0060 | RESULT |
|  | result-params = [val] |
| 0x0061 | ATAN2 |
|  | atan2-params = val, val |
| 0x0062 | ASIN |
|  | asin-params = val |
| 0x0063 | ACOS |
|  | acos-params = val |
| 0x0064 | CHOOSE |
|  | choose-params = val, (ref / val), \*28(ref / val) |
| 0x0065 | HLOOKUP |
|  | hlookup-params = val, (ref / val), (ref / val), [val] |
| 0x0066 | VLOOKUP |
|  | vlookup-params = val, (ref / val), (ref / val), [val] |
| 0x0067 | LINKS |
|  | links-params = [val, [val]] |
| 0x0068 | INPUT |
|  | input-params = val, [val, [val, [val, [val, [val, [val]]]]]] |
| 0x0069 | ISREF |
|  | isref-params = (ref / val) |
| 0x006A | GET.FORMULA |
|  | get-formula-params = (ref / val) |
| 0x006B | GET.NAME |
|  | get-name-params = val, [val] |
| 0x006C | SET.VALUE |
|  | set-value-params = ref, val |
| 0x006D | LOG |
|  | log-params = val, [val] |
| 0x006E | EXEC |
|  | exec-params = val, [val, \*2(val)] |
| 0x006F | CHAR |
|  | char-params = val |
| 0x0070 | LOWER |
|  | lower-params = val |
| 0x0071 | UPPER |
|  | upper-params = val |
| 0x0072 | PROPER |
|  | proper-params = val |
| 0x0073 | LEFT |
|  | left-params = val, [val] |
| 0x0074 | RIGHT |
|  | right-params = val, [val] |
| 0x0075 | EXACT |
|  | exact-params = val, val |
| 0x0076 | TRIM |
|  | trim-params = val |
| 0x0077 | REPLACE |
|  | replace-params = val, val, val, val |
| 0x0078 | SUBSTITUTE |
|  | substitute-params = val, val, val, [val] |
| 0x0079 | CODE |
|  | code-params = val |
| 0x007A | NAMES |
|  | names-params = [val, [val, [val]]] |
| 0x007B | DIRECTORY |
|  | directory-params = [val] |
| 0x007C | FIND |
|  | find-params = val, val, [val] |
| 0x007D | CELL |
|  | cell-params = val, [ref] |
| 0x007E | ISERR |
|  | iserr-params = val |
| 0x007F | ISTEXT |
|  | istext-params = val |
| 0x0080 | ISNUMBER |
|  | isnumber-params = val |
| 0x0081 | ISBLANK |
|  | isblank-params = val |
| 0x0082 | T |
|  | t-params = (ref / val) |
| 0x0083 | N |
|  | n-params = (ref / val) |
| 0x0084 | FOPEN |
|  | fopen-params = val, [val] |
| 0x0085 | FCLOSE |
|  | fclose-params = val |
| 0x0086 | FSIZE |
|  | fsize-params = val |
| 0x0087 | FREADLN |
|  | freadln-params = val |
| 0x0088 | FREAD |
|  | fread-params = val, val |
| 0x0089 | FWRITELN |
|  | fwriteln-params = val, val |
| 0x008A | FWRITE |
|  | fwrite-params = val, val |
| 0x008B | FPOS |
|  | fpos-params = val, [val] |
| 0x008C | DATEVALUE |
|  | datevalue-params = val |
| 0x008D | TIMEVALUE |
|  | timevalue-params = val |
| 0x008E | SLN |
|  | sln-params = val, val, val |
| 0x008F | SYD |
|  | syd-params = val, val, val, val |
| 0x0090 | DDB |
|  | ddb-params = val, val, val, val, [val] |
| 0x0091 | GET.DEF |
|  | get-def-params = val, [val, [val]] |
| 0x0092 | REFTEXT |
|  | reftext-params = ref, [val] |
| 0x0093 | TEXTREF |
|  | textref-params = val, [val] |
| 0x0094 | INDIRECT |
|  | indirect-params = val, [val] |
| 0x0095 | REGISTER |
|  | register-params = val, [val, [val, [val, [val, [val, [val, [val, [val, [val, \*20(val)]]]]]]]]] |
| 0x0096 | CALL |
|  | call-params = val, [(ref / val), \*28(ref / val)] |
| 0x0097 | ADD.BAR |
|  | add-bar-params = [val] |
| 0x0098 | ADD.MENU |
|  | add-menu-params = val, (ref / val), [(ref / val), [val]] |
| 0x0099 | ADD.COMMAND |
|  | add-command-params = val, (ref / val), (ref / val), [(ref / val), [val]] |
| 0x009A | ENABLE.COMMAND |
|  | enable-command-params = val, val, val, val, [val] |
| 0x009B | CHECK.COMMAND |
|  | check-command-params = val, val, val, val, [val] |
| 0x009C | RENAME.COMMAND |
|  | rename-command-params = val, val, val, val, [val] |
| 0x009D | SHOW.BAR |
|  | show-bar-params = [val] |
| 0x009E | DELETE.MENU |
|  | delete-menu-params = val, val, [val] |
| 0x009F | DELETE.COMMAND |
|  | delete-command-params = val, val, val, [val] |
| 0x00A0 | GET.CHART.ITEM |
|  | get-chart-item-params = val, [val, [val]] |
| 0x00A1 | DIALOG.BOX |
|  | dialog-box-params = (ref / val) |
| 0x00A2 | CLEAN |
|  | clean-params = val |
| 0x00A3 | MDETERM |
|  | mdeterm-params = val |
| 0x00A4 | MINVERSE |
|  | minverse-params = val |
| 0x00A5 | MMULT |
|  | mmult-params = val, val |
| 0x00A6 | FILES |
|  | files-params = \*2(val) |
| 0x00A7 | IPMT |
|  | ipmt-params = val, val, val, val, \*2(val) |
| 0x00A8 | PPMT |
|  | ppmt-params = val, val, val, val, \*2(val) |
| 0x00A9 | COUNTA |
|  | counta-params = (ref / val), \*29(ref / val) |
| 0x00AA | CANCEL.KEY |
|  | cancel-key-params = [val, [ref]] |
| 0x00AB | FOR |
|  | for-params = val, val, val, [val] |
| 0x00AC | WHILE |
|  | while-params = val |
| 0x00AD | BREAK |
|  | This function takes no parameters |
| 0x00AE | NEXT |
|  | This function takes no parameters |
| 0x00AF | INITIATE |
|  | initiate-params = val, val |
| 0x00B0 | REQUEST |
|  | request-params = val, val |
| 0x00B1 | POKE |
|  | poke-params = val, (ref / val), (ref / val) |
| 0x00B2 | EXECUTE |
|  | execute-params = val, val |
| 0x00B3 | TERMINATE |
|  | terminate-params = val |
| 0x00B4 | RESTART |
|  | restart-params = [val] |
| 0x00B5 | HELP |
|  | help-params = [val] |
| 0x00B6 | GET.BAR |
|  | get-bar-params = \*4(val) |
| 0x00B7 | PRODUCT |
|  | product-params = (ref / val), \*29(ref / val) |
| 0x00B8 | FACT |
|  | fact-params = val |
| 0x00B9 | GET.CELL |
|  | get-cell-params = val, [ref] |
| 0x00BA | GET.WORKSPACE |
|  | get-workspace-params = val |
| 0x00BB | GET.WINDOW |
|  | get-window-params = val, [val] |
| 0x00BC | GET.DOCUMENT |
|  | get-document-params = val, [val] |
| 0x00BD | DPRODUCT |
|  | dproduct-params = ref, (ref / val), (ref / val) |
| 0x00BE | ISNONTEXT |
|  | isnontext-params = val |
| 0x00BF | GET.NOTE |
|  | get-note-params = [(ref / val), \*2(val)] |
| 0x00C0 | NOTE |
|  | note-params = [val, [(ref / val), \*2(ref / val)]] |
| 0x00C1 | STDEVP |
|  | stdevp-params = (ref / val), \*29(ref / val) |
| 0x00C2 | VARP |
|  | varp-params = (ref / val), \*29(ref / val) |
| 0x00C3 | DSTDEVP |
|  | dstdevp-params = ref, (ref / val), (ref / val) |
| 0x00C4 | DVARP |
|  | dvarp-params = ref, (ref / val), (ref / val) |
| 0x00C5 | TRUNC |
|  | trunc-params = val, [val] |
| 0x00C6 | ISLOGICAL |
|  | islogical-params = val |
| 0x00C7 | DCOUNTA |
|  | dcounta-params = ref, (ref / val), (ref / val) |
| 0x00C8 | DELETE.BAR |
|  | delete-bar-params = val |
| 0x00C9 | UNREGISTER |
|  | unregister-params = val |
| 0x00CC | USDOLLAR |
|  | usdollar-params = val, [val] |
| 0x00CD | FINDB |
|  | findb-params = val, val, [val] |
| 0x00CE | SEARCHB |
|  | searchb-params = val, val, [val] |
| 0x00CF | REPLACEB |
|  | replaceb-params = val, val, val, val |
| 0x00D0 | LEFTB |
|  | leftb-params = val, [val] |
| 0x00D1 | RIGHTB |
|  | rightb-params = val, [val] |
| 0x00D2 | MIDB |
|  | midb-params = val, val, val |
| 0x00D3 | LENB |
|  | lenb-params = val |
| 0x00D4 | ROUNDUP |
|  | roundup-params = val, val |
| 0x00D5 | ROUNDDOWN |
|  | rounddown-params = val, val |
| 0x00D6 | ASC |
|  | asc-params = val |
| 0x00D7 | DBCS |
|  | dbcs-params = val |
| 0x00D8 | RANK |
|  | rank-params = val, ref, [val] |
| 0x00DB | ADDRESS |
|  | address-params = val, val, [val, [val, [val]]] |
| 0x00DC | DAYS360 |
|  | days360-params = val, val, [val] |
| 0x00DD | TODAY |
|  | This function takes no parameters |
| 0x00DE | VDB |
|  | vdb-params = val, val, val, val, val, [val, [val]] |
| 0x00DF | ELSE |
|  | This function takes no parameters |
| 0x00E0 | ELSE.IF |
|  | else-if-params = val |
| 0x00E1 | END.IF |
|  | This function takes no parameters |
| 0x00E2 | FOR.CELL |
|  | for-cell-params = val, [(ref / val), [ref / val]] |
| 0x00E3 | MEDIAN |
|  | median-params = (ref / val), \*29(ref / val) |
| 0x00E4 | SUMPRODUCT |
|  | sumproduct-params = val, \*29(val) |
| 0x00E5 | SINH |
|  | sinh-params = val |
| 0x00E6 | COSH |
|  | cosh-params = val |
| 0x00E7 | TANH |
|  | tanh-params = val |
| 0x00E8 | ASINH |
|  | asinh-params = val |
| 0x00E9 | ACOSH |
|  | acosh-params = val |
| 0x00EA | ATANH |
|  | atanh-params = val |
| 0x00EB | DGET |
|  | dget-params = ref, (ref / val), (ref / val) |
| 0x00EC | CREATE.OBJECT |
|  | create-object-params = val, (ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [(ref / val), [ref / val]]]]]]]]] |
| 0x00ED | VOLATILE |
|  | volatile-params = [val] |
| 0x00EE | LAST.ERROR |
|  | This function takes no parameters |
| 0x00EF | CUSTOM.UNDO |
|  | custom-undo-params = \*2(val) |
| 0x00F0 | CUSTOM.REPEAT |
|  | custom-repeat-params = \*3(val) |
| 0x00F1 | FORMULA.CONVERT |
|  | formula-convert-params = val, (ref / val), \*3(ref / val) |
| 0x00F2 | GET.LINK.INFO |
|  | get-link-info-params = val, val, [val, [val]] |
| 0x00F3 | TEXT.BOX |
|  | text-box-params = val, [val, \*2(val)] |
| 0x00F4 | INFO |
|  | info-params = val |
| 0x00F5 | GROUP |
|  | This function takes no parameters |
| 0x00F6 | GET.OBJECT |
|  | get-object-params = val, [val, \*3(val)] |
| 0x00F7 | DB |
|  | db-params = val, val, val, val, [val] |
| 0x00F8 | PAUSE |
|  | pause-params = [val] |
| 0x00FB | RESUME |
|  | resume-params = [val] |
| 0x00FC | FREQUENCY |
|  | frequency-params = (ref / val), (ref / val) |
| 0x00FD | ADD.TOOLBAR |
|  | add-toolbar-params = [val, [val]] |
| 0x00FE | DELETE.TOOLBAR |
|  | delete-toolbar-params = val |
| 0x00FF | User Defined Function |
|  | user-defined-function-params = (ref / val), [(ref / val), \*28(ref / val)] |
| 0x0100 | RESET.TOOLBAR |
|  | reset-toolbar-params = val |
| 0x0101 | EVALUATE |
|  | evaluate-params = val |
| 0x0102 | GET.TOOLBAR |
|  | get-toolbar-params = val, [val] |
| 0x0103 | GET.TOOL |
|  | get-tool-params = val, [val, [val]] |
| 0x0104 | SPELLING.CHECK |
|  | spelling-check-params = val, [val, [val]] |
| 0x0105 | ERROR.TYPE |
|  | error-type-params = val |
| 0x0106 | APP.TITLE |
|  | app-title-params = [val] |
| 0x0107 | WINDOW.TITLE |
|  | window-title-params = [val] |
| 0x0108 | SAVE.TOOLBAR |
|  | save-toolbar-params = [val, [val]] |
| 0x0109 | ENABLE.TOOL |
|  | enable-tool-params = val, val, val |
| 0x010A | PRESS.TOOL |
|  | press-tool-params = val, val, val |
| 0x010B | REGISTER.ID |
|  | register-id-params = val, val, [val] |
| 0x010C | GET.WORKBOOK |
|  | get-workbook-params = val, [val] |
| 0x010D | AVEDEV |
|  | avedev-params = (ref / val), \*29(ref / val) |
| 0x010E | BETADIST |
|  | betadist-params = val, val, val, \*2(val) |
| 0x010F | GAMMALN |
|  | gammaln-params = val |
| 0x0110 | BETAINV |
|  | betainv-params = val, val, val, \*2(val) |
| 0x0111 | BINOMDIST |
|  | binomdist-params = val, val, val, val |
| 0x0112 | CHIDIST |
|  | chidist-params = val, val |
| 0x0113 | CHIINV |
|  | chiinv-params = val, val |
| 0x0114 | COMBIN |
|  | combin-params = val, val |
| 0x0115 | CONFIDENCE |
|  | confidence-params = val, val, val |
| 0x0116 | CRITBINOM |
|  | critbinom-params = val, val, val |
| 0x0117 | EVEN |
|  | even-params = val |
| 0x0118 | EXPONDIST |
|  | expondist-params = val, val, val |
| 0x0119 | FDIST |
|  | fdist-params = val, val, val |
| 0x011A | FINV |
|  | finv-params = val, val, val |
| 0x011B | FISHER |
|  | fisher-params = val |
| 0x011C | FISHERINV |
|  | fisherinv-params = val |
| 0x011D | FLOOR |
|  | floor-params = val, val |
| 0x011E | GAMMADIST |
|  | gammadist-params = val, val, val, val |
| 0x011F | GAMMAINV |
|  | gammainv-params = val, val, val |
| 0x0120 | CEILING |
|  | ceiling-params = val, val |
| 0x0121 | HYPGEOMDIST |
|  | hypgeomdist-params = val, val, val, val |
| 0x0122 | LOGNORMDIST |
|  | lognormdist-params = val, val, val |
| 0x0123 | LOGINV |
|  | loginv-params = val, val, val |
| 0x0124 | NEGBINOMDIST |
|  | negbinomdist-params = val, val, val |
| 0x0125 | NORMDIST |
|  | normdist-params = val, val, val, val |
| 0x0126 | NORMSDIST |
|  | normsdist-params = val |
| 0x0127 | NORMINV |
|  | norminv-params = val, val, val |
| 0x0128 | NORMSINV |
|  | normsinv-params = val |
| 0x0129 | STANDARDIZE |
|  | standardize-params = val, val, val |
| 0x012A | ODD |
|  | odd-params = val |
| 0x012B | PERMUT |
|  | permut-params = val, val |
| 0x012C | POISSON |
|  | poisson-params = val, val, val |
| 0x012D | TDIST |
|  | tdist-params = val, val, val |
| 0x012E | WEIBULL |
|  | weibull-params = val, val, val, val |
| 0x012F | SUMXMY2 |
|  | sumxmy2-params = val, val |
| 0x0130 | SUMX2MY2 |
|  | sumx2my2-params = val, val |
| 0x0131 | SUMX2PY2 |
|  | sumx2py2-params = val, val |
| 0x0132 | CHITEST |
|  | chitest-params = val, val |
| 0x0133 | CORREL |
|  | correl-params = val, val |
| 0x0134 | COVAR |
|  | covar-params = val, val |
| 0x0135 | FORECAST |
|  | forecast-params = val, val, val |
| 0x0136 | FTEST |
|  | ftest-params = val, val |
| 0x0137 | INTERCEPT |
|  | intercept-params = val, val |
| 0x0138 | PEARSON |
|  | pearson-params = val, val |
| 0x0139 | RSQ |
|  | rsq-params = val, val |
| 0x013A | STEYX |
|  | steyx-params = val, val |
| 0x013B | SLOPE |
|  | slope-params = val, val |
| 0x013C | TTEST |
|  | ttest-params = val, val, val, val |
| 0x013D | PROB |
|  | prob-params = val, val, val, [val] |
| 0x013E | DEVSQ |
|  | devsq-params = (ref / val), \*29(ref / val) |
| 0x013F | GEOMEAN |
|  | geomean-params = (ref / val), \*29(ref / val) |
| 0x0140 | HARMEAN |
|  | harmean-params = (ref / val), \*29(ref / val) |
| 0x0141 | SUMSQ |
|  | sumsq-params = (ref / val), \*29(ref / val) |
| 0x0142 | KURT |
|  | kurt-params = (ref / val), \*29(ref / val) |
| 0x0143 | SKEW |
|  | skew-params = (ref / val), \*29(ref / val) |
| 0x0144 | ZTEST |
|  | ztest-params = (ref / val), val, [val] |
| 0x0145 | LARGE |
|  | large-params = (ref / val), val |
| 0x0146 | SMALL |
|  | small-params = (ref / val), val |
| 0x0147 | QUARTILE |
|  | quartile-params = (ref / val), val |
| 0x0148 | PERCENTILE |
|  | percentile-params = (ref / val), val |
| 0x0149 | PERCENTRANK |
|  | percentrank-params = (ref / val), val, [val] |
| 0x014A | MODE |
|  | mode-params = val, \*29(val) |
| 0x014B | TRIMMEAN |
|  | trimmean-params = (ref / val), val |
| 0x014C | TINV |
|  | tinv-params = val, val |
| 0x014E | MOVIE.COMMAND |
|  | movie-command-params = val, val, val, [val] |
| 0x014F | GET.MOVIE |
|  | get-movie-params = val, val, [val] |
| 0x0150 | CONCATENATE |
|  | concatenate-params = val, \*29(val) |
| 0x0151 | POWER |
|  | power-params = val, val |
| 0x0152 | PIVOT.ADD.DATA |
|  | pivot-add-data-params = val, val, [val, [val, [val, [val, \*3(val)]]]] |
| 0x0153 | GET.PIVOT.TABLE |
|  | get-pivot-table-params = val, [val] |
| 0x0154 | GET.PIVOT.FIELD |
|  | get-pivot-field-params = val, [val, [val]] |
| 0x0155 | GET.PIVOT.ITEM |
|  | get-pivot-item-params = val, [val, [val, [val]]] |
| 0x0156 | RADIANS |
|  | radians-params = val |
| 0x0157 | DEGREES |
|  | degrees-params = val |
| 0x0158 | SUBTOTAL |
|  | subtotal-params = val, ref, \*28(ref) |
| 0x0159 | SUMIF |
|  | sumif-params = ref, val, [ref] |
| 0x015A | COUNTIF |
|  | countif-params = ref, val |
| 0x015B | COUNTBLANK |
|  | countblank-params = ref |
| 0x015C | SCENARIO.GET |
|  | scenario-get-params = val, [val] |
| 0x015D | OPTIONS.LISTS.GET |
|  | options-lists-get-params = val |
| 0x015E | ISPMT |
|  | ispmt-params = val, val, val, val |
| 0x015F | DATEDIF |
|  | datedif-params = val, val, val |
| 0x0160 | DATESTRING |
|  | datestring-params = val |
| 0x0161 | NUMBERSTRING |
|  | numberstring-params = val, val |
| 0x0162 | ROMAN |
|  | roman-params = val, [val] |
| 0x0163 | OPEN.DIALOG |
|  | open-dialog-params = [val, [val, [val, [val]]]] |
| 0x0164 | SAVE.DIALOG |
|  | save-dialog-params = [val, [val, [val, [val, [val]]]]] |
| 0x0165 | VIEW.GET |
|  | view-get-params = val, [val] |
| 0x0166 | GETPIVOTDATA |
|  | getpivotdata-params = (ref / val), (ref / val), [val, [val, \*13(val, val)]] |
| 0x0167 | HYPERLINK |
|  | hyperlink-params = val, [val] |
| 0x0168 | PHONETIC |
|  | phonetic-params = ref |
| 0x0169 | AVERAGEA |
|  | averagea-params = (ref / val), \*29(ref / val) |
| 0x016A | MAXA |
|  | maxa-params = (ref / val), \*29(ref / val) |
| 0x016B | MINA |
|  | mina-params = (ref / val), \*29(ref / val) |
| 0x016C | STDEVPA |
|  | stdevpa-params = (ref / val), \*29(ref / val) |
| 0x016D | VARPA |
|  | varpa-params = (ref / val), \*29(ref / val) |
| 0x016E | STDEVA |
|  | stdeva-params = (ref / val), \*29(ref / val) |
| 0x016F | VARA |
|  | vara-params = (ref / val), \*29(ref / val) |
| 0x0170 | BAHTTEXT |
|  | bahttext-params = val |
| 0x0171 | THAIDAYOFWEEK |
|  | thaidayofweek-params = val |
| 0x0172 | THAIDIGIT |
|  | thaidigit-params = val |
| 0x0173 | THAIMONTHOFYEAR |
|  | thaimonthofyear-params = val |
| 0x0174 | THAINUMSOUND |
|  | thainumsound-params = val |
| 0x0175 | THAINUMSTRING |
|  | thainumstring-params = val |
| 0x0176 | THAISTRINGLENGTH |
|  | thaistringlength-params = val |
| 0x0177 | ISTHAIDIGIT |
|  | isthaidigit-params = val |
| 0x0178 | ROUNDBAHTDOWN |
|  | roundbahtdown-params = val |
| 0x0179 | ROUNDBAHTUP |
|  | roundbahtup-params = val |
| 0x017A | THAIYEAR |
|  | thaiyear-params = val |
| 0x017B | RTD |
|  | rtd-params = val, val, val, \*27(val) |

The following grammar is used in the Rgce structure definition:

params-fixed = isna-params / iserror-params /

sin-params / cos-params / tan-params /

atan-params / sqrt-params /

exp-params / ln-params / log10-params /

abs-params / int-params / sign-params /

round-params / rept-params / mid-params /

len-params / value-params / not-params / mod-params /

dcount-params / dsum-params / daverage-params /

dmin-params / dmax-params / dstdev-params /

dvar-params / text-params / goto-params /

mirr-params / date-params /

time-params / day-params / month-params /

year-params / hour-params / minute-params /

second-params / areas-params /

rows-params / columns-params / absref-params /

relref-params / transpose-params /

type-params / deref-params / atan2-params /

asin-params / acos-params / isref-params /

get-formula-params / set-value-params / char-params /

lower-params / upper-params / proper-params /

exact-params / trim-params / replace-params /

code-params / iserr-params / istext-params /

isnumber-params / isblank-params / t-params /

n-params / fclose-params / fsize-params /

freadln-params / fread-params / fwriteln-params /

fwrite-params / datevalue-params / timevalue-params /

sln-params / syd-params / dialog-box-params /

clean-params / mdeterm-params / minverse-params /

mmult-params / while-params / initiate-params / request-params /

poke-params / execute-params / terminate-params /

fact-params / get-workspace-params / dproduct-params /

isnontext-params / dstdevp-params / dvarp-params /

islogical-params / dcounta-params / delete-bar-params /

unregister-params / replaceb-params / midb-params /

lenb-params / roundup-params / rounddown-params /

asc-params / dbcs-params / else-if-params /

sinh-params / cosh-params / tanh-params /

asinh-params / acosh-params / atanh-params /

dget-params / info-params / frequency-params / delete-toolbar-params /

reset-toolbar-params / evaluate-params / error-type-params /

enable-tool-params / press-tool-params / gammaln-params /

binomdist-params / chidist-params / chiinv-params /

combin-params / confidence-params / critbinom-params /

even-params / expondist-params / fdist-params /

finv-params / fisher-params / fisherinv-params /

floor-params / gammadist-params / gammainv-params /

ceiling-params / hypgeomdist-params / lognormdist-params /

loginv-params / negbinomdist-params / normdist-params /

normsdist-params / norminv-params / normsinv-params /

standardize-params / odd-params / permut-params /

poisson-params / tdist-params / weibull-params /

sumxmy2-params / sumx2my2-params / sumx2py2-params /

chitest-params / correl-params / covar-params /

forecast-params / ftest-params / intercept-params /

pearson-params / rsq-params / steyx-params /

slope-params / ttest-params / large-params /

small-params / quartile-params / percentile-params /

trimmean-params / tinv-params / power-params /

radians-params / degrees-params / countif-params /

countblank-params / options-lists-get-params / ispmt-params /

datedif-params / datestring-params / numberstring-params /

phonetic-params / bahttext-params / thaidayofweek-params /

thaidigit-params / thaimonthofyear-params / thainumsound-params /

thainumstring-params / thaistringlength-params / isthaidigit-params /

roundbahtdown-params / roundbahtup-params / thaiyear-params

params-variable = count-params / if-params / sum-params /

average-params / min-params / max-params /

row-params / column-params / npv-params /

stdev-params / dollar-params / fixed-params /

lookup-params / index-params / and-params /

or-params / var-params / linest-params /

trend-params / logest-params / growth-params /

halt-params / return-params / pv-params /

fv-params / nper-params / pmt-params /

rate-params / irr-params / match-params /

weekday-params / offset-params / argument-params /

search-params / error-params / echo-params /

set-name-params / windows-params / series-params /

documents-params / result-params / choose-params /

hlookup-params / vlookup-params / links-params /

input-params / get-name-params / log-params /

exec-params / left-params / right-params /

substitute-params / names-params / directory-params /

find-params / cell-params / fopen-params /

fpos-params / ddb-params / get-def-params /

reftext-params / textref-params / indirect-params /

register-params / call-params / add-bar-params /

add-menu-params / add-command-params / enable-command-params /

check-command-params / rename-command-params / show-bar-params /

delete-menu-params / delete-command-params / get-chart-item-params /

files-params / ipmt-params / ppmt-params /

counta-params / cancel-key-params / for-params /

restart-params / help-params / get-bar-params /

product-params / get-cell-params / get-window-params /

get-document-params / get-note-params / note-params /

stdevp-params / varp-params / trunc-params /

usdollar-params / findb-params / searchb-params /

leftb-params / rightb-params / rank-params /

address-params / days360-params / vdb-params /

for-cell-params / median-params / sumproduct-params /

create-object-params / volatile-params / custom-undo-params /

custom-repeat-params / formula-convert-params / get-link-info-params /

text-box-params / get-object-params / db-params /

pause-params / resume-params / add-toolbar-params /

user-defined-function-params / get-toolbar-params / get-tool-params /

spelling-check-params / app-title-params / window-title-params /

save-toolbar-params / register-id-params / get-workbook-params /

avedev-params / betadist-params / betainv-params /

prob-params / devsq-params / geomean-params /

harmean-params / sumsq-params / kurt-params /

skew-params / ztest-params / percentrank-params /

mode-params / movie-command-params / get-movie-params /

concatenate-params / pivot-add-data-params / get-pivot-table-params /

get-pivot-field-params / get-pivot-item-params / subtotal-params /

sumif-params / scenario-get-params / roman-params /

open-dialog-params / save-dialog-params / view-get-params /

getpivotdata-params / hyperlink-params / averagea-params /

maxa-params / mina-params / stdevpa-params /

varpa-params / stdeva-params / vara-params /

rtd-params

#### 2.5.198.18 Ilel

The **Ilel** structure specifies a deleted label in use by a [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b).[<176>](#Appendix_A_176" \o "Product behavior note 176)

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

**ilel (2 bytes):**  An unsigned integer used to calculate the index into the collection of [Lel](#Section_2b7f0922b97348ea8c4d680f3a28400c) records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced Lel specifies the deleted label in use. MUST be a value from the following table.

| Value | Meaning |
| --- | --- |
| 0 | Invalid index. The number of deleted labels is greater than 2047, the maximum size of the array of deleted labels. |
| 1 | Invalid index. |
| Greater than 1 and less than or equal to 2048 | The one-based index plus 1 of the Lel record. |

#### 2.5.198.19 ListParsedArrayFormula

The **ListParsedArrayFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

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

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), or [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d).

**rgcb (variable):** An [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) that specifies ancillary data for the formula.

#### 2.5.198.20 ListParsedFormula

The **ListParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

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

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), or [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d).

#### 2.5.198.21 NameParsedFormula

The **NameParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used in 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 |
| rgce (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgcb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d), [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055), [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032), [PtgRefErr](#Section_d86972da19ea4a6ea71d49129e930521), [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3), [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86), or [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0). The size of **rgce** in bytes is specified by the **cce** field of the [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record.

**rgcb (variable):**  An [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) that specifies ancillary data for the formula.

#### 2.5.198.22 ObjectParsedFormula

The **ObjectParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used by an [**embedded object**](#gt_708607be-8655-416e-93f3-b434e9ecbd56).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cce | | | | | | | | | | | | | | | A | unused (optional) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rgce (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (15 bits):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

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

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

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST contain one Ptg only, and this Ptg MUST be [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgName](#Section_5f05c166dfe34bbf85aa31c09c0258c0), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgErr](#Section_4746c46e83014d72aaa8742f5404b5db), [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055), [PtgRefErr](#Section_d86972da19ea4a6ea71d49129e930521), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3), [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), or [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2).

#### 2.5.198.23 ParameterParsedFormula

The **ParameterParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) for a query parameter.

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

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c)[<177>](#Appendix_A_177" \o "Product behavior note 177), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), or [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d).

The root node of the parse tree of this field MUST NOT be a VALUE\_TYPE, as described in Rgce.

#### 2.5.198.24 PivotParsedFormula

The **PivotParsedFormula** structure specifies a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) used 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 |
| cce | | | | | | | | | | | | | | | | cSxName | | | | | | | | | | | | | | | |
| rgce (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes.

**cSxName (2 bytes):** An unsigned integer that specifies number of contiguous [SxName](#Section_2ea8a7fb02fa46c6a44dfe7c2ce44827) records that follow the [SxFmla](#Section_d327ce82d6584fcc927bd3f4edcc0232) record that contains this formula.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgIsect](#Section_477524a586b9474e89559ea77d659d79), [PtgRange](#Section_f5ef334abc4741ceba5d096373423fab), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c), [PtgAttrSpaceSemi](#Section_5d8c3df59be546d98105a1a19ceca3d4), [PtgAttrSemi](#Section_615c5518010a4268b71bb60074bdb11b), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055), [PtgRefErr](#Section_d86972da19ea4a6ea71d49129e930521), [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032), [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3), [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0), [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2), [PtgName](#Section_5f05c166dfe34bbf85aa31c09c0258c0), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), [PtgMemErr](#Section_2b3c0de014c8436aae32477c2a075c60), [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48), or [PtgMemFunc](#Section_e4f8e3b40bb7410099ee1ac53acc9161).

If this field contains a [PtgFunc](#Section_87ce512d273a4da0a9f826cf1d93508d), then the **iftab** field of the PtgFunc MUST be less than 0x0028 or greater than 0x002D and MUST NOT be equal to 0x002F, 0x00BD, 0x00C3, 0x00C4, or 0x00C7.

If this field contains a [PtgFuncVar](#Section_5d1051716b734f40a7cd6bf2aae15e83), then the **fCeFunc** field of the PtgFuncVar MUST be 0 and the **tab** field of the PtgFuncVar MUST NOT be equal to 0x00FF or 0x0166.

The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

#### 2.5.198.25 Ptg

The **Ptg** structure specifies a single element of a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). The value of the first byte determines which structure it represents and MUST be one of the values in the first column of the following table. If the value of the first byte is 0x18 or 0x19, then the second byte determines which structure it represents and MUST be one of the values in the second column of the following table.

| First byte | Second byte | Ptg |
| --- | --- | --- |
| 0x01 |  | [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1) |
| 0x02 |  | [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7) |
| 0x03 |  | [PtgAdd](#Section_27db2f4511e8423894ed92fd9c5721fb) |
| 0x04 |  | [PtgSub](#Section_ee15a1fa77bb45e18c8c0e7bef7f7552) |
| 0x05 |  | [PtgMul](#Section_52863fc53d3c487490e6a7961902849f) |
| 0x06 |  | [PtgDiv](#Section_10585b24618d47f48ffa65811d18ad13) |
| 0x07 |  | [PtgPower](#Section_e115b2165dda4a5b95d2cadf0ada9a82) |
| 0x08 |  | [PtgConcat](#Section_054d699a43834bbf9df26a4020119c1e) |
| 0x09 |  | [PtgLt](#Section_28de498113524a5ea3b7f15a8a6ce7fb) |
| 0x0A |  | [PtgLe](#Section_92c13f4d89d345a9a3954643e5b27b1d) |
| 0x0B |  | [PtgEq](#Section_d197275ecb7f455cb9b57e968412d470) |
| 0x0C |  | [PtgGe](#Section_0185f97fc7314852bd0d0eb0d8b3457f) |
| 0x0D |  | [PtgGt](#Section_08104e305fb6467a87ed978eb456366c) |
| 0x0E |  | [PtgNe](#Section_0e49033d5dc740f18fcaeb3b8b1c2c91) |
| 0x0F |  | [PtgIsect](#Section_477524a586b9474e89559ea77d659d79) |
| 0x10 |  | [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc) |
| 0x11 |  | [PtgRange](#Section_f5ef334abc4741ceba5d096373423fab) |
| 0x12 |  | [PtgUplus](#Section_635159b078114c5bb89f97e9ec02d6af) |
| 0x13 |  | [PtgUminus](#Section_350feab71a6246688052d58c880a3fd2) |
| 0x14 |  | [PtgPercent](#Section_980d459ae1d248c3b00b662b029247ce) |
| 0x15 |  | [PtgParen](#Section_7a5b73dac5524fa7a4d01a36032a5622) |
| 0x16 |  | [PtgMissArg](#Section_69352e6ce71248d792d10bf7c1f61f69) |
| 0x17 |  | [PtgStr](#Section_87c2a057705c4473a1686d5fac4a9eba) |
| 0x18 | 0x01 | [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148) |
| 0x18 | 0x02 | [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675) |
| 0x18 | 0x03 | [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed) |
| 0x18 | 0x06 | [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9) |
| 0x18 | 0x07 | [PtgElfColV](#Section_167409e793634b61943447e559e80f2d) |
| 0x18 | 0x0A | [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610) |
| 0x18 | 0x0B | [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137) |
| 0x18 | 0x0D | [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966) |
| 0x18 | 0x0F | [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525) |
| 0x18 | 0x10 | [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e) |
| 0x18 | 0x1D | [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d) |
| 0x19 | 0x01 | [PtgAttrSemi](#Section_615c5518010a4268b71bb60074bdb11b) |
| 0x19 | 0x02 | [PtgAttrIf](#Section_d81e5fb43004409a9a311a60662d9e59) |
| 0x19 | 0x04 | [PtgAttrChoose](#Section_24fb579cc65d477194a84380cecdc8c8) |
| 0x19 | 0x08 | [PtgAttrGoto](#Section_081e17b902a64e78ad2809538f35a312) |
| 0x19 | 0x10 | [PtgAttrSum](#Section_79ef57f627ab4fecb8937dd727e771d1) |
| 0x19 | 0x20 | [PtgAttrBaxcel](#Section_fcd76e1060724dcfb59147edc8822792) |
| 0x19 | 0x21 | PtgAttrBaxcel |
| 0x19 | 0x40 | [PtgAttrSpace](#Section_38a4d7be040b4206b07862f5aeec72f3) |
| 0x19 | 0x41 | [PtgAttrSpaceSemi](#Section_5d8c3df59be546d98105a1a19ceca3d4) |
| 0x1C |  | [PtgErr](#Section_4746c46e83014d72aaa8742f5404b5db) |
| 0x1D |  | [PtgBool](#Section_d59e28db4d6f4c86bcc9c8a783e352ec) |
| 0x1E |  | [PtgInt](#Section_508ecf183b81462895b37a9d2a295bca) |
| 0x1F |  | [PtgNum](#Section_40e691832cd3405187ba2f3ccb82bcfa) |
| 0x20 |  | [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c) |
| 0x21 |  | [PtgFunc](#Section_87ce512d273a4da0a9f826cf1d93508d) |
| 0x22 |  | [PtgFuncVar](#Section_5d1051716b734f40a7cd6bf2aae15e83) |
| 0x23 |  | [PtgName](#Section_5f05c166dfe34bbf85aa31c09c0258c0) |
| 0x24 |  | [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055) |
| 0x25 |  | [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) |
| 0x26 |  | [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee) |
| 0x27 |  | [PtgMemErr](#Section_2b3c0de014c8436aae32477c2a075c60) |
| 0x28 |  | [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48) |
| 0x29 |  | [PtgMemFunc](#Section_e4f8e3b40bb7410099ee1ac53acc9161) |
| 0x2A |  | [PtgRefErr](#Section_d86972da19ea4a6ea71d49129e930521) |
| 0x2B |  | [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0) |
| 0x2C |  | [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032) |
| 0x2D |  | [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86) |
| 0x39 |  | [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774) |
| 0x3A |  | [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577) |
| 0x3B |  | [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) |
| 0x3C |  | [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4) |
| 0x3D |  | [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2) |
| 0x40 |  | PtgArray |
| 0x41 |  | PtgFunc |
| 0x42 |  | PtgFuncVar |
| 0x43 |  | PtgName |
| 0x44 |  | PtgRef |
| 0x45 |  | PtgArea |
| 0x46 |  | PtgMemArea |
| 0x47 |  | PtgMemErr |
| 0x48 |  | PtgMemNoMem |
| 0x49 |  | PtgMemFunc |
| 0x4A |  | PtgRefErr |
| 0x4B |  | PtgAreaErr |
| 0x4C |  | PtgRefN |
| 0x4D |  | PtgAreaN |
| 0x59 |  | PtgNameX |
| 0x5A |  | PtgRef3d |
| 0x5B |  | PtgArea3d |
| 0x5C |  | PtgRefErr3d |
| 0x5D |  | PtgAreaErr3d |
| 0x60 |  | PtgArray |
| 0x61 |  | PtgFunc |
| 0x62 |  | PtgFuncVar |
| 0x63 |  | PtgName |
| 0x64 |  | PtgRef |
| 0x65 |  | PtgArea |
| 0x66 |  | PtgMemArea |
| 0x67 |  | PtgMemErr |
| 0x68 |  | PtgMemNoMem |
| 0x69 |  | PtgMemFunc |
| 0x6A |  | PtgRefErr |
| 0x6B |  | PtgAreaErr |
| 0x6C |  | PtgRefN |
| 0x6D |  | PtgAreaN |
| 0x79 |  | PtgNameX |
| 0x7A |  | PtgRef3d |
| 0x7B |  | PtgArea3d |
| 0x7C |  | PtgRefErr3d |
| 0x7D |  | PtgAreaErr3d |
|  |  |  |
|  |  |  |

#### 2.5.198.26 PtgAdd

The **PtgAdd** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that adds the second expression in a binary-value-expression to the first.

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

**ptg (7 bits):** Reserved. MUST be 0x03.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.27 PtgArea

The **PtgArea** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a rectangular [**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 |
| ptg | | | | | A | | B | area | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x05.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**area (8 bytes):** A [RgceArea](#Section_6df491b914e84efd9d9298db51b7cdbd) that specifies the referenced range of cells.

#### 2.5.198.28 PtgArea3d

The **PtgArea3d** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to the same rectangular [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on one or more [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). If the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is part of a revision as specified in the Formulas overview, then there MUST be a [RevExtern](#Section_537671c112a249f096ea8760fdc411ef) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgArea3d, which specifies those sheets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | ixti | | | | | | | | | | | | | | | | area | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x1B.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the required data type for the value of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)

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

**ixti (2 bytes):** If the formula containing this structure is not part of a revision as specified in the Formulas overview, then this value is an [XtiIndex](#Section_9ded1bd948814b77b32fc77b93df03fd) that specifies the [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) which specifies those sheets. Otherwise it is undefined and MUST be ignored.

**area (8 bytes):**  A value that specifies coordinates of the referenced range of cells. If this PtgArea3d is part of a [NameParsedFormula](#Section_9afd1c6cc4864d9cb6443708428d2ffb) then this is an [RgceAreaRel](#Section_75afd109b1ce4511b56f2d63116f6647) value. Otherwise it is an [RgceArea](#Section_6df491b914e84efd9d9298db51b7cdbd) value.

#### 2.5.198.29 PtgAreaErr

The **PtgAreaErr** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an invalid reference to a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) [**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 |
| ptg | | | | | A | | B | unused1 | | | | | | | | | | | | | | | | unused2 | | | | | | | |
| ... | | | | | | | | unused3 | | | | | | | | | | | | | | | | unused4 | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x0B.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

**unused3 (2 bytes):** Undefined and MUST be ignored.

**unused4 (2 bytes):** Undefined and MUST be ignored.

#### 2.5.198.30 PtgAreaErr3d

**PtgAreaErr3d** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an invalid reference to the same rectangular [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on one or more [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). If the [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is part of a revision as specified in the Formulas overview, then there MUST be a [RevExtern](#Section_537671c112a249f096ea8760fdc411ef) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgAreaErr3d, which specifies those sheets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | ixti | | | | | | | | | | | | | | | | unused1 | | | | | | | |
| ... | | | | | | | | unused2 | | | | | | | | | | | | | | | | unused3 | | | | | | | |
| ... | | | | | | | | unused4 | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x1D.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the required data type for the value of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**ixti (2 bytes):** If the formula containing this structure is not part of a revision as specified in the Formulas overview, then this value is an [XtiIndex](#Section_9ded1bd948814b77b32fc77b93df03fd) that specifies the [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) which specifies those sheets. Otherwise it is undefined and MUST be ignored.

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

**unused3 (2 bytes):** Undefined and MUST be ignored.

**unused4 (2 bytes):** Undefined and MUST be ignored.

#### 2.5.198.31 PtgAreaN

The **PtgAreaN** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a rectangular [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) as an [RgceAreaRel](#Section_75afd109b1ce4511b56f2d63116f6647).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | area | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x0D.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**area (8 bytes):** An RgceAreaRel that specifies the referenced range.

#### 2.5.198.32 PtgArray

The **PtgArray** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an array of values. There MUST be a [PtgExtraArray](#Section_edd64b460fa04ef0b95bfe2cd41c7f73) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgArray. The correspondence between PtgArray and PtgExtraArray structures is specified in RgbExtra.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | unused1 | | | | | | | | unused2 | | | | | | | | | | | | | | | |
| unused3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x00.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for this array. MUST be 2 or 3.

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

**unused1 (1 byte):** Undefined and MUST be ignored.

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

**unused3 (4 bytes):** Undefined and MUST be ignored.

#### 2.5.198.33 PtgAttrBaxcel

The **PtgAttrBaxcel** structure specifies that the result of the [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) is to be assigned to a local variable used in a [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491).

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

**ptg (7 bits):** Reserved. MUST be 0x19.

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

**B - bitSemi (1 bit):** A bit that specifies whether this Rgce is [**volatile**](#gt_9555fd9b-d7c2-4f56-b938-1c653d46626a).

**C - reserved2 (4 bits):** MUST be zero, and MUST be ignored.

**D - bitBaxcel (1 bit):** Reserved. MUST be 1.

**E - reserved3 (2 bits):**  MUST be zero, and MUST be ignored.

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

#### 2.5.198.34 PtgAttrChoose

The **PtgAttrChoose** structure specifies a [control token](#Section_3701f8837bef4eacb0e05ecbf4a23cbd).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | B | | C | reserved3 | | | | | cOffset | | | | | | | | | | | | | | | |
| rgOffset (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x19.

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

**B - reserved2 (2 bits):**  MUST be zero, and MUST be ignored.

**C - bitChoose (1 bit):** Reserved. MUST be 1.

**reserved3 (5 bits):**  MUST be zero, and MUST be ignored.

**cOffset (2 bytes):** An unsigned integer that specifies a value which is 1 less than the number of elements in **rgOffset.**

**rgOffset (variable):** An array of 2-byte unsigned integers that specifies the byte offsets.

#### 2.5.198.35 PtgAttrGoto

The **PtgAttrGoto** structure specifies a [control token](#Section_3701f8837bef4eacb0e05ecbf4a23cbd).

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

**ptg (7 bits):** Reserved. MUST be 0x19.

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

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

**C - bitGoto (1 bit):**  If the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is not part of a [ArrayParsedFormula](#Section_242bcf20047b43aaad589a7288545cbc) then the bit is reserved and MUST be 1. If the formula containing this structure is part of an ArrayParsedFormula, then the bit is undefined and MUST be ignored.

**D - reserved3 (4 bits):**  MUST be zero, and MUST be ignored.

**offset (2 bytes):** An unsigned integer that specifies a value 1 less than the byte offset.

#### 2.5.198.36 PtgAttrIf

The **PtgAttrIf** structure specifies a [control token](#Section_3701f8837bef4eacb0e05ecbf4a23cbd).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | B | C | reserved3 | | | | | | offset | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x19.

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

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

**C - bitIf (1 bit):** Reserved. MUST be 1

**reserved3 (6 bits):**  MUST be zero, and MUST be ignored.

**offset (2 bytes):** An unsigned integer that specifies the byte offset.

#### 2.5.198.37 PtgAttrSemi

The **PtgAttrSemi** structure specifies that this [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) is [**volatile**](#gt_9555fd9b-d7c2-4f56-b938-1c653d46626a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | B | reserved2 | | | | | | | unused | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x19.

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

**B - bitSemi (1 bit):** Reserved. MUST be 1.

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

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

#### 2.5.198.38 PtgAttrSpace

The **PtgAttrSpace** [display token](#Section_44ae9bca374542a482095e7ded229789) specifies a number of space or carriage return characters that are displayed around the expression in a [display-precedence-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | reserved2 | | | | | | B | C | type | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x19.

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

**reserved2 (6 bits):**  MUST be zero, and MUST be ignored.

**B - bitSpace (1 bit):** Reserved. MUST be 1.

**C - reserved3 (1 bit):**  MUST be zero, and MUST be ignored.

**type (2 bytes):** A [PtgAttrSpaceType](#Section_3ba6adc825814758b32229718f8ed125) that specifies a number of space or carriage return characters and the position of those characters

#### 2.5.198.39 PtgAttrSpaceSemi

The **PtgAttrSpaceSemi** structure specifies a number of space or carriage return characters that are displayed around the expression in a [display-precedence-specifier](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) and that the Rgce is [**volatile**](#gt_9555fd9b-d7c2-4f56-b938-1c653d46626a).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | reserved2 | | | | | | | | type | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x19.

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

**reserved2 (1 byte):** Reserved. MUST be 0x41.

**type (2 bytes):** A [PtgAttrSpaceType](#Section_3ba6adc825814758b32229718f8ed125) that specifies a number of space or carriage return characters and position of those characters

#### 2.5.198.40 PtgAttrSpaceType

The **PtgAttrSpaceType** structure specifies the number of space or carriage return characters and position of those characters.

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

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

| Value | Meaning |
| --- | --- |
| 0x00 | Specifies space characters before a [base-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e). |
| 0x01 | Specifies carriage return characters before a base-expression. |
| 0x02 | Specifies space characters before the open parenthesis specified by [PtgParen](#Section_7a5b73dac5524fa7a4d01a36032a5622) in a display-precedence-specifier. |
| 0x03 | Specifies carriage return characters before the open parenthesis specified by PtgParen in a display-precedence-specifier. |
| 0x04 | Specifies space characters before the close parenthesis specified by PtgParen in a display-precedence-specifier. |
| 0x05 | Specifies carriage return characters before the close parenthesis specified by PtgParen in a display-precedence-specifier. |
| 0x06 | Specifies space characters before an expression. |

**cch (1 byte):** An unsigned integer that specifies the number of characters.

#### 2.5.198.41 PtgAttrSum

The **PtgAttrSum** structure specifies the sum of an expression as defined in [function-call](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e).

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

**ptg (7 bits):** Reserved. MUST be 0x19.

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

**B - reserved2 (4 bits):**  MUST be zero, and MUST be ignored.

**C - bitSum (1 bit):** Reserved. MUST be 1.

**D - reserved3 (3 bits):**  MUST be zero, and MUST be ignored.

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

#### 2.5.198.42 PtgBool

The **PtgBool** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a Boolean 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 |
| ptg | | | | | | | A | boolean | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x1D.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**boolean (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the value.

#### 2.5.198.43 PtgConcat

The **PtgConcat** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that appends the second expression in binary-value-expression to the first.

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

**ptg (7 bits):** Reserved. MUST be 0x08.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.44 PtgDataType

The **PtgDataType** enumeration specifies the data type of a [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f). MUST be a value from the following table:

| Name | Value | Meaning |
| --- | --- | --- |
| **REFERENCE** | 0x1 | Specifies a reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). |
| **VALUE** | 0x2 | Specifies a single value of a simple type. The type can be a Boolean, a number, a string, or an error code. |
| **ARRAY** | 0x3 | Specifies an array of values. |

#### 2.5.198.45 PtgDiv

The **PtgDiv** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that divides the first expression in a binary-value-expression by the second.

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

**ptg (7 bits):** Reserved. MUST be 0x06.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.46 PtgElfCol

The **PtgElfCol** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [reference class](#Section_a8fde0d5759c437eb385169df8117372) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) within a column which is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x03.

**loc (4 bytes):** An [RgceElfLoc](#Section_231fcf3f9bb249ddb97dd9389188dc5e) that specifies the location of the label.

#### 2.5.198.47 PtgElfColS

The **PtgElfColS** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [reference class](#Section_a8fde0d5759c437eb385169df8117372) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) within a column that is identified by a multiple-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5). There MUST be a [PtgExtraElf](#Section_a40d14cc51ea4e59bdc3eb1abb1ad1ef)in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgElfColS. The correspondence between PtgElfColS and PtgExtraElfstructures is specified in RgbExtra.

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

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x0D.

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

#### 2.5.198.48 PtgElfColSV

The **PtgElfColSV** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [value class](#Section_9a43cbef26504581af603ff0d876d82a) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) within a column that is identified by a multiple-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5). There MUST be a [PtgExtraElf](#Section_a40d14cc51ea4e59bdc3eb1abb1ad1ef) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgElfColSV. The correspondence between PtgElfColSV and PtgExtraElf structures is specified in RgbExtra.

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

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x0F.

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

#### 2.5.198.49 PtgElfColV

The **PtgElfColV** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [value class](#Section_9a43cbef26504581af603ff0d876d82a) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) within a column which is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x07.

**loc (4 bytes):** An [RgceElfLoc](#Section_231fcf3f9bb249ddb97dd9389188dc5e) that specifies the location of the label.

#### 2.5.198.50 PtgElfLel

The **PtgElfLel** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) which is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5) or a multiple-cell natural language label that has been deleted.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | ilel | | | | | | | | | | | | | | | |
| A | reserved | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x01.

**ilel (2 bytes):** An [Ilel](#Section_0c8afddfc5ca4b42b114a4760f167378) that specifies the deleted label.

**A - fQuoted (1 bit):** A bit that specifies whether the occurrences of the label specified in **ilel** are surrounded by single quote characters in the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)).

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

#### 2.5.198.51 PtgElfRadical

The **PtgElfRadical** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [reference class](#Section_a8fde0d5759c437eb385169df8117372) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) that is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5). The range is specified by [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) or [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0) that follows this PtgElfRadical in the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). If this structure is followed in the formula by PtgArea, then one but not both of the following MUST be true:

 The **area.rowFirst** field is equal to the **area.rowLast** field of PtgArea, and the **loc** field specifies a label location that is adjacent to the range specified by the **area** field of PtgArea. The **loc.row** field of this PtgElfRadical is equal to the **area.rowFirst** field of PtgArea

 The **area.columnFirst** field is equal to the **area.columnLast** field of PtgArea, and the **loc** field specifies a label location that is adjacent to the range specified by the area field of PtgArea. The **loc**.**col** field of this PtgElfRadical is equal to the **area**.**columnFirst** field of PtgArea

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x0A.

**loc (4 bytes):** An [RgceElfLoc](#Section_231fcf3f9bb249ddb97dd9389188dc5e) that specifies the location of the label.

#### 2.5.198.52 PtgElfRadicalLel

The **PtgElfRadicalLel** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [reference class](#Section_a8fde0d5759c437eb385169df8117372) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) which is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5) or a multiple-cell natural language label that has been deleted.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | ilel | | | | | | | | | | | | | | | |
| A | reserved | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x10.

**ilel (2 bytes):** An [Ilel](#Section_0c8afddfc5ca4b42b114a4760f167378) that specifies the deleted label.

**A - fQuoted (1 bit):** A bit that specifies whether the occurrences of the label specified in **ilel** are surrounded by single quote characters in the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)).

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

#### 2.5.198.53 PtgElfRadicalS

The **PtgElfRadicalS** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [reference class](#Section_a8fde0d5759c437eb385169df8117372) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) which is represented by a multiple-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5). The range is specified by the [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) or [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0) record which follows this PtgElfRadicalS in the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)). There MUST be a [PtgExtraElf](#Section_a40d14cc51ea4e59bdc3eb1abb1ad1ef)in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgElfRadicalS. The correspondence between PtgElfRadicalS and PtgExtraElfstructures is specified in RgbExtra.

If this PtgElfRadicalS is followed in the formula (section 2.2.2) by PtgArea, then the **area.columnFirst** field and the **area.columnLast** fieldof the PtgArea MUST be equal. Additionally, the last element in the **array** field of the corresponding PtgExtraElf MUST specify a label location that is adjacent to the range specified by the **area** field of PtgArea. The **column**.**col** field of the last element in the **array** field of PtgExtraElf MUST also be equal to the **area**.**columnFirst** field of PtgArea.

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

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x0B.

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

#### 2.5.198.54 PtgElfRw

The **PtgElfRw** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [reference class](#Section_a8fde0d5759c437eb385169df8117372) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) within a row which is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x02.

**loc (4 bytes):** An [RgceElfLoc](#Section_231fcf3f9bb249ddb97dd9389188dc5e) that specifies the location of the label.

#### 2.5.198.55 PtgElfRwV

The **PtgElfRwV** [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a [value class](#Section_9a43cbef26504581af603ff0d876d82a) reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) within a row which is represented by a single-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | | eptg | | | | | | | | loc | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptg (1 byte):** Reserved. MUST be 0x18.

**eptg (1 byte):** Reserved. MUST be 0x06.

**loc (4 bytes):** An [RgceElfLoc](#Section_231fcf3f9bb249ddb97dd9389188dc5e) that specifies the location of the label.

#### 2.5.198.56 PtgEq

The **PtgEq** structure specifies the comparison of whether the first [expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) is equal to the second expression.

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

**ptg (7 bits):** Reserved. MUST be 0x0B.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.57 PtgErr

The **PtgErr** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an error code.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | err | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x1C.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**err (1 byte):** A [BErr](#Section_91beb411d1754c4eb65fe3bfbc53064c) that specifies the error code.

#### 2.5.198.58 PtgExp

The **PtgExp** structure specifies that the containing [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) is part of an array formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) or shared formula and specifies the row and column of the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in which that formula exists.

The **row** and **col** fields of this structure specify a cell on the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). There MUST be a [Formula](#Section_8e3c69786c9f4915a82607613204b244) record where the **cell**.**rw** field of that record is equal to **row**, and **cell**.**col**.**col** field of that record is equal to **col**.

That Formula record MUST be followed by either a [ShrFmla](#Section_984826cc8bb7412b99077bbb9b08b4ad) record or an [Array](#Section_c6ee7512d6ec4d818dfba01a744a1f39) record.

If that Formula record is followed by a ShrFmla, the **row** field of this structure MUST be greater than or equal to the **ref**.**rwFirst** field and less than or equal to the **ref**.**rwLast** field of the ShrFmla record, and the **col** field of this structure MUST be greater than or equal to the **ref**.**colFirst** field and less than or equal to the **ref**.**colLast** field of the ShrFmla record.

If that Formula record is followed by an Array, the **row** field of this structure MUST be equal to the **ref**.**rwFirst** field of the Array record, and the **col** field of this structure MUST be equal to the **ref**.**colFirst** field of the Array 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 |
| ptg | | | | | | | A | row | | | | | | | | | | | | | | | | col | | | | | | | |
| ... | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x01.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**row (2 bytes):**  A [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) that specifies the row of the cell that contains the array formula or shared formula that the containing Rgce is a part of.

**col (2 bytes):**  A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) that specifies the column of the cell that contains the array formula or shared formula that the containing Rgce is a part of.

#### 2.5.198.59 PtgExtraArray

The **PtgExtraArray** structure specifies the values for the corresponding [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c) as specified in [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43).

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

**cols (1 byte):** A [DColByteU](#Section_8cdd24cf21c44aa3be02583daee9fd28) that specifies one less than the number of columns in the array.

**rows (2 bytes):**  A [DRw](#Section_22965732283b49b9acd7515de46fdf7a) that specifies one less than the number of rows in the array.

**array (variable):** An array of [SerAr](#Section_69ff31ac671b4aafa3b5a01e9e283a03) that specifies the values in row-major order. The number of elements MUST be equal to the product of **rows** and **cols**.

#### 2.5.198.60 PtgExtraElf

The **PtgExtraElf** structure specifies a multiple-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5) used in a [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b). The label is specified by a sequence of labels from the given array 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 |
| count | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | A | B |
| array (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**count (30 bits):** An unsigned integer that specifies the number of elements in **array**. MUST be greater than 0.

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

**B - fRel (1 bit):** A bit that specifies whether [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) are used in the elements of **array**.

**array (variable):** An array of [RgceElfLocExtra](#Section_f225058b61ef4a948f581195d8087849) elements that specifies the sequence of [**cell references**](#gt_4d15aeb2-3a7d-44d7-b8d1-8a441f1cc24f) that specifies the multiple-cell natural language label. The number of elements MUST be equal to **count**.

#### 2.5.198.61 PtgExtraMem

The **PtgExtraMem** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) that corresponds to a [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee) as specified in [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43).

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

**count (2 bytes):** An unsigned integer that specifies the areas within the range.

**array (variable):** An array of [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) that specifies the range. The number of elements MUST be equal to **count**.

#### 2.5.198.62 PtgFunc

The **PtgFunc** structure specifies a call to a function with a fixed number of parameters, as defined in [function-call](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | iftab | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x01.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**iftab (2 bytes):** A [Ftab](#Section_00b5dd7d51ca4938b7b7483fe0e5933b) that specifies the function to be called. MUST specify a function with a fixed number of parameters.

#### 2.5.198.63 PtgFuncVar

The **PtgFuncVar** structure specifies a call to a function with a variable number of parameters as defined in [function-call](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | cparams | | | | | | | | tab | | | | | | | | | | | | | | | C |

**ptg (5 bits):** Reserved. MUST be 0x02

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

**B - reserved (1 bit):** MUST be 0, MUST be ignored.

**cparams (1 byte):** An unsigned integer that specifies the number of parameters. MUST be within the range defined for the function specified by **tab.**

**tab (15 bits):** A structure that specifies the function to be called. If **fCeFunc** is 1, then this field specifies a [**Cetab**](#Section_0b8acba586d24854836e0afaee743d44) value. If **fCeFunc** is 0, then this field specifies a [**Ftab**](#Section_00b5dd7d51ca4938b7b7483fe0e5933b) value.

**C - fCeFunc (1 bit):** A bit that specifies whether **tab** specifies a **Cetab** value or a **Ftab** value.

#### 2.5.198.64 PtgGe

The **PtgGe** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that compares whether the first expression in a binary-value-expression is greater than or equal to the second.

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

**ptg (7 bits):** Reserved. MUST be 0x0C.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.65 PtgGt

The **PtgGt** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that compares whether the first expression in a binary-value-expression is greater than the second.

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

**ptg (7 bits):** Reserved. MUST be 0x0D.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.66 PtgInt

The **PtgInt** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an unsigned integer 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 |
| ptg | | | | | | | A | integer | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x1E.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**integer (2 bytes):** An unsigned integer that specifies the value.

#### 2.5.198.67 PtgIsect

The **PtgIsect** structure specifies a [binary-reference-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that intersects the first expression in a binary-reference-expression with the second.

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

**ptg (7 bits):** Reserved. MUST be 0x0F.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.68 PtgLe

The **PtgLe** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that compares whether the first expression in a binary-value-expression is less than or equal to the second.

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

**ptg (7 bits):** Reserved. MUST be 0x0A.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.69 PtgLt

The **PtgLt** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that compares whether the first expression in a binary-value-expression is less than the second.

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

**ptg (7 bits):** Reserved. MUST be 0x09.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.70 PtgMemArea

The **PtgMemArea** [mem token](#Section_0e7857a5d73a4abaafdaaa3996f562fd) specifies that the result of a [binary-reference-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) in a mem-area-expression is a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). The [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this structure MUST contain a [PtgExtraMem](#Section_0a225048f0a140938b0b6d8f8497f8ce) that specifies the range 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 |
| ptg | | | | | A | | B | unused | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | cce | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x06.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

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

**cce (2 bytes):** An unsigned integer that specifies the count of bytes in the binary-reference-expression following this structure.

#### 2.5.198.71 PtgMemErr

The **PtgMemErr** [mem token](#Section_0e7857a5d73a4abaafdaaa3996f562fd) specifies that the result of a [binary-reference-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) in a mem-area-expression is an error code.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | err | | | | | | | | unused1 | | | | | | | | unused2 | | | | | | | |
| ... | | | | | | | | cce | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x07.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**err (1 byte):** A [BErr](#Section_91beb411d1754c4eb65fe3bfbc53064c) that specifies the error code value.

**unused1 (1 byte):** Undefined and MUST be ignored.

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

**cce (2 bytes):** An unsigned integer that specifies the count of bytes in the binary-reference-expression following this structure.

#### 2.5.198.72 PtgMemFunc

The **PtgMemFunc** [mem token](#Section_0e7857a5d73a4abaafdaaa3996f562fd) specifies that the result of a [binary-reference-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) in a mem-area-expression is variable.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | cce | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x09.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**cce (2 bytes):** An unsigned integer that specifies the count of bytes in the binary-reference-expression following this structure.

#### 2.5.198.73 PtgMemNoMem

The **PtgMemNoMem** [mem token](#Section_0e7857a5d73a4abaafdaaa3996f562fd) specifies that the result of the [binary-reference-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) in a mem-area-expression failed to 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 |
| ptg | | | | | A | | B | unused | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | cce | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x08.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

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

**cce (2 bytes):** An unsigned integer that specifies the count of bytes in the binary-reference-expression following this structure.

#### 2.5.198.74 PtgMissArg

The **PtgMissArg** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a missing 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 |
| ptg | | | | | | | A |

**ptg (7 bits):** Reserved. MUST be 0x16.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.75 PtgMul

The **PtgMul** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that multiplies the first and second expressions in a binary-value-expression.

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

**ptg (7 bits):** Reserved. MUST be 0x05.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.76 PtgName

The **PtgName** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) in the same [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) as the containing Rgce.

If the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is part of a revision as specified in the Formulas overview, then there MUST be a [RevNameTabid](#Section_9104e80e4fce449f8658ae41ba5d3336) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgName, which specifies those 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 |
| ptg | | | | | A | | B | nameindex | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x03.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the required data type for the value of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**nameindex (4 bytes):** If the formula containing this structure is part of a revision as specified in the Formulas overview, then this value is undefined and MUST be ignored. Otherwise it is an unsigned integer that specifies a one-based index of a [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record in the collection of Lbl records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). The referenced Lbl specifies the referenced defined name. MUST be greater than 0 and less than or equal to the number of Lbl records in theworkbook.

#### 2.5.198.77 PtgNameX

The **PtgNameX** structure specifies a reference to a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) in an [external workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc).

If the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is part of a revision as specified in the Formulas overview, then there MUST be a [RevName](#Section_9ef68cc745d348a1befd2882c592e641) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgNameX that specifies the defined name.

If the formula containing this structure is not part of a revision as specified in the Formulas overview (section 2.2.2), then the referenced defined name is specified by an [XtiIndex](#Section_9ded1bd948814b77b32fc77b93df03fd).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | ixti | | | | | | | | | | | | | | | | nameindex | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x19.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the required data type for the value of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**ixti (2 bytes):** If the formula containing this structure is not part of a revision as specified in the Formulas overview, this value is an XtiIndex that specifies the [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) that specifies the referenced defined name.

If the formula containing this structure is part of a revision as specified in the Formulas overview, this value is undefined and MUST be ignored.

**nameindex (4 bytes):** If the formula containing this structure is not part of a revision as specified in the Formulas overview, this value is an unsigned integer that specifies the one-based index of an [ExternName](#Section_9549558214654bdd8183b16f8e8eaf74) record in the collection of ExternName records directly following the [SupBook](#Section_31ed3738e4ff4b60804cac49ac1ee6c0) record referenced by **ixti**. The referenced ExternName and its associated records specify the referenced defined name.

If the formula containing this structure is part of a revision as specified in the Formulas overview, this value is undefined and MUST be ignored.

#### 2.5.198.78 PtgNe

The **PtgNe** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that compares whether the second expression in a binary-value-expression is not equal to the first.

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

**ptg (7 bits):** Reserved. MUST be 0x0E.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.79 PtgNum

The **PtgNum** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a floating-point 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 |
| ptg | | | | | | | A | value | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x1F

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**value (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the floating-point value.

#### 2.5.198.80 PtgParen

The **PtgParen** [display token](#Section_44ae9bca374542a482095e7ded229789) specifies that parentheses are displayed around the expression in a [display-precedence-expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e).

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

**ptg (7 bits):** Reserved. MUST be 0x15.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.81 PtgPercent

The **PtgPercent** structure specifies a [unary-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) which divides the expression in a unary-expression by 100.

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

**ptg (7 bits):** Reserved. MUST be 0x14.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.82 PtgPower

The **PtgPower** structure specifies a [binary-value-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that raises the first expression in a binary-value-expression to the power of the second.

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

**ptg (7 bits):** Reserved. MUST be 0x07.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.83 PtgRange

The **PtgRange** structure specifies the range operation, where the minimum bounding rectangle of the first [expression](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) and the second expressionis generated.

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

**ptg (7 bits):** Reserved. MUST be 0x11.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.84 PtgRef

The **PtgRef** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) as an [RgceLoc](#Section_f2395c3334a44b0785a99bb5f07848d9).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | loc | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x04.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e)that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**loc (4 bytes):** A RgceLoc value that specifies the coordinates of the referenced cell.

#### 2.5.198.85 PtgRef3d

The **PtgRef3d** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on one or more [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

If the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is part of a revision as specified in the Formulas overview (section 2.2.2), then there MUST be a [RevExtern](#Section_537671c112a249f096ea8760fdc411ef) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgRef3d, which specifies those sheets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | ixti | | | | | | | | | | | | | | | | loc | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x1A.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the required data type for the value of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**ixti (2 bytes):** If the formula containing this structure is not part of a revision as specified in the Formulas overview, then this value is an [XtiIndex](#Section_9ded1bd948814b77b32fc77b93df03fd) that specifies the [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) which specifies those sheets. Otherwise it is undefined and MUST be ignored.

**loc (4 bytes):**  A value that specifies coordinates of the referenced cell. If this PtgRef3d is part of a [NameParsedFormula](#Section_9afd1c6cc4864d9cb6443708428d2ffb) then this is a [RgceLocRel](#Section_2db37ba732f3439588fe6646034a5358) value. Otherwise it is a [RgceLoc](#Section_f2395c3334a44b0785a99bb5f07848d9) value.

#### 2.5.198.86 PtgRefErr

The **PtgRefErr** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an invalid reference to 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 |
| ptg | | | | | A | | B | unused1 | | | | | | | | | | | | | | | | unused2 | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x0A.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

#### 2.5.198.87 PtgRefErr3d

The **PtgRefErr3d** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies an invalid reference to a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on one or more [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). If the [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing this structure is part of a revision as specified in the Formulas overview (section 2.2.2), then there MUST be a [RevExtern](#Section_537671c112a249f096ea8760fdc411ef) in the [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) corresponding to this PtgRefErr3d, which specifies those sheets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | ixti | | | | | | | | | | | | | | | | unused1 | | | | | | | |
| ... | | | | | | | | unused2 | | | | | | | | | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x1C.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the required data type for the value of the [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**ixti (2 bytes):** If the formula containing this structure is not part of a revision as specified in the Formulas overview (section 2.2.2), then this value is an [XtiIndex](#Section_9ded1bd948814b77b32fc77b93df03fd) that specifies the [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7)which specifies those sheets. Otherwise it is undefined and MUST be ignored.

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

#### 2.5.198.88 PtgRefN

The **PtgRefN** [operand](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) specifies a reference to a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) as an [RgceLocRel](#Section_2db37ba732f3439588fe6646034a5358).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | A | | B | loc | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**ptg (5 bits):** Reserved. MUST be 0x0C.

**A - type (2 bits):** A [PtgDataType](#Section_80d504baeb5d4a0fa5da3dcc792dd78e) that specifies the data type for the value of this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f).

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

**loc (4 bytes):** An RgceLocRel that specifies the referenced cell.

#### 2.5.198.89 PtgStr

The **PtgStr** operand specifies a [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) 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 |
| ptg | | | | | | | A | string (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x17.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**string (variable):** A [ShortXLUnicodeString](#Section_051628580ca944cbbb07a720928f63f8) value that specifies the string.

#### 2.5.198.90 PtgSub

The **PtgSub** structure specifies a [binary-value operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that subtracts the second expression in a binary-value-expression from the first.

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

**ptg (7 bits):** Reserved. MUST be 0x04.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.91 PtgSxName

The **PtgSxName** structure specifies a reference to a [calculated field](#Section_4594f2ac815740b381142e77ba8efb7d) or a [calculated item](#Section_6c6b3e3d22354a609f5b1c902ee0a50b) found in a [PivotParsedFormula](#Section_df9803bc04a94e06a4dd463976073e33). The [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that contains this [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f) MUST be part of the **formula** field of an [SxFmla](#Section_d327ce82d6584fcc927bd3f4edcc0232) 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 |
| ptg | | | | | | | A | eptg | | | | | | | | sxIndex | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x18.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**eptg (1 byte):** Reserved. MUST be 0x1D.

**sxIndex (4 bytes):** An unsigned integer that specifies the zero-based index of an [SxName](#Section_2ea8a7fb02fa46c6a44dfe7c2ce44827) record in the collection of SxName records following an SxFmla record. MUST be less than the value of **formula.cSxName** in the SxFmla record.

#### 2.5.198.92 PtgTbl

The **PtgTbl** structure specifies that the [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that contains this PtgTbl is part of a [**data table (1)**](#gt_9e13d7ee-50d6-40ae-8789-29ecafe24bd4) or an [ObjectParsedFormula](#Section_61494913879b4a14b0cbb7a94fce4692).

If the Rgce is not part of an ObjectParsedFormula, then there MUST be a [Table](#Section_2e33c7ad8a8a4abcb36f01c682ad2eb9) record in the current part where the **ref**.**rwFirst** field in Table is equal to **row** and the **ref**.**colFirst** field in Table is equal to **col**.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ptg | | | | | | | A | row | | | | | | | | | | | | | | | | col | | | | | | | |
| ... | | | | | | | |

**ptg (7 bits):** Reserved. MUST be 0x02

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

**row (2 bytes):**  An unsigned integer that specifies the first row of the data table (1). MUST be less than 65536. If the Rgce that contains this PtgTbl is part of an ObjectParsedFormula, this field is undefined and MUST be ignored.

**col (2 bytes):**  An unsigned integer that specifies the first column of the data table (1). MUST be less than 256. If the Rgce that contains this PtgTbl is part of an ObjectParsedFormula, this field is undefined and MUST be ignored.

#### 2.5.198.93 PtgUminus

The **PtgUminus** structure specifies a [unary-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) which generates the additive inverse of a unary-expression.

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

**ptg (7 bits):** Reserved. MUST be 0x13.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.94 PtgUnion

The **PtgUnion** structure specifies a [binary-reference-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies a union of the first expression in a binary-reference-expression with the second.

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

**ptg (7 bits):** Reserved. MUST be 0x10.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.95 PtgUplus

The **PtgUplus** structure specifies a [unary-operator](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) which leaves a unary-expression unchanged.

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

**ptg (7 bits):** Reserved. MUST be 0x12.

**A - reserved0 (1 bit):** MUST be zero, and MUST be ignored.

#### 2.5.198.96 RevExtern

The **RevExtern** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**sheets**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) on a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) that is referenced by a [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in a revision as specified in the Formulas overview (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 |
| book (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| itabFirst (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| itabLast (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**book (variable):** Specifies the workbook based on the value of the first byte, according to the following table:

| Value | Meaning |
| --- | --- |
| 0x01 | Specifies the current workbook. This field is two bytes in size. The second byte MUST be 0x02. |
| Any value except 0x01 | This field is a [VirtualPath](#Section_480c3d2a19d24396964cc16cbe9d1270) that specifies the workbook. |

**itabFirst (variable):** A [RevItab](#Section_556ac2fea7364f5297dd0cf98965252e) that specifies the first sheet in the range.

**itabLast (variable):** A RevItab that specifies the last sheet in the range.

#### 2.5.198.97 RevItab

The **RevItab** structure specifies a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) of a [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) referenced by a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in a revision as specified in the Formulas overview (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 |
| type | | | | | | | | tabid (optional) | | | | | | | | | | | | | | | | sheet (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

| Value | Meaning |
| --- | --- |
| 0x00 | Specifies a sheet on the same workbook. The **tabid** field specifies the sheet. |
| 0x01 | Specifies a sheet on a different workbook. The **sheet** field specifies the sheet. |
| 0x02 | Specifies the same sheet specified by the preceding RevItab. |
| 0x03 | Specifies a missing sheet. |

**tabid (2 bytes):** An unsigned integer that specifies a sheet identifier in the current workbook. MUST match a sheet identifier specified by [RRTabId](#Section_e1b235b2c9554d38b7adfab84d93d4bc). This field MUST be present if and only if **type** is 0x00.

**sheet (variable):** A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the sheet name. This field MUST be present if and only if **type** is 0x01.

#### 2.5.198.98 RevLblName

The **RevLblName** structure specifies the name of a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) that is referenced by a formula in a revision as specified in the Formulas overview (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 |
| iBuiltin | | | | | | | | st (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iBuiltin (1 byte):** An unsigned integer that specifies whether the defined name is a [**built-in name**](#gt_d40a51df-e96f-45ec-885d-6f936d172b39), and if so, which built-in name it is. The value MUST be from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | This is not a built-in name. |
| 0x01 | Consolidate\_Area |
| 0x02 | Auto\_Open |
| 0x03 | Auto\_Close |
| 0x04 | Extract |
| 0x05 | Database |
| 0x06 | Criteria |
| 0x07 | Print\_Area |
| 0x08 | Print\_Titles |
| 0x09 | Recorder |
| 0x0A | Data\_Form |
| 0x0B | Auto\_Activate |
| 0x0C | Auto\_Deactivate |
| 0x0D | Sheet\_Title |
| 0x0E | \_FilterDatabase |

**st (variable):**  If **iBuiltin** is 0x00, then **st** is an [XLNameUnicodeString](#Section_46367a3d03824c3283736ba36229c2c3) that specifies the name of the defined name. Otherwise, **st** is an [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) and the name of the defined name is specified as the concatenation of built-in name specified by **iBuiltin** and **st.** The concatenated string MUST match grammar specified for XLNameUnicodeString.

#### 2.5.198.99 RevName

The **RevName** structure specifies a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) referenced by a [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in a revision as specified in the Formulas overview (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 |
| book (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fExtern | | | | | | | | name (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| externName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**book (variable):** Specifies the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) based on the value of the first byte, according to the following table:

| Value | Meaning |
| --- | --- |
| 0x01 | Specifies the current workbook. This fieldis two bytes in size. The second byte MUST be 0x02. |
| Any value except 0x01 | This field is a [VirtualPath](#Section_480c3d2a19d24396964cc16cbe9d1270) that specifies the workbook. |

**fExtern (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the defined name is defined in the current workbook. MUST be 0x00 if the first byte of **book** is 0x01, and 0x01 otherwise.

**name (variable):** A [RevNameTabid](#Section_9104e80e4fce449f8658ae41ba5d3336) that specifies the name and the scope of the defined name. This field MUST be present if and only if **fExtern** is 0x00.

**externName (variable):** A [RevNamePly](#Section_fbe58e96929f4c7f9d3bf5ad8f08dd36) that specifies the name and the scope of the defined name. This field MUST be present if and only if **fExtern** is 0x01.

#### 2.5.198.100 RevNamePly

The **RevNamePly** structure specifies a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) in an [external workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc) that is referenced by a [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in a revision as specified in the Formulas overview (section 2.2.2), and the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) on which it is defined.

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

**sheet (variable):** A [RevSheetName](#Section_1713a39f731d45089e7214da2b7dd8d3) that specifies the sheet on which the defined name is defined.

**name (variable):** A [RevLblName](#Section_14b8e004e116451bbf84e26e963aa4a4) that specifies the defined name.

#### 2.5.198.101 RevNameTabid

The **RevNameTabid** structure specifies a non-external [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) that is referenced by a [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in a revision as specified in the Formulas overview (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 |
| tabid | | | | | | | | | | | | | | | | name (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**tabid (2 bytes):** An unsigned integer that specifies the scope of the defined name. The value MUST be from the following table:

| Value | Meaning |
| --- | --- |
| 0xFFFF | Specifies that the scope is the entire [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). |
| Greater than or equal to 1 and less than 0xFFFF | Specifies that the scope is a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) from the workbook. The value is a sheet identifier which MUST match a sheet identifier specified by [RRTabId](#Section_e1b235b2c9554d38b7adfab84d93d4bc) in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). |

**name (variable):** A [RevLblName](#Section_14b8e004e116451bbf84e26e963aa4a4) that specifies the name of the defined name.

#### 2.5.198.102 RevSheetName

The **RevSheetName** structure specifies the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) or [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) on which a [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) is defined, for a defined name that is referenced by a [formula](#Section_a795978bfa7845788e2dc07d78edae0e) (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in a revision as specified in the Formulas overview (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 |
| sheet (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**sheet (variable):** A [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the sheet. The length of the string MUST be less than or equal to 31 characters. This field specifies the entire workbook if the length of the string is zero.

#### 2.5.198.103 RgbExtra

The **RgbExtra** structure specifies a set of structures, laid out sequentially in the file, that correspond to and MUST exist for certain [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s in the [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e). The order of the structures MUST be the same as the order of the Ptgs in the Rgce that they correspond to.

The following Ptgs MUST have a corresponding structure in an RgbExtra.

| Ptg | Required structure in an RgbExtra |
| --- | --- |
| [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c) | [PtgExtraArray](#Section_edd64b460fa04ef0b95bfe2cd41c7f73) |
| [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee) | [PtgExtraMem](#Section_0a225048f0a140938b0b6d8f8497f8ce) |
| [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137) | [PtgExtraElf](#Section_a40d14cc51ea4e59bdc3eb1abb1ad1ef) |
| [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966) | PtgExtraElf |
| [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525) | PtgExtraElf |

The following Ptgs MUST have a corresponding structure in an RgbExtra if and only if the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) containing that Ptg is part of a revision as specified in the Formulas overview (section 2.2.2).

| Ptg | Required structure in an RgbExtra |
| --- | --- |
| [PtgName](#Section_5f05c166dfe34bbf85aa31c09c0258c0) | [RevNameTabid](#Section_9104e80e4fce449f8658ae41ba5d3336) |
| [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774) | [RevName](#Section_9ef68cc745d348a1befd2882c592e641) |
| [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577) | [RevExtern](#Section_537671c112a249f096ea8760fdc411ef) |
| [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4) | RevExtern |
| [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) | RevExtern |
| [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2) | RevExtern |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 that contains the sequence of these structures.

#### 2.5.198.104 Rgce

The **Rgce** structure specifies a set of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s, laid out sequentially in the file.

The sequence of Ptgs MUST adhere to the following grammar.

EXPRESSION\_SIZE is the sum of the sizes of a contiguous set of Ptgs in bytes.

The ACTUAL\_PTG\_SIZE of a Ptg is as follows:

| Ptg | ACTUAL\_PTG\_SIZE |
| --- | --- |
| [PtgStr](#Section_87c2a057705c4473a1686d5fac4a9eba) | 1 + (stringsize + 1) \* 2  where stringsize is the **string**.**cch** field of the PtgStr structure |
| [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c) | 15 |
| [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055) | 7 |
| [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3) | 13 |
| [PtgRefErr](#Section_d86972da19ea4a6ea71d49129e930521) | 7 |
| [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0) | 13 |
| [PtgRefN](#Section_bf3b872bba114489a94ae3937f1bb032) | 7 |
| [PtgAreaN](#Section_f2c8529a25b14c75838ba48ef6384f86) | 13 |
| [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577) | 9 |
| [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a) | 15 |
| [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4) | 9 |
| [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2) | 16 |
| Any other Ptg | Size of the Ptg in bytes |

The ACTUAL\_EXPRESSION\_SIZE of a contiguous set of Ptgs is the sum of ACTUAL\_PTG\_SIZEsof those Ptgs. The ACTUAL\_EXPRESSION\_SIZE of all Ptgs in an Rgce MUST be less than or equal to 1800.

rgce = [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1) / [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7) / [[PtgAttrBaxcel](#Section_fcd76e1060724dcfb59147edc8822792) / [PtgAttrSemi](#Section_615c5518010a4268b71bb60074bdb11b) / [PtgAttrSpaceSemi](#Section_5d8c3df59be546d98105a1a19ceca3d4)] expression

expression = \*[PtgAttrSpace](#Section_38a4d7be040b4206b07862f5aeec72f3) base-expression

The value of the **type** field of each PtgAttrSpace in an expression MUST be 0, 1, or 6.

base-expression = operand / unary-expression / binary-reference-expression / binary-value-expression / display-precedence-specifier / mem-area-expression / function-call

operand = [PtgMissArg](#Section_69352e6ce71248d792d10bf7c1f61f69) / PtgStr / [PtgErr](#Section_4746c46e83014d72aaa8742f5404b5db) / [PtgBool](#Section_d59e28db4d6f4c86bcc9c8a783e352ec) / [PtgInt](#Section_508ecf183b81462895b37a9d2a295bca) / [PtgNum](#Section_40e691832cd3405187ba2f3ccb82bcfa) / PtgArray / [PtgName](#Section_5f05c166dfe34bbf85aa31c09c0258c0) / PtgRef / PtgArea / PtgRefErr / PtgAreaErr / PtgRefN / PtgAreaN / [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774) / PtgRef3d / PtgArea3d / PtgRefErr3d / PtgAreaErr3d / [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148) / [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675) / [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed) / [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9) / [PtgElfColV](#Section_167409e793634b61943447e559e80f2d) / [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610) PtgArea / PtgElfRadical PtgAreaErr / [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137) PtgArea / PtgElfRadicalS PtgAreaErr / [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966) / [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525) / [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e) PtgArea / PtgElfRadicalLel PtgAreaErr / [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d)

Each Ptg in this definition is an [operand token](#Section_011ec51c5e8742aea0a1f5ee242c1189).

unary-expression = val unary-operator

unary-operator = [PtgUplus](#Section_635159b078114c5bb89f97e9ec02d6af) / [PtgUminus](#Section_350feab71a6246688052d58c880a3fd2) / [PtgPercent](#Section_980d459ae1d248c3b00b662b029247ce)

Each Ptg in this definition is an [operator token](#Section_0c6cc754f96f4061a9759d6eae97f8a3).

binary-reference-expression = 2ref binary-reference-operator

binary-reference-operator = [PtgIsect](#Section_477524a586b9474e89559ea77d659d79) / [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc) / [PtgRange](#Section_f5ef334abc4741ceba5d096373423fab)

Each Ptg in this definition is an operator token.

binary-value-expression = 2val binary-value-operator

binary-value-operator = [PtgAdd](#Section_27db2f4511e8423894ed92fd9c5721fb) / [PtgSub](#Section_ee15a1fa77bb45e18c8c0e7bef7f7552) / [PtgMul](#Section_52863fc53d3c487490e6a7961902849f) / [PtgDiv](#Section_10585b24618d47f48ffa65811d18ad13) / [PtgPower](#Section_e115b2165dda4a5b95d2cadf0ada9a82) / [PtgConcat](#Section_054d699a43834bbf9df26a4020119c1e) / [PtgLt](#Section_28de498113524a5ea3b7f15a8a6ce7fb) / [PtgLe](#Section_92c13f4d89d345a9a3954643e5b27b1d) / [PtgEq](#Section_d197275ecb7f455cb9b57e968412d470) / [PtgGe](#Section_0185f97fc7314852bd0d0eb0d8b3457f) / [PtgGt](#Section_08104e305fb6467a87ed978eb456366c) / [PtgNe](#Section_0e49033d5dc740f18fcaeb3b8b1c2c91)

Each Ptg in this definition is an operator token.

display-precedence-specifier = expression [PtgAttrSpace] [PtgParen](#Section_7a5b73dac5524fa7a4d01a36032a5622)

The value of the **type** field of a PtgAttrSpace MUST be between 2 and 5 inclusive.

PtgAttrSpace and PtgParen are [display tokens](#Section_44ae9bca374542a482095e7ded229789).

mem-area-expression = mem-ptg binary-reference-expression

The **cce** field in the Ptg of the mem-ptg rule MUST be equal to the EXPRESSION\_SIZE of the Ptgs that comprise the binary-reference-expression.

If mem-ptg is not [PtgMemFunc](#Section_e4f8e3b40bb7410099ee1ac53acc9161) then the expression elements in the binary-reference-expression MUST NOT contain any mem-ptg elements, [PtgFunc](#Section_87ce512d273a4da0a9f826cf1d93508d), [PtgFuncVar](#Section_5d1051716b734f40a7cd6bf2aae15e83), PtgName, PtgNameX, PtgRef3d, PtgArea3d, PtgRefErr3d, or PtgAreaErr3d.

mem-ptg = [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee) / [PtgMemErr](#Section_2b3c0de014c8436aae32477c2a075c60) / [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48) / PtgMemFunc

Each Ptg in this definition is a [mem token](#Section_0e7857a5d73a4abaafdaaa3996f562fd).

function-call = if-expression / choose-expression / [[params-fixed](#Section_00b5dd7d51ca4938b7b7483fe0e5933b)] PtgFunc / params-variable PtgFuncVar / [params-cetab](#Section_0b8acba586d24854836e0afaee743d44) PtgFuncVar / expression [PtgAttrSum](#Section_79ef57f627ab4fecb8937dd727e771d1)

The params-fixed element MUST NOT be specified if PtgFunc specifies a function that takes no parameters. Otherwise, it MUST conform to the ABNF rule for the function specified by PtgFunc.

if-expression = expression [PtgAttrIf](#Section_d81e5fb43004409a9a311a60662d9e59) 1\*2(expression [PtgAttrGoto](#Section_081e17b902a64e78ad2809538f35a312)) PtgFuncVar

The value of the **offset** field in the PtgAttrIf MUST be equal to the EXPRESSION\_SIZE of all Ptgs in the if-expression after the PtgAttrIf through the first PtgAttrGoto.

The value of the **offset** field in each PtgAttrGoto MUST be equal to one less than the EXPRESSION\_SIZE of all Ptgs remaining in the if-expression after that PtgAttrGoto.

The value of the **fCeFunc** field of the PtgFuncVar MUST be zero. The value of the **tab** field of the PtgFuncVar MUST be 0x0001, which represents the IF function.

choose-expression = expression [PtgAttrChoose](#Section_24fb579cc65d477194a84380cecdc8c8) 1\*29(expression PtgAttrGoto) PtgFuncVar

The value of the **cOffset** field in the PtgAttrChoose MUST be equal to the number of times the expression in the repeated sequence group appears.

The first offset in the array of offsets in the **rgOffset** field in the PtgAttrChoose MUST be equal to four less than the size of the PtgAttrChoose in bytes.

For the nth occurrence of the repeated sequence group, the (n+1)th offset in the array of offsets in the **rgOffset** field in the PtgAttrChoose MUST be equal to the EXPRESSION\_SIZE of all Ptgs in the choose-expression after the PtgAttrChoose through the nth PtgAttrGoto.

The value of the **offset** field in each PtgAttrGoto MUST equal one less than the EXPRESSION\_SIZE of all Ptgs remaining in the choose-expression after that PtgAttrGoto.

The value of the **fCeFunc** field of the PtgFuncVar MUST be zero. The value of the **tab** field of the PtgFuncVar MUST be 0x0064, which represents the CHOOSE function.

val = expression

Additional restrictions are specified under VALUE\_TYPE. The params-fixed, params-variable and params-cetab rules also use val.

ref = expression

Additional restrictions are specified under VALUE\_TYPE. The params-fixed, params-variable and params-cetab rules also use ref.

If the value of the **useselfs** field of the [UsesELFs](#Section_53f1e0afa1c8431dae8596a279417432) record is zero then an Rgce MUST NOT contain PtgElfLel, PtgElfRw, PtgElfCol, PtgElfRwV, PtgElfColV, PtgElfRadical, PtgElfRadicalS, PtgElfColS, PtgElfColSV, and PtgElfRadicalLel.

PtgElfLel, PtgElfRw, PtgElfCol, PtgElfRwV, PtgElfColV, PtgElfRadical, PtgElfRadicalS, PtgElfColS, PtgElfColSV, and PtgElfRadicalLel SHOULD NOT[<178>](#Appendix_A_178" \o "Product behavior note 178) be used.

Additional restrictions on the contents of this structure are specified in terms of a parse tree. For this purpose, a parse tree is a means of organizing the components of an Rgce. Each node in the parse tree represents a Ptg or an ABNF rule described previously. Non-leaf nodes represent rules and have one child node for each element in the rule. Leaf nodes represent only a Ptg.

For a leaf node in the parse tree, NESTING\_DEPTH is the number of function-call nodes in the path from the root node to that leaf.

For a node in the parse tree, OPERAND\_COUNT is as follows:

 The OPERAND\_COUNT of each Ptg appearing in the operand rule definition is one.

 The OPERAND\_COUNT of all other Ptgs is zero.

 The OPERAND\_COUNT of a node that has n child nodes with nonzero OPERAND\_COUNT is equal to the maximum, across all the n child nodes, of (n-1) plus the OPERAND\_COUNT of the nth child that has nonzero OPERAND\_COUNT.

For a node in the parse tree, VALUE\_TYPE is a state indicating that the node represents a single value of a simple type or an array of such values. A node that is not a VALUE\_TYPE represents a reference to a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). Elements in an expression MUST represent either values or references, based on the specific Ptgs used in the expression. The following rules specify how to traverse the parse tree from the bottom up and determine whether each node is a VALUE\_TYPE, which determines whether the sequence of Ptgs comprising the formula correctly satisfies the requirements of each expression in the formula. A node is determined to be a VALUE\_TYPE as follows:

 Leaf nodes:

 PtgMissArg, PtgStr, PtgSxName, PtgErr, PtgBool, PtgInt, PtgNum, PtgArray, PtgRefErr, PtgAreaErr, PtgRefErr3d, PtgAreaErr3d, PtgElfLel, PtgElfRwV, PtgElfColV, PtgElfColSV, PtgElfRadicalLel, PtgUplus, PtgUminus, PtgPercent, PtgAdd, PtgSub, PtgMul, PtgDiv, PtgPower, PtgConcat, PtgLt, PtgLe, PtgEq, PtgGe, PtgGt, and PtgNe leaf nodes are VALUE\_TYPEs.

 PtgName, PtgRef, PtgArea, PtgRefN, PtgAreaN, PtgNameX, PtgRef3d, PtgArea3d, PtgFunc, PtgFuncVar, PtgMemArea, PtgMemErr, PtgMemNoMem, and PtgMemFunc leaf nodes are VALUE\_TYPEs if and only if the value of the **type** field is value or array.

 All other leaf nodes are not VALUE\_TYPEs.

 Non-leaf nodes:

 Any non-leaf node with a single child node MUST be a VALUE\_TYPE if and only if the child node is a VALUE\_TYPE.

 Any non-leaf node with a mem-ptg, unary-operator, binary-value-operator, binary-reference-operator, PtgAttrSum, PtgFunc or PtgFuncVar child node is a VALUE\_TYPE if and only if that child node is a VALUE\_TYPE. Other child nodes are ignored for the purposes of determining whether the non-leaf node is a VALUE\_TYPE.

 Any non-leaf node corresponding to a val rule MUST be a VALUE\_TYPE.

 Any non-leaf node corresponding to a ref rule MUST NOT be a VALUE\_TYPE.

 Otherwise, a non-leaf node with an expression child node is a VALUE\_TYPE if and only if that expression child node is a VALUE\_TYPE.

A parse tree for an Rgce MUST meet the following conditions:

 The NESTING\_DEPTH of each leaf node MUST NOT exceed 8.

 The OPERAND\_COUNT of the root node MUST NOT exceed 40.

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

**sequence (variable):** An array of Ptg that specifies the sequence of Ptgs.

#### 2.5.198.105 RgceArea

The **RgceArea** structure specifies a reference to a rectangular [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) where [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) are stored as coordinates.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rowFirst | | | | | | | | | | | | | | | | rowLast | | | | | | | | | | | | | | | |
| columnFirst | | | | | | | | | | | | | | | | columnLast | | | | | | | | | | | | | | | |

**rowFirst (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the row number of the first row of the rectangular range of cells.

**rowLast (2 bytes):**  An RwU that specifies the row number of the last row of the rectangular range of cells.

**columnFirst (2 bytes):**  A [ColRelU](#Section_6e5eed105b7743d68dd037345f8654ad) that specifies the column number of the first column of the rectangular range of cells and relative reference information.

**columnLast (2 bytes):**  A ColRelU that specifies the column number of the last column of the rectangular range of cells and relative reference information.

#### 2.5.198.106 RgceAreaRel

The **RgceAreaRel** structure specifies a rectangular [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) where the relative portions of [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) are specified as offsets from the cell in which the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) is evaluated.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| rowFirst | | | | | | | | | | | | | | | | rowLast | | | | | | | | | | | | | | | |
| columnFirst | | | | | | | | | | | | | | | | columnLast | | | | | | | | | | | | | | | |

**rowFirst (2 bytes):** An [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies information about the first row of the cell reference. If **columnFirst.rowRelative** is 0, then **rowFirst** specifies the first row coordinate of the cell reference. If **columnFirst.rowRelative** is 1, then **rowFirst** specifies the first row as an offset from the cell in which the formula is evaluated.

**rowLast (2 bytes):**  An RwU that specifies information about the last row of the cell reference. If **columnLast.rowRelative** is 0, then **rowLast** specifies the last row coordinate of the cell reference. If **columnLast.rowRelative** is 1, then **rowLast** specifies the last row as an offset from the cell in which the formula is evaluated.

**columnFirst (2 bytes):** A [ColRelNegU](#Section_174e856ebd824ea5bf75cf441e7657a1) that specifies information about the first row and column in the range. If **columnFirst.colRelative** is 0, then **columnFirst.col** is an unsigned integer that specifies the first column coordinate of the cell reference and MUST be less than 256. If **columnFirst.colRelative** is 1, then **columnFirst.col** is a signed integer that specifies the first column as an offset from the cell in which the formula is evaluated.

**columnLast (2 bytes):**  A ColRelNegU that specifies information about the first row and column in the range. If **columnLast.colRelative** is 0, then **columnLast.col** is an unsigned integer that specifies the last column coordinate of the cell reference and MUST be less than 256. If **columnLast.colRelative** is 1, then **columnLast.col** is a signed integer that specifies the last column as an offset from the cell in which the formula is evaluated.

#### 2.5.198.107 RgceElfLoc

The **RgceElfLoc** structure specifies a location of a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that contains a label used in a [**natural language formula**](#gt_d0a0a676-1ee8-4783-8862-15d57fb9456b) to refer to a contiguous [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells from the same row or column as the cell with the 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 |
| row | | | | | | | | | | | | | | | | column | | | | | | | | | | | | | | | |

**row (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the zero-based row coordinate of the cell.

**column (2 bytes):** A [ColElfU](#Section_62a57ab311b545df9d920a712d94937a) that specifies the zero-based column coordinate of the cell and other information about the cell reference.

#### 2.5.198.108 RgceElfLocExtra

The **RgceElfLocExtra** structure specifies a single [**cell reference**](#gt_4d15aeb2-3a7d-44d7-b8d1-8a441f1cc24f) which specifies a part of a multiple-cell [**natural language label**](#gt_d93dd658-a3e7-4048-bbe0-788fae7887d5). The [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) is specified as the intersection of the given row and column.

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

**row (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the row coordinate of the cell reference.

**column (2 bytes):** A [ColRelU](#Section_6e5eed105b7743d68dd037345f8654ad) that specifies the column coordinate of the cell reference. The values of **column.colRelative** and **column.rowRelative** MUST be ignored.

#### 2.5.198.109 RgceLoc

The **RgceLoc** structure specifies a reference to a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) where [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) are stored as coordinates.

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

**row (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the row coordinate of the cell reference.

**column (2 bytes):**  A [ColRelU](#Section_6e5eed105b7743d68dd037345f8654ad) that specifies the column coordinate of the cell reference and relative reference information.

#### 2.5.198.110 RgceLoc8

The **RgceLoc8** structure specifies a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) reference.

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

**rgceLoc (4 bytes):** A [RgceLoc](#Section_f2395c3334a44b0785a99bb5f07848d9) that specifies a single cell reference.

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

#### 2.5.198.111 RgceLocRel

The **RgceLocRel** structure specifies a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) reference where the relative portions of [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) are specified as offsets from the cell in which the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) is evaluated.

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

**row (2 bytes):**  An [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies information about the row of the cell reference. If **column.rowRelative** is 0, then **row** specifies the row coordinate of the cell reference. If **column.rowRelative** is 1, then **row** specifies the row as an offset from the cell in which the formula is evaluated. If the signed result of the offset is a row index less than 0x00000000 or greater than 0x0000FFFF, the value is adjusted by 0x00010000 so that it will result in a valid row index.

**column (2 bytes):**  A [ColRelNegU](#Section_174e856ebd824ea5bf75cf441e7657a1) that specifies information about the row and column. If **column.colRelative** is 0, then **column.col** is an unsigned integer that specifies the column coordinate of the cell reference and MUST be less than 256. If **column.colRelative** is 1, then **column.col** is a signed integer that specifies the column as an offset from the cell in which the formula is evaluated. If the signed result of the offset is a column index less than 0x0000 or greater than 0x00FF, the value is adjusted by 0x0100 so that it will result in a valid column index.

#### 2.5.198.112 SerAr

The **SerAr** structure specifies a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) value within an array of values.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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):** A structure that specifies a cell value. MUST be one of the following structures: [SerNil](#Section_fa73545409d84982a5fbdabaa9f02d5d), [SerNum](#Section_7a876271cde64b80a35eceddf65aedba), [SerStr](#Section_8a7db24ebcd549e7af94c7ccb2087f23), [SerBool](#Section_8c22e17f0f974597b2bd7a2f5ddfc72d), or [SerErr](#Section_153fddfb8c8a4d6d9e51d0940244e5b4). The structure is specified by the first byte, which is the reserved byte in each of those structures.

#### 2.5.198.113 SerBool

The **SerBool** structure specifies a Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) value in an array of values.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | f | | | | | | | | reserved2 | | | | | | | | unused1 | | | | | | | |
| ... | | | | | | | | unused2 | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**reserved1 (1 byte):**  Reserved. MUST be 0x04.

**f (1 byte):**  A Boolean that specifies the value.

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

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

#### 2.5.198.114 SerErr

The **SerErr** structure specifies an error value in an array of values.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | err | | | | | | | | reserved2 | | | | | | | | unused1 | | | | | | | |
| ... | | | | | | | | unused2 | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

**reserved1 (1 byte):**  Reserved. MUST be 0x10.

**err (1 byte):** A [BErr](#Section_91beb411d1754c4eb65fe3bfbc53064c) that specifies the error code value.

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

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

#### 2.5.198.115 SerNil

The **SerNil** structure specifies a null value in an array of values.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | unused1 | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | unused2 | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | |

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

**unused1 (4 bytes):** Undefined and MUST be ignored.

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

#### 2.5.198.116 SerNum

The **SerNum** structure specifies a numeric value in an array of values.

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

**reserved (1 byte):** Reserved. MUST be 0x01.

**xnum (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the value.

#### 2.5.198.117 SerStr

The **SerStr** structure specifies a string in an array of values.

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

**reserved (1 byte):** Reserved. MUST be 0x02.

**string (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the string. The length of the string MUST be less than 256 characters.

#### 2.5.198.118 SharedParsedFormula

The **SharedParsedFormula** structure specifies the formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) for a shared formula.

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

**cce (2 bytes):** An unsigned integer that specifies the length of **rgce** in bytes. MUST be greater than 0.

**rgce (variable):** An [Rgce](#Section_6cdf7d38d08c4e56bd2f6c82b8da752e) that specifies the sequence of [Ptg](#Section_9310c3bbd73f4db0834228e1e0fcb68f)s for the formula. MUST NOT contain [PtgExp](#Section_f9aa266ff1e94341a232e9f7ec94b8f1), [PtgTbl](#Section_5b2a3be17d984632ac94671c44d442c7), [PtgSxName](#Section_aa0ebf5c29d24ec5863946f844e7647d), [PtgIsect](#Section_477524a586b9474e89559ea77d659d79), [PtgUnion](#Section_90d5474247764271a08c39bd73b7b8fc), [PtgRange](#Section_f5ef334abc4741ceba5d096373423fab), [PtgArray](#Section_61167ac8b0ca42e5b82c41a25d12324c), [PtgElfLel](#Section_67784d96e87d4f97b643f8f2176a6148), [PtgElfRw](#Section_20348be668c64506b744fd38ec0aa675), [PtgElfCol](#Section_c76517f76a4e47e880876e927758bbed), [PtgElfRwV](#Section_42e28815da5345ba80f22a68ddbbfcf9), [PtgElfColV](#Section_167409e793634b61943447e559e80f2d), [PtgElfRadical](#Section_dc352cde62fc4c6899fd186d6bc4d610), [PtgElfRadicalS](#Section_e3112a89f771404382a918b3d4c1e137), [PtgElfColS](#Section_cc02acdff404431898478d4cbf523966), [PtgElfColSV](#Section_6ed51fe34baf41638851888de8477525), [PtgElfRadicalLel](#Section_304191e62c8245428477a1ffd548442e), [PtgRefErr](#Section_d86972da19ea4a6ea71d49129e930521), [PtgAreaErr](#Section_bbc29b52b5814417b18ca4ac430a8dc0), [PtgRef3d](#Section_1ca817be8df34b808d3546b5eb753577), [PtgArea3d](#Section_869033ad63044b9ab2ba1e7794ae345a), [PtgRefErr3d](#Section_307f13dbe5d24b358309d5452908a2d4), [PtgAreaErr3d](#Section_e91dfca47b5e4e4486a5e6621222a3a2), [PtgNameX](#Section_f9eba5de1ff64d529753f9c1e446c774), [PtgMemArea](#Section_078f34be35cc4abc960b34f48d4da6ee), [PtgMemErr](#Section_2b3c0de014c8436aae32477c2a075c60), [PtgMemNoMem](#Section_dfa39d4cb7cb4bf7b5e8015b84fd6e48), or [PtgMemFunc](#Section_e4f8e3b40bb7410099ee1ac53acc9161).

If this field contains a [PtgRef](#Section_fc7c380bd7934219a897e47e13c4e055), then the **loc.column.colRelative** and **loc.column.rowRelative** fields in the PtgRef MUST be 0.

If this field contains a [PtgArea](#Section_b3c714c24fcf48889e151cbf17e4d5d3), then the **area.columnFirst.colRelative**, **area.columnFirst.rowRelative**, **area.columnLast.colRelative**, and **area.columnLast.rowRelative** fields in the PtgArea MUST be 0.

If this field contains a [PtgFuncVar](#Section_5d1051716b734f40a7cd6bf2aae15e83) and the **fCeFunc** field of the PtgFuncVar is 0, then the **tab** field of PtgFuncVar MUST NOT be 0x017B.

The root node of the parse tree of this field MUST be a VALUE\_TYPE, as described in Rgce.

**rgcb (variable):**  An [RgbExtra](#Section_70f743b2a8534c5788be8af637ac6e43) that specifies ancillary data for the formula.

#### 2.5.198.119 XtiIndex

**XtiIndex** is a 2-byte unsigned integer that specifies an [XTI](#Section_5adbad90093d4bc6acc1b662270bc0d7) record. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0xFFFF | Specifies an invalid XTI. |
| Greater than or equal to zero and less than 0xFFFF | Specifies a zero-based index of an XTI structure in the array specified by the **rgXTI** field of the [ExternSheet](#Section_475df8d4a3be47a59a014ec828059f43)record. The value MUST be less than the **cXTI** field of the ExternSheet record. |

### 2.5.199 PBT

The **PBT** structure specifies information about a parameter in a [**query**](#gt_37fbc661-f744-48fa-9d8e-f34513cab9c2) that retrieves [**external data**](#gt_6eba82a0-dd74-46f6-90cc-3cf1b298d69e) for a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) or a [**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289). The values in this structure provide additional information about the related [ParamQry](#Section_749a479c2f2a4359960fa8bb35312323) record as specified by the **rgPbt** field in the [DBQueryExt](#Section_1b04b35c1f20475aadac424a664509dd) record that contains this 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 |
| pbt | | | A | B | reserved | | | | | | | | | | |

**pbt (3 bits):** An unsigned integer that specifies the location of the parameter value. MUST be the same as the **pbt** field in the related ParamQry record as specified by the **rgPbt** field in the DBQueryExt record that contains this structure. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | The user is prompted for the value of the parameter. |
| 0x1 | The parameter value is specified in the query. |
| 0x2 | The parameter value is specified in a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). |

**A - fAutoRefresh (1 bit):** A bit that specifies whether the query refreshes when the parameter value changes. If **pbt** is not equal to 0x2 then this bit MUST be zero, and MUST be ignored.

**B - fNeedRefresh (1 bit):** A bit that specifies that the parameter value changed and the query was not refreshed. MUST be 0 if **pbt** is not equal to 0x2.

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

### 2.5.200 PhRuns

The **PhRuns** structure specifies a [**phonetic text run**](#gt_02ee536f-14c0-451a-9d66-111431897cac) that is displayed above a [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ichFirst | | | | | | | | | | | | | | | | ichMom | | | | | | | | | | | | | | | |
| cchMom | | | | | | | | | | | | | | | |

**ichFirst (2 bytes):** A signed integer that specifies the zero-based index of the first character of the phonetic text run in the **rphssub.st** field of the [ExtRst](#Section_5b9631bd4a0d4df7bf9c6594f4783597) structure that contains this PhRuns structure. MUST be greater than or equal to 0.

**ichMom (2 bytes):** A signed integer that specifies the zero-based index of the first character of the text run in the **rgb** field of the [XLUnicodeRichExtendedString](#Section_173d9f51e5d343da8de2be7f22e119b9) that contains the ExtRst that contains this PhRuns that corresponds to the phonetic text run specified in **ichFirst**. **ichMom** specifies the location where the text run which phonetic text run specified in **ichFirst** applies to begins. MUST be greater than or equal to 0.

**cchMom (2 bytes):** A signed integer that specifies the count of characters in the text run specified in **ichMom**. MUST be greater than or equal to 0.

### 2.5.201 Phs

The **Phs** structure specifies the formatting information for a [**phonetic string**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77).

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

**ifnt (2 bytes):** A [FontIndex](#Section_b3413c2bca5b498886beab44bfe9e4d3) structure that specifies the font.

**A - phType (2 bits):** An unsigned integer that specifies the type of the phonetic information. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | Use narrow Katakana characters as phonetic string. |
| 0x1 | Use wide Katakana characters as phonetic string. |
| 0x2 | Use Hiragana characters as phonetic string. |
| 0x3 | Use any type of characters as phonetic string. |

**B - alcH (2 bits):** An unsigned integer that specifies the alignment of the phonetic string. MUST be a value from the following table:

| Value | Alignment |
| --- | --- |
| 0x0 | General alignment |
| 0x1 | Left aligned |
| 0x2 | Center aligned |
| 0x3 | Distributed alignment |

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

### 2.5.202 PictFmlaEmbedInfo

The **PictFmlaEmbedInfo** structure specifies information about the embedded control associated with the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record that contains the [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) structure that contains this PictFmlaEmbedInfo. The embedded control can be an [**ActiveX control**](#gt_f3dcc35f-8f80-474e-ac39-106a23f059c2), an [**OLE object**](#gt_cdff9514-a3fb-4897-941d-4e99193a0096) or a [**camera picture**](#gt_ccb0da7f-aa4d-481c-b46c-e96c220869e1) control. The **pictFlags** field of this Obj record specifies the type of embedded control.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ttb | | | | | | | | cbClass | | | | | | | | reserved | | | | | | | | strClass (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ttb (1 byte):** Reserved. MUST be 0x03.

**cbClass (1 byte):** An unsigned integer that specifies the length in bytes of the **strClass** field.

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

**strClass (variable):** An optional [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) structure that specifies the class name of the embedded control associated with this Obj. This field MUST exist if and only if **cbClass** is nonzero.

### 2.5.203 PictFmlaKey

The **PictFmlaKey** structure specifies the runtime [**license key**](#gt_555fdaf4-dd5e-4ccb-bf55-56a7ba7ff56d) of the object and specifies the reference to a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) that is linked to the picture [Obj](#Section_dd34df60825040a983a3911476a31ea7) that contains this PictFmlaKey.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cbKey | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| keyBuf (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fmlaLinkedCell (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fmlaListFillRange (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cbKey (4 bytes):** An unsigned integer that specifies the number of bytes in the **keyBuf** string[<179>](#Appendix_A_179" \o "Product behavior note 179).

**keyBuf (variable):** An array of **cbKey** that specifies the license key for the [**ActiveX control**](#gt_f3dcc35f-8f80-474e-ac39-106a23f059c2). This field is passed to a license-aware object creation method.

**fmlaLinkedCell (variable):** An [ObjFmla](#Section_6859fca9cef1487689170ec88c469357) that specifies a reference to the [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) where the value of the first cell is linked to the current selection in this picture control. An empty formula, where **fmlaLinkedCell.cbFmla** equals zero, specifies there is no such cell linked to this picture control.

**fmlaListFillRange (variable):** An ObjFmla that specifies the range used to populate the content of this picture control. The **fmlaListFillRange.cbFmla** field MUST be 0 unless there is a bindable property (as specified in [[MS-OAUT]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OAUT%5d.pdf#Section_bbb05720f72445c78d17f83c3d1a3961) section [2.2.49.5.2](extcoll://ac18004e-7af7-4feb-8ae6-d42e7a14267c)) in the typelib of the ActiveX control that equals the GUID {0C733A7C-2A1C-11CE-ADE5-00AA0044773D}.

### 2.5.204 PivotCompProp

The **PivotCompProp** structure specifies the properties of a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) string comparison.

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

**fCompare (1 byte):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the type of string comparison.

| Value | Meaning |
| --- | --- |
| 0x0000 | This is a wildcard pattern match. For the purposes of comparisons, the characters "?" and "\*" are used as wildcards. A "?" refers to any single character, and a "\*" refers to any number of characters. |
| 0x0001 | This is a simple string comparison. |

**reserved1 (1 byte):** MUST be zero, and MUST be ignored.

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

**reserved3 (2 bytes):** MUST be zero, and MUST be ignored.

### 2.5.205 PositionMode

The **PositionMode** structure specifies positioning mode for position information saved in a [Pos](#Section_b2311d215bad4525b759cacc13d394cf) record.

| Name | Value | Meaning |
| --- | --- | --- |
| **MDFX** | 0x0000 | Relative position to the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), in [**points**](#gt_d072e4da-7898-4227-8f25-9fe77db43571). |
| **MDABS** | 0x0001 | Absolute width and height in points. It can only be applied to the mdBotRt field of Pos. |
| **MDPARENT** | 0x0002 | Owner of Pos determines how to interpret the position data. |
| **MDKTH** | 0x0003 | Offset to default position, in 1/1000th of the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) size. |
| **MDCHART** | 0x0005 | Relative position to the chart, in [SPRC](#Section_d5fc728e68de4972905a975bcef8c82d). |

### 2.5.206 ReadingOrder

The **ReadingOrder** enumeration specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361).

| Name | Value | Meaning |
| --- | --- | --- |
| **READING\_ORDER\_CONTEXT** | 0x00 | Context reading order |
| **READING\_ORDER\_LTR** | 0x01 | Left-to-right reading order |
| **READING\_ORDER\_RTL** | 0x02 | Right-to-left reading order |

### 2.5.207 Ref

The **Ref** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) on a given [**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 |
| rwFirst | | | | | | | | | | | | | | | | rwLast | | | | | | | | | | | | | | | |
| colFirst | | | | | | | | colLast | | | | | | | |

**rwFirst (2 bytes):** An unsigned integer that specifies the first zero-based row index in the range. MUST be greater than or equal to the **rwMic** field of the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record and MUST be less than the **rwMac** field of the Dimensions record. MUST be less than or equal to **rwLast**.

**rwLast (2 bytes):** An unsigned integer that specifies the last zero-based row index in the range. MUST be greater than or equal to the **rwMic** field of the Dimensions record and MUST be less than the **rwMac** field of the Dimensions record. MUST be greater than or equal to **rwFirst**.

**colFirst (1 byte):** A [ColByte](#Section_84f66fac886a4bd0b04f1f3632da7511) structure that specifies the first zero-based column index in the range. MUST be less than or equal to **colLast**.

**colLast (1 byte):** A ColByte structure that specifies the last zero-based column index in the range. MUST be greater than or equal to **colFirst**.

### 2.5.208 Ref8

The **Ref8** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) 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 |
| rwFirst | | | | | | | | | | | | | | | | rwLast | | | | | | | | | | | | | | | |
| colFirst | | | | | | | | | | | | | | | | colLast | | | | | | | | | | | | | | | |

**rwFirst (2 bytes):** A [Rwx](#Section_4f85a808045e4be2b7acc453af775188) structure that specifies the first row in the range. The field **rwFirst.rw** MUST be less than or equal to **rwLast.rw**.

**rwLast (2 bytes):** A Rwx structure that specifies the last row in the range. The field **rwLast.rw** MUST be greater than or equal to **rwFirst.rw**. If **rwFirst.rw** is 0 and **rwLast.rw** is 0xFFFF, the specified range includes all the rows in the sheet.

**colFirst (2 bytes):** A [Colx](#Section_c02266e2ceef4983a1f3dc9e94c9cd47) structure that specifies the first column in the range. The field **colFirst.col** MUST be less than or equal to **colLast.col**.

**colLast (2 bytes):** A Colx structure that specifies the last column in the range. The field **colLast.col** MUST be greater than or equal to **colFirst.col**. If **colFirst.col** is 0 and **colLast.col** is 0xFF, the specified range includes all the columns in the sheet.

### 2.5.209 Ref8U

The **Ref8U** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) 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 |
| rwFirst | | | | | | | | | | | | | | | | rwLast | | | | | | | | | | | | | | | |
| colFirst | | | | | | | | | | | | | | | | colLast | | | | | | | | | | | | | | | |

**rwFirst (2 bytes):** A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the zero-based index of the first row in the range. The value MUST be less than or equal to **rwLast**.

**rwLast (2 bytes):** A RwU structure that specifies the zero-based index of the last row in the range. The value MUST be greater than or equal to **rwFirst**.

**colFirst (2 bytes):** A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) structure that specifies the zero-based index of the first column in the range. The value MUST be less than or equal to **colLast**, and MUST be less than or equal to 0x00FF.

**colLast (2 bytes):** A ColU structure that specifies the zero-based index of the last column in the range. The value MUST be greater than or equal to **colFirst**, and MUST be less than or equal to 0x00FF.

### 2.5.210 Ref8U2007

The **Ref8U2007** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of [**cells**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) 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 |
| rwFirst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rwLast | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colFirst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colLast | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rwFirst (4 bytes):** An unsigned integer that specifies the zero-based index of the first row in the range. The value MUST be less than or equal to **rwLast** and MUST be less than or equal to 0xFFFF.

**rwLast (4 bytes):** An unsigned integer that specifies the zero-based index of the last row in the range. The value MUST be greater than or equal to **rwFirst** and MUST be less than or equal to 0xFFFF.

**colFirst (4 bytes):** An unsigned integer that specifies the zero-based index of the first column in the range. The value MUST be less than or equal to **colLast** and MUST be less than or equal to 0x00FF.

**colLast (4 bytes):** An unsigned integer that specifies the zero-based index of the last column in the range. The value MUST be greater than or equal to **colFirst** and MUST be less than or equal to 0x00FF.

### 2.5.211 RefU

The **RefU** structure specifies a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells 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 |
| rwFirst | | | | | | | | | | | | | | | | rwLast | | | | | | | | | | | | | | | |
| colFirst | | | | | | | | colLast | | | | | | | |

**rwFirst (2 bytes):** A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the first row in the range. The value MUST be less than or equal to **rwLast**.

**rwLast (2 bytes):** A RwU structure that specifies the last row in the range.

**colFirst (1 byte):** A [ColByteU](#Section_3eb5ecb1fbba49c3b8e3ede2096ff5a0) structure that specifies the first column in the range. The value MUST be less than or equal to **colLast**.

**colLast (1 byte):** A ColByteU structure that specifies the last column in the range.

### 2.5.212 RevisionType

**RevisionType** is an integer that specifies the type of [revision record](#Section_9e91e8bce4f249b897d4741481349d1b). The value MUST be one of the following:

| Name | Value | Meaning |
| --- | --- | --- |
| **REVTINSRW** | 0x0000 | Insert Row. |
| **REVTINSCOL** | 0x0001 | Insert Column. |
| **REVTDELRW** | 0x0002 | Delete Row. |
| **REVTDELCOL** | 0x0003 | Delete Column. |
| **REVTMOVE** | 0x0004 | [**Cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) Move. |
| **REVTINSERTSH** | 0x0005 | Insert [**Sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). |
| **REVTSORT** | 0x0007 | Sort. |
| **REVTCHANGECELL** | 0x0008 | Cell Change. |
| **REVTRENSHEET** | 0x0009 | Rename Sheet. |
| **REVTDEFNAME** | 0x000A | [**Defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933) Change. |
| **REVTFORMAT** | 0x000B | Format Revision. |
| **REVTAUTOFMT** | 0x000C | [**AutoFormat**](#gt_f7e1ea19-1129-4519-a857-008db95c462f) Revision. |
| **REVTNOTE** | 0x000D | [**Comment**](#gt_c8a897b9-522f-4b7a-8df6-40b65ac09f4d) Revision. |
| **REVTHEADER** | 0x0020 | Header (meta-data) Revision. |
| **REVTCONFLICT** | 0x0025 | Conflict. |
| **REVTADDVIEW** | 0x002B | [**Custom view**](#gt_2370d0f5-2cbd-4ded-8572-ef25f6e25cf4) Add. |
| **REVTDELVIEW** | 0x002C | Custom view Delete. |
| **REVTTRASHQTFIELD** | 0x002E | [**Query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289) field Removal. |

### 2.5.213 RFX

The **RFX** structure specifies a range of cells 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 |
| rwFirst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rwLast | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colFirst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| colLast | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rwFirst (4 bytes):** A [Rw12](#Section_d3a0c05bca6c4d45a4a3c28e403bb999) that specifies the first row in the range. The value of **rwFirst.rw** MUST be less than or equal to **rwLast.rw**.

**rwLast (4 bytes):** A Rw12 that specifies the last row in the range. The value of **rwLast.rw** MUST be greater than or equal to **rwFirst.rw**.

**colFirst (4 bytes):** A [Col12](#Section_03e5faa7661f4fbf8facd3588fa72698) that specifies the first column in the range. The value of **colFirst.col** MUST be less than or equal to **colLast.col**.

**colLast (4 bytes):** A Col12 that specifies the last column in the range. The value of **colLast.col** MUST be greater than or equal to **colFirst.col**.

### 2.5.214 RichTextStreamChecksumData

The **RichTextStreamChecksumData** structure specifies the data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [RichTextStream](#Section_6ef21bafca4942c39ed1d4ff66ab49b9) record. This data can be obtained from [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record, [FontX](#Section_8c065ab610d44029a20dac422620eed2) record, [Font](#Section_291a910ccb694799875ea201845d4fd1) record, [BRAI](#Section_c4e36e616c174a75b414f33803c7456b) record, and [ObjectLink](#Section_50f2d49d1e5f416b866f057e0ab23ba9) record associated with the RichTextStream record, as specified in RichTextStream. If no Text record is associated with the RichTextStream record, the Text record associated with the [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) record MUST be used. If no Font record is associated with the RichTextStream record, the first Font record specified in the [global substream](#Section_ca4c174887294a93abb94602b3a01fb1) MUST be used.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| fibFontInformation (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | bTextRotation | | | | | | | | D | E | F | | G | H | I | J | | | | K | L | bSeriesIdentifier | | | | | | | |
| M | | N | | O | | | | bTextFormat | | | | | | | | StText (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fibFontInformationArray (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**fibFontInformation (variable):** A [RichTextStreamChecksumTextInformation](#Section_42a43aeac9934ca1925d7224be6fe3d4) structure that specifies the default [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) information to use for the rich text string.

**A - fAutoSize (1 bit):** A bit that specifies whether the font size is automatic. MUST be equal to 1 if the value of the **iFont** field of the related FontX record is 0. Otherwise, MUST be equal to 0. If no FontX record is associated with the RichTextStream record, MUST be equal to 0.

**B - fAutoColor (1 bit):** A bit that specifies whether the foreground text color is determined automatically. MUST be equal to the value of the **fAutoColor** field of the related Text record.

**C - fAutoMode (1 bit):** A bit that specifies if the background color is determined automatically. MUST be equal to the value of the **fAutoMode** field of the related Text record.

**bTextRotation (8 bits):** An unsigned integer that specifies the text rotation. MUST be equal to the value of the **trot** field of the related Text record.

**D - fAutoRot (1 bit):** MUST be zero.

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

**F - iReadingOrder (2 bits):** An unsigned integer that specifies the text [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361). MUST be equal to the value of the **iReadingOrder** field of the related Text record.

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

**H - fAttached (1 bit):** A bit that specifies whether the text position is absolute or attached. If the RichTextStream record is contained in the sequence of records that conforms to the [LD](#section_732ff614d939416bb7c76d983471ff11) rule, this field MUST be 1. If the RichTextStream is not contained in the LD rule, and the **dlp** field of the associated Text record is set to 0xA, this field MUST be 1. Otherwise, it MUST be 0.

**I - fUserPos (1 bit):** A bit that specifies whether the text position is automatic. If the value is 0, the text position is automatic. If the **dlp** field of the associated Text record is set to 0xA, this field MUST be 1. Otherwise, it MUST be 0.

**J - bObjectType (4 bits):** An unsigned integer that specifies the object type. Based on the record the RichTextStream is associated with, the value MUST be from the following table:

| Record associated with RichTextStream | Value | Meaning |
| --- | --- | --- |
| [Chart](#Section_8f56b001f57445e0932f84cf30408323) | 0x1 | Default text associated with the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). |
| [Axis](#Section_33155f3a9afe44a493d178af188f77f6) where **wType** is 0x0001 | 0x2 | [Attached label](#Section_9ac44e58af9940f4a99ace470eff0f5a) of the value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) (or the vertical value axis) in the primary axis group. |
| Axis where **wType** is 0x0000 | 0x3 | Attached label of the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) axis (or the horizontal value axis) in the primary axis group. |
| [Series](#Section_d6eec0192d634c1e8080442af941b462) | 0x4 | Attached label of the [series](#Section_527ce4dfc9f84e50a314d4b07519593c). |
| [Legend](#Section_03d359d915f94e7a8ad1d7b741ed2e21) | 0x5 | Attached label of the [legend](#Section_1832229b7d1945f488d455e9c07466f0). |
| Axis where **wType** is 0x0003 | 0x7 | Attached label of the series axis. |
| Second Axis record where **wType** is 0x0001 | 0x8 | Attached label of the value axis (or the vertical value axis) in the secondary axis group. |
| Second Axis record where **wType** is 0x0000 | 0x9 | Attached label of the category (2) axis (or the horizontal value axis) in the secondary axis group. |
| [DataTable](#Section_9405c76f5e904146a7894910a5f58534) | 0xB | Attached label of the chart DataTable. |
| [YMult](#Section_6d0a1b34ab5a450fb4a5f06d9d54ec55) | 0xC | Attached label of the axis multiplier. |

**K - fBuildable (1 bit):** A bit that specifies whether the text value of the Text record associated with the RichTextStream is automatically generated and unchanged. MUST be equal to the value of the **fAutoText** field of the related Text record.

**L - reserved3 (1 bit):** MUST be zero, and MUST be ignored.

**bSeriesIdentifier (8 bits):** An unsigned integer that specifies the zero-based index of the Series record of the current chart to which the attached label is attached.

**M - reserved4 (2 bits):** MUST be 0x3, and MUST be ignored.

**N - fReference (2 bits):** An unsigned integer that specifies the type of data that is being referenced. MUST be equal to the value of the **rt** field of the BRAI record associated with the RichTextStream.

**O - stSource (4 bits):** An unsigned integer that specifies the part of the series, [trendline](#Section_61d74ebc36714d6dbdc0626db604530d), or [error bars](#Section_762a461d0a45474ebd7d5994bb294af2) the referenced data of the BRAI record associated with the RichTextStream specifies. MUST be equal to the value of the **id** field of the BRAI record associated with the RichTextStream.

**bTextFormat (8 bits):** An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) that specifies the number formatting used for the data. MUST be equal to the value of the **ifmt** field of the BRAI record associated with the RichTextStream.

**StText (variable):** An array of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters that contains the text content of the rich text. This field only takes the text content into consideration and ignores the size and header fields of the text string. If the RichTextStream is associated with a BRAI record, the text value MUST correspond to the text value identified by the BRAI record. If the RichTextStream record is associated with an ObjectLink record, the text value MUST correspond to the text value identified by the ObjectLink record.

**fibFontInformationArray (variable):** An array of [RichTextStreamChecksumFontInformationArrayItem](#Section_90880bd028624e808f4a6a86dc1ae65e) that specifies the formatting of the **StText** field.

### 2.5.215 RichTextStreamChecksumFontInformation

The **RichTextStreamChecksumFontInformation** structure specifies the data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [RichTextStream](#Section_6ef21bafca4942c39ed1d4ff66ab49b9) record. This data can be obtained from [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) and [Font](#Section_291a910ccb694799875ea201845d4fd1) records associated with the RichTextStream record, as specified in RichTextStream. If no Text record is associated with the RichTextStream record, the Text record associated with the [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) record MUST be used. If no Font record is associated with the RichTextStream record, the first Font record specified in the [global substream](#Section_ca4c174887294a93abb94602b3a01fb1) MUST be used.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| stFontName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwFontHeight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | reserved1 | | | | | boldness | | | | | | | | | | | | | | | |
| subscript | | | | | | | | | | | | | | | | bUnderline | | | | | | | | bFamily | | | | | | | |
| bCharset | | | | | | | | reserved2 | | | | | | | | rgbFontColor | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwDrawingMode | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**stFontName (variable):** An array of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters that contains the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) name. MUST be the font name specified by the **fontName** field of the related Font record.

**dwFontHeight (4 bytes):** An unsigned integer that specifies the font height. MUST equal the value specified by the **dyHeight** field of the related Font record.

**A - fBold (1 bit):** A bit that specifies whether the font is bold. The value of this field MUST be 1 when the value of the **bls** field of the associated Font record is greater than 400.

**B - fItalic (1 bit):** A bit that specifies whether the font is italic. MUST equal the value specified by the **fItalic** field of the related Font record.

**C - fUnderline (1 bit):** A bit that specifies whether the font is single-underlined. The value of this field MUST be 1 when the value of the **uls** field of the associated Font record is not equal to 0x00.

**D - fOutline (1 bit):** A bit that specifies whether the font has an [**outline effect**](#gt_4e818802-fdc1-4227-b32f-1a3cb0943de7) applied. MUST equal the value specified by the **fOutline** field of the related Font record.

**E - fShadow (1 bit):** A bit that specifies whether the font has a [**shadow effect**](#gt_83056968-00f2-463b-abc6-607dbb242cbf) applied. MUST equal the value specified by the **fShadow** field of the related Font record.

**F - fCondense (1 bit):** A bit that specifies whether the font is condensed. MUST equal the value specified by the **fCondense** field of the related Font record.

**G - fExtend (1 bit):** A bit that specifies whether the font is extended. MUST equal the value specified by the **fExtend** field of the related Font record

**H - fStrikeout (1 bit):** A bit that specifies whether the font has [**strikethrough formatting**](#gt_b16d9600-aebb-4a4f-bf14-c38e13c11c14) applied. MUST equal the value specified by the **fStrikeOut** field of the related Font record.

**I - fRegular (1 bit):** A bit that specifies whether the font is a regular font. MUST equal 1.

**J - fJon (1 bit):** A bit that specifies whether the font is too small to be displayed. MUST equal 1 if the font height in [**pixels**](#gt_fe932605-d3bc-442f-9239-594676bce6ba) is less than 6.

**K - fDialogBox (1 bit):** A bit that specifies whether the font is used in the context of a dialog box. MUST equal 0.

**reserved1 (5 bits):** MUST be zero, and MUST be ignored.

**boldness (2 bytes):** An unsigned integer that specifies the font weight. MUST equal the value specified by the **bls** field of the related Font record.

**subscript (2 bytes):** An unsigned integer that specifies whether superscript, subscript, or normal script is used. MUST equal the value specified by the **sss** field of the related Font record.

**bUnderline (1 byte):** An unsigned integer that specifies the underline style. MUST equal the value specified by the **uls** field of the related Font record.

**bFamily (1 byte):** An unsigned integer that specifies the [**font family**](#gt_bca5490d-d27e-4097-b05d-9efb09083dd2) of this font. MUST equal the value specified by the **bFamily** field of the related Font record.

**bCharset (1 byte):** An unsigned integer that specifies the [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204). MUST equal the value specified by the **bCharSet** field of the related Font record.

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

**rgbFontColor (4 bytes):** A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) that specifies the font color. MUST equal the color specified by the **icv** field of the related Font record.

**dwDrawingMode (4 bytes):** An unsigned integer that specifies the display mode of the background of the text. MUST be equal to 0x0000010D when the **wBkgMode** field of the related Text record is equal to 0x0001; otherwise, it MUST be equal to 0x0000020D.

### 2.5.216 RichTextStreamChecksumFontInformationArrayItem

The **RichTextStreamChecksumFontInformationArrayItem** structure specifies data used to compute the checksum of the [RichTextStream](#Section_6ef21bafca4942c39ed1d4ff66ab49b9) 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 |
| iIndex | | | | | | | | | | | | | | | | fibFontInformation (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iIndex (2 bytes):** An unsigned integer that specifies a zero-based index of the character within the **StText** field of the containing [RichTextStreamChecksumData](#Section_3afd3155eb0e40a59b51c8e7dd286c2d) structure where the text formatting specified in **fibFontInformation** begins.

**fibFontInformation (variable):** A [RichTextStreamChecksumFontInformation](#Section_42a43aeac9934ca1925d7224be6fe3d4) that specifies the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) formatting of the text string starting at the **iIndex** character.

### 2.5.217 RkNumber

The **RkNumber** structure specifies a numeric 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 |
| A | B | num | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fX100 (1 bit):** A bit that specifies whether **num** is the value of the RkNumber or 100 times the value of the RkNumber. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The value of RkNumber is the value of **num**. |
| 1 | The value of RkNumber is the value of **num** divided by 100. |

**B - fInt (1 bit):** A bit that specifies the type of **num**.

**num (30 bits):** A variable type field whose type and meaning is specified by the value of **fInt**, as defined in the following table:

| Value of fInt | Type of num |
| --- | --- |
| 0 | **num** is the 30 most significant bits of a 64-bit binary floating-point number as defined in [[IEEE754]](https://go.microsoft.com/fwlink/?LinkId=89903). The remaining 34-bits of the floating-point number MUST be 0. |
| 1 | **num** is a signed integer. |

### 2.5.218 RkRec

The **RkRec** structure contains the numeric data in an application-specific internal type for optimizing disk and memory space along with the corresponding [IXFCell](#Section_f9bc476745704f609a8e6fd3f32ddf3b) to the style 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 |
| ixfe | | | | | | | | | | | | | | | | RK | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**ixfe (2 bytes):** An IXFCell that specifies the format of the numeric value.

**RK (4 bytes):** An [RkNumber](#Section_04fa5340122f49db93ea00cc75501efc) that specifies the numeric value.

### 2.5.219 RPHSSub

The **RPHSSub** structure specifies a [**phonetic string**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77).

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

**crun (2 bytes):** An unsigned integer that specifies the number of [**phonetic text runs**](#gt_02ee536f-14c0-451a-9d66-111431897cac). MUST be less than or equal to 32767. If **crun** is zero, there is one phonetic text run.

**cch (2 bytes):** An unsigned integer that specifies the number of characters in the phonetic string. MUST be less than or equal to 32767.

**st (variable):**  An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) that specifies the phonetic string. The character count in the string MUST be **cch**.

### 2.5.220 RRD

The **RRD** structure specifies the [revision record](#Section_9e91e8bce4f249b897d4741481349d1b) information used to track changes 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 |
| cbMemory | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| revid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| revt | | | | | | | | | | | | | | | | A | B | C | D | reserved | | | | | | | | | | | |
| tabid | | | | | | | | | | | | | | | |

**cbMemory (4 bytes):** An unsigned integer that specifies the size in bytes of the corresponding revision record structure in memory. This is different from the size of the structure written to the file. The value MUST be greater than or equal to 26. MUST be ignored if the current record is [RRDHead](#Section_3ada910097fd42adbebcfdacc9a44542).

**revid (4 bytes):** A signed integer that specifies the revision identifier of the revision records. This identifier is used to keep track of the order of revision records. MUST be greater than or equal to 0.

**revt (2 bytes):** A [RevisionType](#Section_874efbc3c2ab4f458ea5fb05fa81ee16) that specifies the type of revision record.

**A - fAccepted (1 bit):** A bit that specifies whether this revision was reviewed and accepted.

**B - fUndoAction (1 bit):** A bit that specifies whether the revision occurred because of an undo action.

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

**D - fDelAtEdgeOfSort (1 bit):** A bit that specifies whether the row or column that is being deleted is at the edge of a sorted [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99). If the value is 1, the current record MUST be [RRDInsDel](#Section_fe37df682d0e4d89a213cc4ebd9ac138) and **revt** MUST be equal to **REVTINSRW** or **REVTINSCOL** or **REVTDELRW** or **REVTDELCOL**.

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

**tabid (2 bytes):** A [TabId](#Section_47d9acf387ee43d88055fec05f9397a8) that specifies the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) where the revision occurred. If the value is 0xFFFF, this revision does not correspond to a specific sheet.

### 2.5.221 RRDDefNameFlags

The **RRDDefNameFlags** structure specifies additional information for [RRDDefName](#Section_3393f8cdcedc46cababa3cf614f8a77a).

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

**cce (2 bytes):** An unsigned integer that specifies the length of a formula (section [2.2.2](#Section_e7625cc83da94154b44949cf1bbd9703)) in RRDDefName.

**A - fPli (1 bit):** A bit that specifies that one or more of the fields **stDescription**, **stHelpTopic**, **stCustomMenu**, **stStatusText**, **stDescriptionOld**, **stHelpTopicOld**, **stCustomMenuOld** or **stStatusTextOld** specified in the RRDDefName record MUST NOT be empty.

**B - fFunc (1 bit):** A bit that specifies whether the RRDDefName record specifies a name that refers to a function.

**fGrp (6 bits):** An unsigned integer that specifies the [**function category**](#gt_026a49a8-c3e8-49eb-a97f-58bd2c79c540) for the [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933). MUST be a value from 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**](#gt_cd2933d3-08d1-4931-bd5c-7ae0a668fe7c) Control |
| 13 | [**DDE**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) External |
| 14 | User Defined |

**chKey (8 bits):** An unsigned integer that specifies the shortcut key. MUST have same restrictions as the **chKey** field from the [Lbl](#Section_d148e89845044841a793ee85f3ea9eef) record.

**C - fHidden (1 bit):** A bit that specifies whether the defined name is hidden.

**D - fCustomMenu (1 bit):** A bit that specifies whether the **stCustomMenu** field from the RRDDefName record is not empty.

**E - fDescription (1 bit):** A bit that specifies whether the **stDescription** field from the RRDDefName record is not empty.

**F - fHelpTopic (1 bit):** A bit that specifies whether the **stHelpTopic** field from the RRDDefName record is not empty.

**G - fStatusText (1 bit):** A bit that specifies whether the **stStatusText** field from the RRDDefName record is not empty.

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

### 2.5.222 RRLoc

The **RRLoc** structure specifies the location of a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) 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 |
| rw | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |

**rw (2 bytes):** A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the zero-based index of the row.

**col (2 bytes):** A [ColElfU](#Section_62a57ab311b545df9d920a712d94937a) structure that specifies the zero-based index of the column and other information about this cell reference.

### 2.5.223 RTDEItem

The **RTDEItem** structure specifies the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) associated with an [**RTD topic**](#gt_1b5b3428-25ab-4aa9-bbee-c1c147ece9de).

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

**rw (2 bytes):** A [Rw](#Section_f85db6ee1e7f4a06b4533fc8bffacc97) structure that specifies the row index of the cell.

**col (2 bytes):** A [Col](#Section_febd138c9c8e42e98a3e49e0978b39a6) structure that specifies the column index of the cell.

**itab (2 bytes):** A [TabIndex](#Section_4bf91dd999de44058bfb95aa32a1a29f) structure that specifies the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) containing the cell.

### 2.5.224 RTDOper

The **RTDOper** structure specifies the variant data returned from an [**RTD server**](#gt_d4fc2cb5-c030-4ce4-9078-69627d562fc7) for [**real-time data (RTD)**](#gt_1e71aa16-cd0f-4271-b57d-1fd99d8740b6).

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

**grbit (4 bytes):** An unsigned integer that specifies the type of the variant data stored in **rdtVt**. MUST be a value from the following table:

| Value | rtdVt Data Type | Meaning |
| --- | --- | --- |
| 0x00000001 | Xnum | The returned variant is an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)). |
| 0x00000002 | [RTDOperStr](#Section_6f2b60cf790d49ae9ada6ddeda066af6) | The returned variant is a RTDOperStr. MUST be less than 256 characters long. |
| 0x00000004 | Boolean | The returned variant is a 4-byte Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) value. |
| 0x00000010 | Signed integer | The returned variant is a 4-byte signed integer indicating an error code. |
| 0x00000800 | Signed integer | The returned variant is a 4-byte signed integer used for purposes other than an error code. |
| 0x00001000 | RTDOperStr | The returned variant is a RTDOperStr. MUST be greater than or equal to 256 characters long. |

**rtdVt (variable):** A structure that contains the variant data. The meaning of the data depends on the specific RTD server. The type of the variant data is specified by **grbit**.

### 2.5.225 RTDOperStr

The **RTDOperStr** structure specifies a string used in a [**real-time data (RTD)**](#gt_1e71aa16-cd0f-4271-b57d-1fd99d8740b6) variant data 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 |
| cchRTDOperStr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgchRTDOperStr (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cchRTDOperStr (4 bytes):** An unsigned integer that specifies the number of characters in **rgchRTDOperStr**.

**rgchRTDOperStr (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the string.

### 2.5.226 Run

The **Run** structure specifies formatting information for a [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| formatRun | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused1 | | | | | | | | | | | | | | | | unused2 | | | | | | | | | | | | | | | |

**formatRun (4 bytes):** A [FormatRun](#Section_24d30c9e350e4d55a1c3f4404cc41f99). It specifies the formatting information of this run.

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

### 2.5.227 Rw

The **Rw** structure specifies the zero-based row index of a row 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 |
| rw | | | | | | | | | | | | | | | |

**rw (2 bytes):** An unsigned integer that specifies the zero-based row index of a row in the sheet that contains this structure. MUST be greater than or equal to the **rwMic** field of the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record of the sheet that contains this structure and MUST be less than the **rwMac** field of the Dimensions record of the sheet that contains this structure.

### 2.5.228 Rw12

The **Rw12** structure specifies the zero-based row index of a row 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 |
| rw | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rw (4 bytes):** A signed integer that specifies a zero-based row index of the sheet. MUST be greater than or equal to zero and MUST be less than or equal to 0x0FFFFF.

### 2.5.229 RwLongU

The **RwLongU** structure specifies the zero-based index of a row 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 |
| rw | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**rw (4 bytes):** An unsigned integer that specifies the zero-based index of a row in the sheet that contains this structure. MUST be less than or equal to 0x0000FFFF.

### 2.5.230 RwU

The **RwU** structure specifies the zero-based index of a row 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 |
| rw | | | | | | | | | | | | | | | |

**rw (2 bytes):** An unsigned integer that specifies the zero-based index of a row in the sheet that contains this structure.

### 2.5.231 Rwx

The **Rwx** structure specifies the zero-based row index of a row 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 |
| rw | | | | | | | | | | | | | | | |

**rw (2 bytes):** An unsigned integer that specifies the zero-based row index of a row in the sheet that contains this structure. MUST be 0, 0xFFFF, or greater than or equal to the **rwMic** field of the [Dimensions](#Section_5fd3837c9f3d49528a85ad93ddb37ced) record of the sheet that contains this structure and less than the **rwMac** field of the Dimensions record of the sheet that contains this structure.

### 2.5.232 Script

The **Script** enumeration specifies the superscript or subscript style.

| Name | Value | Meaning |
| --- | --- | --- |
| **SSSNONE** | 0x0000 | Normal script |
| **SSSSUPER** | 0x0001 | Superscript |
| **SSSSUB** | 0x0002 | Subscript |

### 2.5.233 SD\_SetSortOrder

The **SD\_SetSortOrder** enumeration specifies the types of [MDX set metadata](#Section_84d4d0b542b6405ea07be3272dc517f8) sorting orders.

| Name | Value | Meaning |
| --- | --- | --- |
| **SSONONE** | 0x00 | No sorting order |
| **SSOASC** | 0x01 | Ascending order |
| **SSODESC** | 0x02 | Descending order |
| **SSOALPHAASC** | 0x03 | Ascending order by the caption |
| **SSOALPHADESC** | 0x04 | Descending order by the caption |
| **SSONATURALASC** | 0x05 | Ascending order by the natural order of the data, for example, by a key |
| **SSONATURALDESC** | 0x06 | Descending order by the natural order of the data, for example, by a key |

### 2.5.234 SDContainer

The **SDContainer** structure specifies security information for a [FeatProtection](#Section_6a97383237384ea0b435f876766cf8ad) 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 |
| cbSD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sd (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cbSD (4 bytes):** An unsigned integer that specifies the size of the **sd** field in bytes. MUST be greater than 20.

**sd (variable):** A [SecurityDescriptor](#Section_04231786d1bf4d3cb1fee36c2aa19ce7) that specifies the [**security descriptor**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350) data.

### 2.5.235 SecurityDescriptor

A SECURITY\_DESCRIPTOR structure, as defined in [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) section [2.4.6](http://msdn.microsoft.com/en-us/library/7d4dac05-9cef-4563-a058-f108abecce1d/), that specifies a [**relative security descriptor**](#gt_4a4a182d-a2d3-4cae-9a82-359ff9dc6b2c) that specifies security information associated with an object. For more information about relative security descriptors see [[MSDN-ASRSD]](https://go.microsoft.com/fwlink/?LinkId=119907).

### 2.5.236 ShapePropsStreamChecksumData

The **ShapePropsStreamChecksumData** structure specifies the data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [ShapePropsStream](#Section_d4c083e5e7b54728b145d1735485616e) 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 |
| linePropertiesForChecksum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| interiorColorPropertiesForChecksum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | fillStylePropertiesForChecksum (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**linePropertiesForChecksum (8 bytes):** A [LinePropertiesForShapePropsStreamChecksum](#Section_19e023a95e2f46c3afdfe36976ce4892) that specifies the line properties data used to compute the checksum of the ShapePropsStream record.

This field MUST be present in the following scenarios:

 When the ShapePropsStream record and [LineFormat](#Section_1bff256238664b958a6bf3fea1659f6d) record exist in a [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) but not in a sequence of records that conforms to the [LD](#section_732ff614d939416bb7c76d983471ff11) rule or a sequence of records that conforms to the DROPBAR rule;

 When the ShapePropsStream record and LineFormat record exist in a sequence of records that conforms to the FRAME rule;

 When the ShapePropsStream record and LineFormat record exist in a sequence of records that conforms to the DROPBAR rule;

 When the ShapePropsStream record and LineFormat record exist in a sequence of records that conforms to the AXS rule;

 When the ShapePropsStream record and LineFormat record exist in a sequence of records that conforms to the SS rule and the **wObjContext** field of the ShapePropsStream record is 0x0000;

This field MUST NOT be present otherwise.

**interiorColorPropertiesForChecksum (9 bytes):**  An [InteriorColorPropertiesForShapePropsStreamChecksum](#Section_4c6e3f22cf28490c876fd0f3c69ca197) that specifies the interior color data used to compute the checksum of the ShapePropsStream record. This field MUST be present in the following scenarios:

 When the ShapePropsStream record and [AreaFormat](#Section_affb9fe34721495a9e5351c7d3c65480) record exist in sequence of records that conforms to the FRAME rule and the fAuto field of the AreaFormat record is 0x0 and the [GelFrame](#Section_fd655637a8e94d4e85880a02afc99fae) record does not exist in the sequence of records;

 When the ShapePropsStream record and AreaFormat record exist in a sequence of records that conforms to the DROPBAR rule and the fAuto field of the AreaFormat record is 0x0 and the GelFrame record does not exist in the sequence of records;

 When the ShapePropsStream record and AreaFormat record exist in a sequence of records that conforms to the AXS rule and the **wObjContext** field of the ShapePropsStream record is 0x0003 and the fAuto field of the AreaFormat record is 0x0 and the GelFrame record does not exist in the sequence of records;

 When the ShapePropsStream record and AreaFormat record exist in a sequence of records that conforms to the SS rule and the fAuto field of the AreaFormat record is 0x0 and the GelFrame record does not exist in the sequence of records and the **wObjContext** field of the ShapePropsStream record is 0x0000;

 When the ShapePropsStream record, AreaFormat record, and [MarkerFormat](#Section_28ad6229e22f477dbc1403cd93220277) record exist in a sequence of records that conforms to the SS rule and the GelFrame record does not exist in the sequence of records and the **wObjContext** field of the ShapePropsStream record is 0x0001.

This field MUST NOT be present otherwise.

**fillStylePropertiesForChecksum (variable):**  A [FillStylePropertiesForShapePropsStreamChecksum](#Section_8427f96e675e4440937aff6e51a1b8da) that specifies the fill-style data used to compute the checksum of the ShapePropsStream record. This field MUST be present in the following scenarios:

 When the ShapePropsStream record, AreaFormat record, and GelFrame record exist in a sequence of records that conforms to the FRAME rule and the fAuto field of the AreaFormat record is 0x0;

 When the ShapePropsStream record, AreaFormat record, and GelFrame record exist in a sequence of records that conforms to the DROPBAR rule and the fAuto field of the AreaFormat record is 0x0;

 When the ShapePropsStream record, AreaFormat record, and GelFrame record exist in a sequence of records that conforms to the AXS rule and the **wObjContext** field of the ShapePropsStream record is 0x0003 and the fAuto field of the AreaFormat record is 0x0;

 When the ShapePropsStream record, AreaFormat record, and GelFrame record exist in a sequence of records that conforms to the SS rule and the fAuto field of the AreaFormat record is 0x0 and the **wObjContext** field of the ShapePropsStream record is 0x0000;

 When the ShapePropsStream record, AreaFormat record, MarkerFormat record, and GelFrame record sequence of records that conforms to the SS rule and the fAuto field of the AreaFormat record is 0x0 and the **wObjContext** field of the ShapePropsStream record is 0x0001.

This field MUST NOT be present otherwise.

### 2.5.237 SharedFeatureType

The **SharedFeatureType** enumeration specifies the different types of [Shared Features](#Section_86882c8e8d6d46b3aafe006b9e1f18e2).

| Name | Value | Meaning |
| --- | --- | --- |
| **ISFPROTECTION** | 0x0002 | Specifies the enhanced protection type. A Shared Feature of this type is used to protect a [**shared workbook**](#gt_241c4cae-c49a-438a-87dc-c8fb2c871921) by restricting access to the areas of the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) and to the available functionality. |
| **ISFFEC2** | 0x0003 | Specifies the ignored formula errors type. A Shared Feature of this type is used to specify the formula errors to be ignored. |
| **ISFFACTOID** | 0x0004 | Specifies the [**smart tag**](#gt_2f57a49a-d503-4605-8798-0e53bd637609) type. A Shared Feature of this type is used to recognize certain types of entries (for example, proper names, dates/times, financial symbols) and flag them for action. |
| **ISFLIST** | 0x0005 | Specifies the list type. A Shared Feature of this type is used to describe a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) within a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). |

### 2.5.238 SheetExtOptional

The **SheetExtOptional** structure specifies [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) specific data including [**sheet tab**](#gt_3b131045-238c-4ce8-9c22-b6aac874c7c5) color and the [**published**](#gt_8ffc383a-d4f1-4515-a8b5-874d84ab2d2b) state of this 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 |
| icvPlain12 | | | | | | | A | B | reserved | | | | | | | | | | | | | | | | | | | | | | |
| color (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**icvPlain12 (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 [Icv](#Section_b7160f4eabe8444da76c8f076a007d98). If this value does not equal to **icvPlain** of the associated [SheetExt](#Section_780be3426fd04265aaeba51f422a9c08), the value of **icvPlain** takes precedence. If the tab has no color assigned to it, the value of this field MUST be 0x7F, and MUST be ignored.

**A - fCondFmtCalc (1 bit):** A bit that specifies whether [**conditional formatting**](#gt_5a8a1e18-9f8c-48c6-9ad0-7975ade8d516) formulas are evaluated. MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | Conditional formatting formulas in this [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) are not evaluated. |
| 1 | Conditional formatting formulas in this workbook are evaluated. |

**B - fNotPublished (1 bit):** A bit that specifies whether this sheet is published. MUST be ignored when this sheet is a [chart sheet](#section_732ff614d939416bb7c76d983471ff11), [dialog sheet](#section_da37feb48b9a462d87772a5fddd4866e), or [macro sheet](#section_0dddd943f77a4fc2bf92868acb4587f7). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The sheet is published. |
| 1 | The sheet is not published. |

**reserved (23 bits):** MUST be zero, and MUST be ignored.

**color (16 bytes):** A [CFColor](#Section_fd8e679d069f486bab482382cc167305) that specifies the tab color. Used only when the tab color was not modified by earlier versions of the application.

### 2.5.239 ShortDTR

The **ShortDTR** structure specifies date and time. The **year**, **month**, and **day** values MUST be consistent with the Gregorian calendar.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| year | | | | | | | | | | | | | | | | month | | | | | | | | day | | | | | | | |
| hour | | | | | | | | minute | | | | | | | | second | | | | | | | | weekday | | | | | | | |

**year (2 bytes):** An unsigned integer that specifies the year. MUST be greater than or equal to 1900 and less than or equal to 9999.

**month (1 byte):** An unsigned integer that specifies the month. MUST be greater than or equal to 1 and less than or equal to 12.

**day (1 byte):** An unsigned integer that specifies the day. MUST be greater than or equal to 1 and less than or equal to 31.

**hour (1 byte):** An unsigned integer that specifies the hour. MUST be greater than or equal to 0 and less than or equal to 23.

**minute (1 byte):** An unsigned integer that specifies the minute. MUST be greater than or equal to 0 and less than or equal to 59.

**second (1 byte):** An unsigned integer that specifies the second. MUST be greater than or equal to 0 and less than or equal to 59.

**weekday (1 byte):** An unsigned integer that specifies the weekday. The value MUST be one of the following:

| Value | Meaning |
| --- | --- |
| 0 | The weekday is not specified. |
| 1 | Monday |
| 2 | Tuesday |
| 3 | Wednesday |
| 4 | Thursday |
| 5 | Friday |
| 6 | Saturday |
| 7 | Sunday |

### 2.5.240 ShortXLUnicodeString

The **ShortXLUnicodeString** structure specifies a Unicode 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 |
| cch | | | | | | | | A | reserved | | | | | | | rgb (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cch (1 bytes):** An unsigned integer that specifies the count of characters in the string.

**A - fHighByte (1 bit):** A bit that specifies whether the characters in **rgb** are double-byte characters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | All the characters in the string have a high byte of 0x00 and only the low bytes are in **rgb**. |
| 0x1 | All the characters in the string are saved as double-byte characters in **rgb**. |

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

**rgb (variable):** An array of bytes that specifies the characters. If **fHighByte** is 0x0, the size of the array MUST be equal to the value of **cch**. If **fHighByte** is 0x1, the size of the array MUST be equal to the value of **cch\***2.

### 2.5.241 SLCO8

The **SLCO8** structure specifies a reference to a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in a [SCENARIO](#Section_a4cbc8c15b954f5682fa945bc8082e4f) 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 |
| rw | | | | | | | | | | | | | | | | col | | | | | | | | | | | | | | | |

**rw (2 bytes):** A [RwU](#Section_5a871cb48740466b87746adb09caacca) structure that specifies the zero-based index of the row of the cell.

**col (2 bytes):** A [ColSlco8U](#Section_17150e2d96e0499a8b23b1d99ee42e85) structure that specifies the zero-based index of the column of the cell and other information about this cell reference.

### 2.5.242 SortCond12

The **SortCond12** structure specifies the sort conditions.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | sortOn | | | | reserved | | | | | | | | | | | rfx (16 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | condData (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchSt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| stSslist (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fSortDes (1 bit):** A bit that specifies whether to sort in descending order.

**sortOn (4 bits):** An unsigned integer that specifies the kind of sort to perform. MUST be a value listed in the Sort On Value column in the table for **condData**.

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

**rfx (16 bytes):** An [RFX](#Section_b417d7526e9f47129554dbb17c2f7e80) that specifies the sort range of cells on the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**condData (variable):** A structure that specifies the conditional data information. The data type of this structure depends on the value of the **sortOn** field and MUST be a value from the following table:

| Sort On Value | Data Type |
| --- | --- |
| 0x0 | [CondDataValue](#Section_75050d165b684075b647ced79472d183) |
| 0x1 | CondDataValue |
| 0x2 | CondDataValue |
| 0x3 | [CFFlag](#Section_e36349e2319341c1af17672fb73626b7) |

**cchSt (4 bytes):** A signed integer that specifies the character count in **stSslist**. MUST be greater than or equal to zero. MUST be zero and ignored if **sortOn** is not equal to zero.

**stSslist (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the custom sort list string. It exists only if **cchSt** is greater than zero.

### 2.5.243 SortItem

The **SortItem** structure specifies the sort mapping from the old row/column index (before sort action) to the new row/column index (after sort action). An array of these structures is contained within a [RRSort](#Section_e2f8f20ce1ef4da696cbcbe03b716aaa) 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 |
| iNewIndex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iOldIndex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**iNewIndex (4 bytes):** An unsigned integer that specifies the new zero-based index of row or column. If the **fCol** field of the RRSort record that contains this structure is zero, then this value is a zero-based row index and MUST be within the range of rows specified in the **ref8** field of the RRSort record that contains this structure. If the **fCol** field of the RRSort record that contains this structure is 1, then this value is a zero-based column index and MUST be within the range of columns specified in the **ref8** field of the RRSort record that contains this structure.

**iOldIndex (4 bytes):** An unsigned integer that specifies the old zero-based index of row or column. If the **fCol** field of the RRSort record that contains this structure is zero, then this value is a zero-based row index and MUST be within the range of rows specified in the **ref8** field of the RRSort record that contains this structure. If the **fCol** field of the RRSort record that contains this structure is 1, then this value is a zero-based column index and MUST be within the range of columns specified in the **ref8** field of the RRSort record that contains this structure.

### 2.5.244 SourceType

The **SourceType** enumeration specifies the source type for a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7).

| Name | Value | Meaning |
| --- | --- | --- |
| **LTRANGE** | 0x00000000 | [**Range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) |
| **LTSHAREPOINT** | 0x00000001 | Read/write Web-based [**data provider**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e) list |
| **LTXML** | 0x00000002 | [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) Mapper data |
| **LTEXTERNALDATA** | 0x00000003 | External [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) ([**query table**](#gt_ceb1ea2c-7b55-4a25-a7f0-79b1c1011289))[<180>](#Appendix_A_180" \o "Product behavior note 180) |

### 2.5.245 SQElfFlags

The **SQElfFlags** structure specifies additional undo data associated with a [**natural language formula**](#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 |
| cLoc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | A | B |

**cLoc (30 bits):** An unsigned integer that specifies the number of elements in the **rgloc** field of the [Duce](#Section_a96a9ad6560748d49c8317b430456e47) structure that contains this structure. MUST be greater than or equal to 0x000000002 and less than or equal to 0x3FFFFFFF.

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

**B - fRel (1 bit):** A bit that specifies whether [**relative references**](#gt_238687e6-aab3-40c3-ac9f-6107236df2ac) are used.

### 2.5.246 SqRef

The **SqRef** structure specifies a sequence of [Ref8](#Section_ccb1ac4e95794278a2050945e7fcf13d) structures 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 |
| cref | | | | | | | | | | | | | | | | rgrefs (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cref (2 bytes):** An unsigned integer that specifies the number of elements in **rgrefs**. MUST be less than or equal to 0x2000.

**rgrefs (variable):** An array of Ref8 structures. The number of elements in the array MUST be equal to **cref**.

### 2.5.247 SqRefU

The **SqRefU** structure specifies a sequence of [Ref8U](#Section_809af2981e4f499f9bca3cd1021f4934) structures 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 |
| cref | | | | | | | | | | | | | | | | rgrefs (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cref (2 bytes):** An unsigned integer that specifies the number of elements in **rgrefs**. MUST be less than or equal to 0x2000.

**rgrefs (variable):** An array of Ref8U structures. The number of elements in the array MUST be equal to **cref**.

### 2.5.248 Stxp

The **Stxp** structure specifies various formatting attributes of a [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| twpHeight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bls | | | | | | | | | | | | | | | | sss | | | | | | | | | | | | | | | |
| uls | | | | | | | | bFamily | | | | | | | | bCharSet | | | | | | | | unused | | | | | | | |

**twpHeight (4 bytes):** A signed integer that specifies the height of the font in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382). This value MUST be -1, 0, or between 20 and 8191. This value SHOULD NOT[<181>](#Appendix_A_181" \o "Product behavior note 181) be 0. A value of -1 specifies that this field is to be ignored.

**ts (4 bytes):** A [Ts](#Section_f2372db53c3e4bb08976e275f1750d0a) that specifies additional formatting attributes.

**bls (2 bytes):** A signed integer that specifies the font weight. This value MUST be 0, or a value from the following table. The value SHOULD NOT[<182>](#Appendix_A_182" \o "Product behavior note 182) be 0.

| Value | Description |
| --- | --- |
| 0xFFFF | Indicates that this specification is to be ignored |
| 0x0190 | Normal font weight |
| 0x02BC | Bold font weight |

**sss (2 bytes):** A signed integer that specifies whether the superscript or subscript or normal style of the font is used. MUST be set to a value from the following table:

| Value | Description |
| --- | --- |
| 0xFFFF | Indicates that this specification is to be ignored |
| 0x0000 | Normal script |
| 0x0001 | Superscript |
| 0x0002 | Subscript |

**uls (1 byte):** An unsigned integer that specifies the underline style. The value MUST be one of the following:

| Value | Description |
| --- | --- |
| 0x00 | No underline |
| 0x01 | Single |
| 0x02 | Double |
| 0x21 | [**single accounting**](#gt_7ad49c0f-e183-47b5-bdbd-c23a5a8315fc) |
| 0x22 | [**double accounting**](#gt_89f4f531-9a8b-419c-8f51-98ef409b7bdf) |
| 0xFF | Indicates that this specification is to be ignored |

**bFamily (1 byte):** An unsigned integer that specifies the [**font family**](#gt_bca5490d-d27e-4097-b05d-9efb09083dd2), as defined by Windows API LOGFONT structure in [[MSDN-FONTS]](https://go.microsoft.com/fwlink/?LinkId=90008). MUST be greater than or equal to 0 or less than or equal to 5.

**bCharSet (1 byte):** An unsigned integer that specifies the [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204), as defined by Windows API LOGFONT structure in [MSDN-FONTS].

**unused (1 byte):** Undefined and MUST be ignored.

### 2.5.249 StyleXF

The **StyleXF** structure specifies formatting properties 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 |
| alc | | | A | alcV | | | B | trot | | | | | | | | cIndent | | | | C | D | E | | unused | | | | | | | |
| dgLeft | | | | dgRight | | | | dgTop | | | | F | | | | icvLeft | | | | | | | icvRight | | | | | | | G | |
| icvTop | | | | | | | icvBottom | | | | | | | icvDiag | | | | | | | dgDiag | | | | H | fls | | | | | |
| icvFore | | | | | | | icvBack | | | | | | | I | |

**alc (3 bits):** A [**HorizAlign**](#Section_75e17a8f9cd44b37927e4b0a54ef9266) that specifies the [**horizontal alignment**](#gt_f0e60ca8-51d5-4553-9126-3d89a4d08f90).

**A - fWrap (1 bit):** A bit that specifies whether [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) text is wrapped.

**alcV (3 bits):** A [**VertAlign**](#Section_1e9eb7d30cd842a3af1ef523105a5e93) that specifies the [**vertical alignment**](#gt_5a59a612-2d00-4cb5-9565-952243641878).

**B - fJustLast (1 bit):** A bit that specifies whether the justified or distributed alignment of the cell is used on the last line of text. (Setting this to 1 is typical for East Asian text but not typical in other contexts). If this field equals 1 then **alc** MUST equal 7.

**trot (1 byte):** An [XFPropTextRotation](#Section_828733cb953a48ceb4054d235575e9b3) that specifies the text rotation.

**cIndent (4 bits):** An unsigned integer that specifies the text [**indentation level**](#gt_2779d3df-3c50-44dc-9d2d-6996c4573aa9). MUST be less than or equal to 15.

**C - fShrinkToFit (1 bit):** A bit that specifies whether a cell is [**shrink to fit**](#gt_4740d2ef-00d3-4a29-983c-b7b3a6aa01e0).

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

**E - iReadOrder (2 bits):** A [**ReadingOrder**](#Section_dd395a856ae749cdae9418bab51e5357) that specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361).

**unused (1 byte):** Undefined and MUST be ignored.

**dgLeft (4 bits):** A [BorderStyle](#Section_e6134bd9203f49f1bc777ab3692f2364) that specifies the [**logical left**](#gt_ccc2ab6c-db9b-4c67-9b95-21ce79e7358d) [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad).

**dgRight (4 bits):** A BorderStyle that specifies the [**logical right**](#gt_ef86cf61-a2e3-4130-abc4-9e92dae5a2a7) border formatting.

**dgTop (4 bits):** A BorderStyle that specifies the top border formatting.

**F - dgBottom (4 bits):** A BorderStyle that specifies the bottom border formatting.

**icvLeft (7 bits):** An unsigned integer that specifies the color of the logical left [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c). The value MUST be one of the values specified in the **icv** field in [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad) or zero. A value of zero means the left border color is not specified. If this value is zero then **dgLeft** MUST also be zero.

**icvRight (7 bits):** An unsigned integer that specifies the color of the logical right border. The value MUST be one of the values specified in the **icv** field in IcvXF or zero. A value of zero means the right border color is not specified. If this value is zero then **dgRight** MUST also be zero.

**G - grbitDiag (2 bits):**  An unsigned integer that specifies which diagonal borders are present (if any). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | No diagonal border |
| 0x1 | [**Diagonal-down**](#gt_494c0660-9ece-4dcc-b8d3-1a5616a57782) border |
| 0x2 | [**Diagonal-up**](#gt_d4878a4d-c65e-471d-b9fb-da7a5a5aa929) border |
| 0x3 | Both diagonal-down and diagonal-up |

**icvTop (7 bits):** An unsigned integer that specifies the color of the top border. The value MUST be one of the values specified in the **icv** field in IcvXF or zero. A value of zero means the top border color was not specified. If this value is zero then **dgTop** MUST also be zero.

**icvBottom (7 bits):** An unsigned integer that specifies the color of the bottom border. The value MUST be one of the values specified in the **icv** field in IcvXF or zero. A value of zero means the bottom border color was not specified. If this value is zero then **dgBottom** MUST also be zero.

**icvDiag (7 bits):** An unsigned integer that specifies the color of the diagonal border. The value MUST be one of the values specified in the **icv** field in IcvXF or zero. A value of zero means the diagonal border color has not been specified. If this value is zero then **dgDiag** MUST also be zero.

**dgDiag (4 bits):** A BorderStyle that specifies the diagonal border formatting.

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

**fls (6 bits):** A [**FillPattern**](#Section_10767248ab464581ae08310ffcbf026b) that specifies the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e). If this value is 1 which specifies a solid fill pattern only **icvFore** is rendered.

**icvFore (7 bits):** An IcvXF that specifies the [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a) of the fill pattern.

**icvBack (7 bits):** An unsigned integer that specifies the [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c) of the fill pattern. The value MUST be an IcvXF value.

**I - reserved3 (2 bits):** MUST be zero and MUST be ignored.

### 2.5.250 SXAddl\_SXDEnd

The **SXAddl\_SXDEnd** record specifies the end of a sequence of [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) records that specify information about 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 |
| hdr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db). The **sxd** field of SXAddlHdr MUST equal 0xFF.

**reserved (6 bytes):** MUST be zero, and MUST be ignored.

### 2.5.251 SXAddl\_SXDVerUpdInv

The **SXAddl\_SXDVerUpdInv** structure specifies the highest [data functionality level](#Section_2bcedd76ef064e6084c718ea55042ed6) for which records following this record are handled.

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

**hdr (6 bytes):** An [SXAddlHdr](#Section_fd41637ad9fe486b80101ed68fefc6db). The **sxd** field of SXAddlHdr MUST equal 0x01.

**dwVersionInvalidates (1 byte):** An unsigned integer that specifies the highest data functionality level for which records following this record are handled.

MUST be greater than or equal to 0 and less than or equal to 0xFF. If this value is equal to 0xFF, the data functionality level is not set.

**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.

### 2.5.252 SXAddl\_SXString

The SXAddl\_SXString structure specifies a Unicode string segment.

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

**st (variable):** An [XLUnicodeStringSegmentedSXADDL](#Section_18afd49069014d3da8de38898a3724a0) that specifies a Unicode string segment. **st.cchTotal** MUST be less than or equal to 65535.

### 2.5.253 SXAddlHdr

The **SXAddlHdr** structure specifies header information for an [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sxc | | | | | | | | sxd | | | | | | | |

**frtHeaderOld (4 bytes):** An [FrtHeaderOld](#Section_02b165efca714c4393ca613d0d5a020b). The **frtHeaderOld**.**rt** field MUST be 0x0864.

**sxc (1 byte):** An unsigned integer that specifies the current class. See [class](#Section_3450b26af2b247dd982c6b9eb2d448b0) for details.

**sxd (1 byte):** An unsigned integer that specifies the type of record contained in the **data** field of the containing SXAddl record. See class for details.

### 2.5.254 SXAxis

The **SXAxis** structure specifies the [PivotTable axis](#Section_89db73685e8e4324b592af85e4559e6c) referred to by the containing 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 | D | reserved | | | | | | | | | | | |

**A - sxaxisRw (1 bit):** A bit that specifies whether this structure refers to the [row axis](#Section_3f46e7207706400cba9473cb829f869a).

**B - sxaxisCol (1 bit):** A bit that specifies whether this structure refers to the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f).

**C - sxaxisPage (1 bit):** A bit that specifies whether this structure refers to the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7).

**D - sxaxisData (1 bit):** A bit that specifies whether this structure refers to the [value axis](#Section_4c5c2daa289746e1854b0ce04209f060).

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

### 2.5.255 SXEZDoper

The **SXEZDoper** structure specifies a [PivotTable](#Section_a5f57198f2af40b2ba07e4b1836d73f3) data operation.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| vts | | | | | | | | grbitSign | | | | | | | | vtValue | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**vts (1 byte):** An unsigned integer that specifies the type of comparison used in the data operation. MUST be a value in the following table:

| Value | Meaning |
| --- | --- |
| 0x00 | This SXEZDoper record is undefined and MUST be ignored. |
| 0x04 | This SXEZDoper specifies a numeric data operation. |
| 0x06 | This SXEZDoper specifies a string data operation. |
| 0x0C | This SXEZDoper specifies that all space characters are matched in the data operation. |
| 0x0E | This SXEZDoper specifies that all non-space characters are matched in the data operation. |

**grbitSign (1 byte):** An unsigned integer that specifies the comparison operation between a database value and **vtValue**. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x00 | No operation. The **vts** field MUST be zero. |
| 0x01 | Less than |
| 0x02 | Equal to |
| 0x03 | Less than or equal to |
| 0x04 | Greater than |
| 0x05 | Not equal to |
| 0x06 | Greater than or equal to |

**vtValue (8 bytes):** A field with the type and meaning specified by the value of **vts**, as specified in the following table:

| Value of vts | vtValue meaning |
| --- | --- |
| 0x00 | Undefined and MUST be ignored. |
| 0x04 | An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the numeric value used in the numeric data operation. |
| 0x06 | A [PivotCompProp](#Section_e620ebfe18c3404a8605b922c9299a51) that specifies the type of string comparison. |
| 0x0C | Undefined and MUST be ignored. |
| 0x0E | Undefined and MUST be ignored. |

### 2.5.256 SxFT

The **SxFT** structure specifies the pivot filter types.

| Name | Value | Meaning |
| --- | --- | --- |
| **SXFTCOUNT** | 0x00000001 | Specifies the "count" filter. This is a [value filter](#Section_05a1c98e21cd4941979880f4bf301bb2). |
| **SXFTPERCENT** | 0x00000002 | Specifies the "percent" filter. This is a value filter. |
| **SXFTSUM** | 0x00000003 | Specifies the "sum" filter. This is a value filter. |
| **SXFTCAPTIONEQUALS** | 0x00000004 | Specifies the "equals" filter. This is a [label filter](#Section_f221b81b892c4b5c91722d4ed17c937c). |
| **SXFTCAPTIONDOESNOTEQUAL** | 0x00000005 | Specifies the "not equal" filter. This is a label filter. |
| **SXFTCAPTIONBEGINSWITH** | 0x00000006 | Specifies the "begins with" filter. This is a label filter. |
| **SXFTCAPTIONDOESNOTBEGINWITH** | 0x00000007 | Specifies the "does not begin with" filter. This is a label filter. |
| **SXFTCAPTIONENDSWITH** | 0x00000008 | Specifies the "ends with" filter. This is a label filter. |
| **SXFTCAPTIONDOESNOTENDWITH** | 0x00000009 | Specifies the "does not end with" filter. This is a label filter. |
| **SXFTCAPTIONCONTAINS** | 0x0000000A | Specifies the "contains" filter. This is a label filter. |
| **SXFTCAPTIONDOESNOTCONTAIN** | 0x0000000B | Specifies the "does not contain" filter. This is a label filter. |
| **SXFTCAPTIONISGREATERTHAN** | 0x0000000C | Specifies the "is greater than" filter. This is a label filter. |
| **SXFTCAPTIONISGREATERTHANOREQUALTO** | 0x0000000D | Specifies the "is greater than or equal to" filter. This is a label filter. |
| **SXFTCAPTIONISLESSTHAN** | 0x0000000E | Specifies the "is less than" filter for field captions. This is a label filter. |
| **SXFTCAPTIONISLESSTHANOREQUALTO** | 0x0000000F | Specifies the "is less than or equal to" filter. This is a label filter. |
| **SXFTCAPTIONISBETWEEN** | 0x00000010 | Specifies the "is between" filter. This is a label filter. |
| **SXFTCAPTIONISNOTBETWEEN** | 0x00000011 | Specifies the "is not between" filter. This is a label filter. |
| **SXFTVALUEEQUAL** | 0x00000012 | Specifies the "value equal" filter. This is a value filter. |
| **SXFTVALUENOTEQUAL** | 0x00000013 | Specifies the "value not equal" filter. This is a value filter. |
| **SXFTVALUEGREATERTHAN** | 0x00000014 | Specifies the "value greater than" filter. This is a value filter. |
| **SXFTVALUEGREATERTHANOREQUAL** | 0x00000015 | Specifies the "value greater than or equal to" filter. This is a value filter. |
| **SXFTVALUELESSTHAN** | 0x00000016 | Specifies the "value less than" filter. This is a value filter. |
| **SXFTVALUELESSTHANOREQUAL** | 0x00000017 | Specifies the "value less than or equal to" filter. This is a value filter. |
| **SXFTVALUEBETWEEN** | 0x00000018 | Specifies the "value between" filter. This is a value filter. |
| **SXFTVALUENOTBETWEEN** | 0x00000019 | Specifies the "value not between" filter. This is a value filter. |
| **SXFTDATEEQUALS** | 0x0000001A | Specifies the "equals" filter. This is a [date filter](#Section_2b9377c5055e4efcbcf587fb13c513bd). |
| **SXFTDATEOLDERTHAN** | 0x0000001B | Specifies the "older than" filter. This is a date filter. |
| **SXFTDATENEWERTHAN** | 0x0000001C | Specifies the "newer than" filter. This is a date filter. |
| **SXFTDATEBETWEEN** | 0x0000001D | Specifies the "between" filter. This is a date filter. |
| **SXFTDATETOMORROW** | 0x0000001E | Specifies the "tomorrow" filter. This is a date filter. |
| **SXFTDATETODAY** | 0x0000001F | Specifies the "today" filter. This is a date filter. |
| **SXFTDATEYESTERDAY** | 0x00000020 | Specifies the "yesterday" filter. This is a date filter. |
| **SXFTDATENEXTWEEK** | 0x00000021 | Specifies the "next week" filter. This is a date filter. |
| **SXFTDATETHISWEEK** | 0x00000022 | Specifies the "this week" filter. This is a date filter. |
| **SXFTDATELASTWEEK** | 0x00000023 | Specifies the "last week" filter. This is a date filter. |
| **SXFTDATENEXTMONTH** | 0x00000024 | Specifies the "next month" filter. This is a date filter. |
| **SXFTDATETHISMONTH** | 0x00000025 | Specifies the "this month" filter. This is a date filter. |
| **SXFTDATELASTMONTH** | 0x00000026 | Specifies the "last month" filter. This is a date filter. |
| **SXFTDATENEXTQUARTER** | 0x00000027 | Specifies the "next quarter" filter. This is a date filter. |
| **SXFTDATETHISQUARTER** | 0x00000028 | Specifies the "this quarter" filter. This is a date filter. |
| **SXFTDATELASTQUARTER** | 0x00000029 | Specifies the "last quarter" filter. This is a date filter. |
| **SXFTDATENEXTYEAR** | 0x0000002A | Specifies the "next year" filter. This is a date filter. |
| **SXFTDATETHISYEAR** | 0x0000002B | Specifies the "this year" filter. This is a date filter. |
| **SXFTDATELASTYEAR** | 0x0000002C | Specifies the "last year" filter. This is a date filter. |
| **SXFTDATEYEARTODATE** | 0x0000002D | Specifies the "year-to-date" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODQUARTER1** | 0x0000002E | Specifies the "first quarter" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODQUARTER2** | 0x0000002F | Specifies the "second quarter" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODQUARTER3** | 0x00000030 | Specifies the "third quarter" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODQUARTER4** | 0x00000031 | Specifies the "fourth quarter" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODJANUARY** | 0x00000032 | Specifies the "January" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODFEBRUARY** | 0x00000033 | Specifies the "February" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODMARCH** | 0x00000034 | Specifies the "March" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODAPRIL** | 0x00000035 | Specifies the "April" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODMAY** | 0x00000036 | Specifies the "May" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODJUNE** | 0x00000037 | Specifies the "June" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODJULY** | 0x00000038 | Specifies the "July" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODAUGUST** | 0x00000039 | Specifies the "August" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODSEPTEMBER** | 0x0000003A | Specifies the "September" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODOCTOBER** | 0x0000003B | Specifies the "October" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODNOVEMBER** | 0x0000003C | Specifies the "November" filter. This is a date filter. |
| **SXFTDATEALLDATESINPERIODDECEMBER** | 0x0000003D | Specifies the "December" filter. This is a date filter. |
| **SXFTDATENOTEQUAL** | 0x0000003E | Specifies the "not equal" filter. This is a date filter. |
| **SXFTDATEOLDEROREQUAL** | 0x0000003F | Specifies the "older than or equal to" filter. This is a date filter. |
| **SXFTDATENEWEROREQUAL** | 0x00000040 | Specifies the "newer than or equal to" filter. This is a date filter. |
| **SXFTDATENOTBETWEEN** | 0x00000041 | Specifies the "not between" filter. This is a date filter. |

### 2.5.257 SxIvdCol

The **SxIvdCol** structure specifies a reference to a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) or [data field](#Section_b4187a6caa2d4a9789bd26f394d67592) on the [column axis](#Section_00d9d88b8fa74bf08446584bf651677f)

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

**col (2 bytes):** A signed integer that specifies a pivot field or data field for the column axis of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -2 | This value specifies that the data field is on the column axis. The **sxaxisCol** field of **sxaxis4Data** of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view MUST equal 1 and the **sxaxisData** field of **sxaxis4Data** of the SxView record of the PivotTable view MUST equal zero. |
| 0+ | This value specifies a pivot field index as specified in Pivot Fields**.** The pivot field index specifies a pivot field on the column axis of the PivotTable view. MUST be less than the **cDim** field of the SxView record of the PivotTable view. If the referenced pivot field is not a hidden field in an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) then the **sxaxisCol** field of [SXAxis](#Section_2c4ee792d1444a7884bf68a617edb018) of the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record of the pivot field MUST equal 1. |

A pivot field is a hidden field if an [SXAddl\_SXCField12\_SXDVer12Info](#Section_f7f523c98b2d4eea993b80f272c83a30) record exists for the pivot field, and the **fHiddenLvl** field of the SXAddl\_SXCField12\_SXDVer12Info record is 1.

### 2.5.258 SxIvdRw

The **SxIvdRw** structure specifies a reference to a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) or [data field](#Section_b4187a6caa2d4a9789bd26f394d67592) on the [row axis](#Section_3f46e7207706400cba9473cb829f869a).

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

**rw (2 bytes):** A signed integer that specifies a pivot field or data field for the row axis of the [PivotTable view](#Section_09410dfbaac84a719ecf177ffba12c37). MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| -2 | This value specifies that the data field is on the row axis. The **sxaxisRw** field of **sxaxis4Data** of [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view MUST equal 1 and the **sxaxisData** field of **sxaxis4Data** of the SxView record of the PivotTable view MUST equal zero. |
| 0+ | This value specifies a pivot field index as specified in Pivot Fields**.** The pivot field index specifies a pivot field on the row axis of the PivotTable view. MUST be less than the **cDim** field of the SxView record of the PivotTable view. If the referenced pivot field is not a hidden field in an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) then the **sxaxisRw** field of [SXAxis](#Section_2c4ee792d1444a7884bf68a617edb018) of the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record of the pivot field MUST equal 1. |

A pivot field is a hidden field if an [SXAddl\_SXCField12\_SXDVer12Info](#Section_f7f523c98b2d4eea993b80f272c83a30) record exists for the pivot field, and the **fHiddenLvl** field of the SXAddl\_SXCField12\_SXDVer12Info record is 1.

### 2.5.259 SXLIItem

The **SXLIItem** structure specifies a [pivot line](#Section_76610990666f492791b6d2280f607464) in 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 |
| cSic | | | | | | | | | | | | | | | | itmType | | | | | | | | | | | | | | | A |
| isxviMac | | | | | | | | | | | | | | | | B | iData | | | | | | | | C | D | E | F | G | H | I |
| rgisxvi (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cSic (2 bytes):** A signed integer that specifies the count of [pivot item](#Section_58891cc5dd9b4293a97831070779524f) indexes in the beginning of the **rgisxvi** array that are identical to the same number of pivot item indexes in the beginning of the **rgisxvi** array of the previous SXLIItem structure in the **rgsxli** array of the preceding [SXLI](#Section_ecd011a31ac1437997888aace5299d40) record. The value MUST be greater than or equal to 0 and less than the **isxviMac** field. If the **fGrand** field equals 1, then this value MUST be 0.

**itmType (15 bits):** An unsigned integer that specifies the type of this pivot line. MUST be a value from the following table:

| Name | Value | Meaning |
| --- | --- | --- |
| ITMTYPEDATA | 0x0000 | A value in the data |
| ITMTYPEDEFAULT | 0x0001 | Automatic subtotal selection |
| ITMTYPESUM | 0x0002 | Sum of values in the data |
| ITMTYPECOUNTA | 0x0003 | Count of values in the data |
| ITMTYPECOUNT | 0x0004 | Count of numbers in the data |
| ITMTYPEAVERAGE | 0x0005 | Average of values in the data |
| ITMTYPEMAX | 0x0006 | Maximum value in the data |
| ITMTYPEMIN | 0x0007 | Minimum value in the data |
| ITMTYPEPRODUCT | 0x0008 | Product of values in the data |
| ITMTYPESTDEV | 0x0009 | Statistical standard deviation (estimate) |
| ITMTYPESTDEVP | 0x000A | Statistical standard deviation (entire population) |
| ITMTYPEVAR | 0x000B | Statistical variance (estimate) |
| ITMTYPEVARP | 0x000C | Statistical variance (entire population) |
| ITMTYPEGRAND | 0x000D | Grand total |
| ITMTYPEBLANK | 0x000E | Blank line |

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

**isxviMac (2 bytes):** A signed integer that specifies the number of elements in the **rgisxvi** array that are displayed in this pivot line. MUST be greater than or equal to 0. If the **fGrand** field equals 1, then the value of this field MUST be 1. If the **fGrand** field equals zero and the preceding SXLI record contains row area pivot items, then this value MUST be less than or equal to the **cDimRw** field of the preceding [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b). If the **fGrand** field equals zero and the preceding SXLI record contains column area pivot items, then this value MUST be less than or equal to the **cDimCol** field of the preceding SxView.

**B - fMultiDataName (1 bit):** A bit that specifies whether the [data field](#Section_b4187a6caa2d4a9789bd26f394d67592) name is used for the total or the subtotal. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | The data field name is used for the total. |
| 1 | The data field name is used for the subtotal. |

If the **fGrand** field equals 1 or the **fBlock** field equals 1, then this value MUST equal the value in the **fMultiDataOnAxis** field. If the **fGrand** and **fBlock** fields equal zero, the **fSbt** and **fMultiDataOnAxis** fields equal 1, and the **cSic** field is less than *iposData*, then this value MUST equal 1. Otherwise, this value MUST be zero.

*iposData* is specified as follows:

 If the preceding SXLI record contains row area pivot items, *iposData* equals the index of the [SxIvdRw](#Section_1d9d8a26acf84281bbc8816ced4926a7) record in the **rgSxivd** array of the [SxIvd](#Section_72c54b06c9254140b6dbdf133439e596) containing SxIvdRw records where the **rw** field equals -2. If there is not an SxIvdRw record with the **rw** field equal to -2, *iposData* equals zero.

 If the preceding SXLI record contains column area pivot items, *iposData* equals the index of the [SxIvdCol](#Section_03b867b9584a4e89b0991e90fab1b304) record in the **rgSxivd** array of the SxIvd containing SxIvdCol records where the **col** field equals -2. If there is not an SxIvdCol record with the **col** field equal to -2, *iposData* equals zero.

**iData (8 bits):** An unsigned integer that specifies a [data item](#Section_b51aa7b309b34aa78cb4964ad24d1679) index as specified in Data Items, for an [SXDI](#Section_4143b9eec91a443c83e82185e75cb7b5) record specifying a data item used for a subtotal. This field MUST be 0 if the **cDimData** field of the preceding SxView record is 0 or if the **fGrand** field equals 1. If the **cDimData** field of the preceding SxView is greater than 0, then this value MUST be greater than or equal to 0 and less than the **cDimData** field of the preceding SxView record. If the **fMultiDataOnAxis** field equals 1 and the **itmType** field does not equal ITMTYPEBLANK and the **isxviMac** field is greater than *iposData* as specified in **fMultiDataName**, then the value of this field MUST equal the value of the element ofthe **rgisxvi** array in the position equal to *iposData* as specified in **fMultiDataName**.

**C - fSbt (1 bit):** A bit that specifies whether this pivot line is a subtotal. This value MUST equal 1 if the **itmType** field is greater than or equal to ITMTYPEDEFAULT and the **itmType** field is less than or equal to ITMTYPEGRAND and the **fBlock** field equals 0. Otherwise, this value MUST be 0.

**D - fBlock (1 bit):** A bit that specifies whether this pivot line is a block total. A block total is a total of a group of pivot items. For more details see [Grouping](#Section_63e07ed20a764cb08cf446aaf25464c2). If the **fGrand** field equals 0 and the **fBlock** field in the previous SXLIItem record equals 1, this value MUST be 1.

**E - fGrand (1 bit):** A bit that specifies whether this pivot line is a [**grand total**](#gt_417eeaf5-caef-4fc3-afe1-048db5482eb7). If the **fGrand** field in the previous SXLIItem record is 1, then this value MUST be 1. Otherwise, if the **itmType** field equals ITMTYPEGRAND this field MUST equal 1 and if the **itmType** field does not equal ITMTYPEGRAND this field MUST equal 0.

**F - fMultiDataOnAxis (1 bit):** A bit that specifies whether a [pivot line entry](#Section_ecba812f4a31495ebeb46749e5897f2d) in this pivot line is a data item index.

If the preceding SXLI record contains row area pivot items, the **cDimData** field of the preceding SxView record is greater than 1, the **sxaxis4Data**.**sxaxisRw** field of the preceding SxView equals 1 and **itmType** is not equal to ITMTYPEBLANK, then this value MUST be 1. Otherwise, this value MUST be 0.

If the preceding SXLI record contains column area pivot items, the **cDimData** field of the preceding SxView record is greater than 1, the **sxaxis4Data.sxaxisCol** field of the preceding SxView equals 1 and **itmType** is not equal to ITMTYPEBLANK, then this value MUST be 1. Otherwise, this value MUST be 0.

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

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

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

**rgisxvi (variable):** An array of 2-byte signed integers that specifies a pivot line entry.

Each element of this array is either a pivot item index or a data item index.

If **fGrand** is 1 or **itmType** is ITMTYPEBLANK then all elements of this field are undefined and MUST be ignored. Otherwise each element MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 to 0x7EF4 | This value specifies a data item index or pivot item index in the associated [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) as specified in Pivot Items. |
| 0x7FFF | This value specifies that there is no pivot item and that the [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) in the pivot line is blank. |

For more details see Pivot Line Entries and Pivot Lines.

### 2.5.260 SXPI\_Item

The **SXPI\_Item** structure specifies information about a [pivot field](#Section_1edf7f2294084945b2de56526c14fca5) and its filtering on the [page axis](#Section_ff63f3d9274542878e6e11120ecf30b7) 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 |
| isxvd | | | | | | | | | | | | | | | | isxvi | | | | | | | | | | | | | | | |
| idObj | | | | | | | | | | | | | | | |

**isxvd (2 bytes):**  A signed integer that specifies a pivot field index as specified by Pivot Fields. The referenced pivot field is specified to be on the page axis. MUST be greater than or equal to zero and less than the **cDim** field of the [SxView](#Section_fcf246969b7b45a2b48a4199d26fb41b) record of the PivotTable view.

**isxvi (2 bytes):**  A signed integer that specifies the [pivot item](#Section_58891cc5dd9b4293a97831070779524f) used for the page axis filtering. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0000 to 0x7FFC | This value specifies a pivot item index that specifies a pivot item in the pivot field specified by **isxvd**. The referenced pivot item specifies the page axis filtering for the pivot field. |
| 0x7FFD | This value specifies all pivot items, see page axis for filtering that applies. |

For a non-[OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) the value MUST be 0x7FFD or greater than or equal to zero and less than the **cItm** field of the [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) record of the pivot field**.** Otherwise the value MUST be 0x7FFD.

**idObj (2 bytes):** A signed integer that specifies the object identifier of the [Obj](#Section_dd34df60825040a983a3911476a31ea7) record with the page item drop-down arrow.

### 2.5.261 SXVDEx\_Opt

The **SXVDEx\_Opt** structure specifies an optional string in the [SXVDEx](#Section_07ecd5c3e40e44ffbf1a0a473659a5cf) 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 |
| cchSubName | | | | | | | | | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | stSubName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cchSubName (2 bytes):** An unsigned integer that specifies the length, in characters, of the [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) in the **stSubName** field. If the value is 0xFFFF then **stSubName** does not exist. The value MUST be 0xFFFF or greater than zero and less than or equal to 0x00FF.

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

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

**stSubName (variable):** An XLUnicodeStringNoCch that specifies the name of the aggregate function used to calculate this [pivot field](#Section_1edf7f2294084945b2de56526c14fca5)’s subtotals. A "?" character within the string will be replaced by the **stName** field of [Sxvd](#Section_6f48271ee32547ea9efe9c197d0fb8e6) when displayed in the UI. The length is specified in **cchSubName**.

### 2.5.262 SXView9Save

The **SXView9Save** structure specifies option flags 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 |
| A | B | C | D | E | reserved2 | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |

**A - fNoStencil (1 bit):** A bit that specifies whether to disable the drawing of large drop zones for a [PivotTable view](#Section_a5f57198f2af40b2ba07e4b1836d73f3)that has no data fields.

**B - fHideTotAnnotation (1 bit):** A bit that specifies whether, for an [OLAP PivotTable view](#Section_bbdb91f53cc644e4a812d5e06c977f6f) when the **fNotVisualTotals** field of the [SXAddl\_SXCView\_SXDVer12Info](#Section_852f0dea13e84b8bae42ae9b09e76c5e) record of the PivotTable view is 0 or the SXAddl\_SXCView\_SXDVer12Info record is not present, an asterisk is not displayed next to the caption for subtotals and grand totals.

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

**D - fIncludeEmptyRw (1 bit):** A bit that specifies whether empty rows from an [**OLAP**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) be shown in the PivotTable view.

**E - fIncludeEmptyCol (1 bit):** A bit that specifies whether empty columns from an OLAP data source is shown in the PivotTable view.

**reserved2 (11 bits):** MUST be zero, and MUST be ignored.

**reserved3 (16 bits):** MUST be zero, and MUST be ignored.

### 2.5.263 SXVIFlags

**SXVIFlags** is a 2-byte structure which specifies properties for 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 |
| A | B | C | D | E | F | reserved2 | | | | | | | | | |

**A - fDrilledMember (1 bit):** A bit that specifies whether child elements of this node are collapsed, see [Collapsing](#Section_1c9375b4cc664783821f6b2b49bac169) for details. MUST be zero if the pivot items are from [**attribute hierarchies**](#gt_8f75d668-e8c6-4f42-ba44-d90604d3b9dc). MUST be zero if the **itmType** field of the [SXVI](#Section_79769ad0d2134e6dbf34fb766907091c) record of the pivot item is not zero.

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

**C - fHasChildren (1 bit):** A bit that specifies whether the pivot item has child [**OLAP members**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32). MUST be zero if the **itmType** field of the SXVI record of the pivot item is not zero.

**D - fCollapsedMember (1 bit):** A bit that specifies whether the subnodes of this node are collapsed, see Collapsing for details. This value applies only to pivot items of attribute hierarchies. MUST be zero if the pivot items are from non-attribute hierarchies.

**E - fHasChildrenEst (1 bit):** A bit that specifies whether **fHasChildren** is considered correct.

**F - fOlapFilterSelected (1 bit):** A bit that specifies whether this pivot item is selected for [Olap Manual Filtering](#Section_bd4665ebb56a44e690b9ceaf7ec55389).

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

### 2.5.264 TabId

The **TabId** structure specifies the unique sheet identifier associated with the [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). A sheet’s identifier is specified by the [RRTabId](#Section_e1b235b2c9554d38b7adfab84d93d4bc) record, the order of the sheet identifiers in the RRTabId record matches the order of the [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) records as they appear in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1). If the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) 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, beginning with one.

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

**tabid (2 bytes):**  An unsigned integer that specifies the unique sheet identifier associated with the sheet. MUST be greater than or equal to 0x0001 and less than or equal to 0xFFFE.

### 2.5.265 TabIndex

The **TabIndex** structure specifies a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) index in the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe). A sheet index is the zero-based index into the collection of [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) records as they appear in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1)

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

**itab (2 bytes):**  An unsigned integer that specifies the zero-based index into the collection of BoundSheet8 records as they appear in the Globals Substream.

### 2.5.266 TableFeatureType

The **TableFeatureType** structure specifies the definition of a [**table**](#gt_d3a7da8d-a597-4838-9756-25e30b640ba7) within a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

The table feature supports multiple [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) types. The data source is specified by the **lt** field. If the **lt** field is 0x00000001, the table's data source definition is cached within the [List Data](#Section_914f09bd8c944c099e8631dfe058f037) stream. If the **lt** field is 0x00000002, the table's data source schema is cached within the **XML stream** (section [2.1.7.22](#Section_e25e01370b9c4429bd260eed92e01c35)).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| lt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idList | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| crwHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| crwTotals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idFieldNext | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbFSData | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rupBuild | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | verXL | | | | Q | R | S | T | U | reserved3 | | | | | | |
| lPosStmCache | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbStmCache | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchStmCache | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| lem | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbHashParam (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cFieldData | | | | | | | | | | | | | | | | cSPName (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| entryId (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| fieldData (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idDeleted (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| idChanged (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cellInvalid (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**lt (4 bytes):** A [**SourceType**](#Section_c283a04493fd403da84368a3bf959502) that specifies the type of data source for the table.

**idList (4 bytes):** An unsigned integer that specifies an identifier for the table. MUST be unique within the sheet. SHOULD[<183>](#Appendix_A_183" \o "Product behavior note 183) be unique within the [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe).

**crwHeader (4 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies whether the table has a [**header row**](#gt_42711baf-2679-445d-a994-0eadd91b1a38). If **fAutoFilter** is 1, the value MUST be 0x00000001. If **fSingleCell** is 1, the value MUST be 0x00000000. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x00000000 | Table has no header row. |
| 0x00000001 | Table has a header row. |

**crwTotals (4 bytes):**  A Boolean that specifies whether there is a [**total row**](#gt_95e9bcf4-d644-4e96-9070-dbc80b4d1b28). If **fSingleCell** is 1, the value MUST be 0x00000000. MUST be one of the following values:

| Value | Meaning |
| --- | --- |
| 0x00000000 | Table has no total row. |
| 0x00000001 | Table has a total row. |

**idFieldNext (4 bytes):** An unsigned integer that specifies the next unique identifier to use when assigning unique identifiers to the **fieldData.idField** field of the table.

**cbFSData (4 bytes):** An unsigned integer that specifies the size, in bytes, of the fixed portion of this structure. The fixed portion starts at the **lt** field and ends at the **rgbHashParam** field. MUST be equal to 64.

**rupBuild (2 bytes):** An unsigned integer that specifies the [**build number**](#gt_560a30e4-7009-48da-b1e8-68db9c458e95) of the application that wrote the structure.

**unused1 (2 bytes):** Undefined, and MUST be ignored.

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

**B - fAutoFilter (1 bit):** A bit that specifies whether the table has an [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35). MUST be 1 when **fPersistAutoFilter** is 1.

**C - fPersistAutoFilter (1 bit):** A bit that specifies whether the AutoFilter is preserved for this table after data [**refresh**](#gt_d947dfed-8e3a-4451-b978-d69a89ae6060) operations.[<184>](#Appendix_A_184" \o "Product behavior note 184)

**D - fShowInsertRow (1 bit):** A bit that specifies whether the [**insert row**](#gt_3b3c223b-83e0-4697-85eb-815af907b8a9) is [**visible**](#gt_81648495-ee6b-4cfd-955a-89fc643d3b72). MUST be 1 if **fInsertRowInsCells** is 1.

**E - fInsertRowInsCells (1 bit):** A bit that specifies whether rows below the table are shifted down because of the insert row being visible.

**F - fLoadPldwIdDeleted (1 bit):** A bit that specifies whether the **idDeleted** field is present. MUST be zero if the **lt** field is not set to 0x00000001.

**G - fShownTotalRow (1 bit):** A bit that specifies whether the total row was ever visible.

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

**I - fNeedsCommit (1 bit):** A bit that specifies whether table modifications were not synchronized with the data source. MUST be zero if the **lt** field is not set to 0x00000001.

**J - fSingleCell (1 bit):** A bit that specifies whether the table is limited to a single [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461). The table cannot have header rows, total rows, or multiple columns. If **fSingleCell** equals 1, the **lt** field MUST be set to 0x00000002.

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

**L - fApplyAutoFilter (1 bit):**  A bit that specifies whether the AutoFilter is currently applied. MUST be 1 if the AutoFilter is currently applied[<185>](#Appendix_A_185" \o "Product behavior note 185).

**M - fForceInsertToBeVis (1 bit):** A bit that specifies whether the insert row is forced to be visible because the table has no data.

**N - fCompressedXml (1 bit):** A bit that specifies whether the cached data for this table in the List Data stream is compressed. MUST be zero if the **lt** field is not set to 0x00000001.

**O - fLoadCSPName (1 bit):** A bit that specifies whether the **cSPName** field is present. MUST be zero if the **lt** field is not set to 0x00000001.

**P - fLoadPldwIdChanged (1 bit):** A bit that specifies whether **idChanged** field is present. MUST be zero if the **lt** field is not set to 0x00000001.

**verXL (4 bits):** An unsigned integer that specifies the application version under which the table was created. MUST be either 0xB or 0xC[<186>](#Appendix_A_186" \o "Product behavior note 186).

**Q - fLoadEntryId (1 bit):** A bit that specifies whether the **entryId** field is present.

**R - fLoadPllstclInvalid (1 bit):** A bit that specifies whether the **cellInvalid** field is present. MUST be zero if the **lt** field is not set to 0x00000001.

**S - fGoodRupBld (1 bit):** A bit that specifies whether the **rupBuild** field is valid.

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

**U - fPublished (1 bit):** A bit that specifies whether the table is [**published**](#gt_8ffc383a-d4f1-4515-a8b5-874d84ab2d2b). This bit is ignored if the **fPublishedBookItems** field of the [BookExt\_Conditional12](#Section_714e951cff5a48769e01bdfa1b548141) structureis zero.

**reserved3 (7 bits):** Undefined, and MUST be ignored.

**lPosStmCache (4 bytes):** An unsigned integer that specifies the position of the cached data within the List Data stream. Undefined and MUST be ignored if the **lt** field is not set to 0x00000001.

**cbStmCache (4 bytes):** An unsigned integer that specifies the size, in bytes, of the cached data within the List Data stream. Undefined and MUST be ignored if the **lt** field is not set to 0x00000001.

**cchStmCache (4 bytes):** An unsigned integer that specifies the count of characters of the cached data within the List Data stream when the cached data is uncompressed. Undefined and MUST be ignored if the **lt** field is not set to 0x00000001.

**lem (4 bytes):** A [**LEMMode**](#Section_fe89780c48f940a0b6df3dbcda29e9e4) enumeration that specifies the table edit mode. If **lt** is set to 0x00000000, 0x00000002 or 0x00000003, this field MUST be set to 0x00000000.

**rgbHashParam (16 bytes):** An array of bytes that specifies round-trip information. SHOULD[<187>](#Appendix_A_187" \o "Product behavior note 187) be ignored and MUST be preserved if the **lt** field is set to 0x00000001. Undefined and MUST be ignored if the **lt** field is not set to 0x00000001.

**rgbName (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name of the table. MUST be unique per [workbook](#Section_f682f4b08c6b444e83f852d156f1e8ba), and case-sensitive in all locales.

**cFieldData (2 bytes):** An unsigned integer that specifies the number of columns in the table. MUST be greater than or equal to 0x0001 and less than or equal to 0x0100.

**cSPName (variable):** An XLUnicodeString that specifies the name of the [**cryptographic service provider**](#gt_1e9dc9e9-1ec2-43fa-80ac-caf013b9f3fc) used to specify **rgbHashParam**. This field is present only if **fLoadCSPName** is set to 1.

**entryId (variable):** An XLUnicodeString that specifies a unique identifier for the table. The string equals the value of the **idList** field, represented in decimal format, without any leading zeros. It is used when **lt** equals 0x00000002 and ignored otherwise. This field is present only if **fLoadEntryId** is set to 1.

**fieldData (variable):** An array of [Feat11FieldDataItem](#Section_9680d9295738414888615a09e1b2c319) that contains the specification of the columns of the table. The number of items in this array is specified by the **cFieldData** field.

**idDeleted (variable):** A [Feat11RgSharepointIdDel](#Section_80f9f8d766224a039eb4b2c889964c36) structure that specifies the identifiers of deleted rows. This information is used when synchronizing with the Web based [**data provider’s**](#gt_33fa4cdc-ae58-4a6c-8111-31377e1d292e) data source. This field is only present if the **fLoadPldwIdDeleted** field is set to 1.

**idChanged (variable):** A [Feat11RgSharepointIdChange](#Section_39f80c5a19474547adb2153395b9d0e6) structure that specifies the identifiers of the edited rows. This information is used when synchronizing with the Web based data provider’s data source. This field is only present if the **fLoadPldwIdChanged** field is set to 1.

**cellInvalid (variable):** A [Feat11RgInvalidCells](#Section_9397a534bb5a4451bb86f6eddf3d282b) structure that specifies the location of cells within the table that contain values that are invalid based on validation rules on the Web based data provider. This field is only present if the **fLoadPllstclInvalid** field is set to 1.

### 2.5.267 Tag\_Fn\_MDX

The **Tag\_Fn\_MDX** enumeration specifies [**cube function**](#gt_02658bae-45d5-4aad-be23-d35b9d440af3) types.

| Name | Value | Meaning |
| --- | --- | --- |
| **TFNCUBEMEMBER** | 0x01 | CUBEMEMBER |
| **TFNCUBEVALUE** | 0x02 | CUBEVALUE |
| **TFNCUBESET** | 0x03 | CUBESET |
| **TFNCUBESETCOUNT** | 0x04 | CUBESETCOUNT |
| **TFNCUBERANKEDMEMBER** | 0x05 | CUBERANKEDMEMBER |
| **TFNCUBEMEMBERPROPERTY** | 0x06 | CUBEMEMBERPROPERTY |
| **TFNCUBEKPIPROPERTY** | 0x07 | CUBEKPIPROPERTY |

### 2.5.268 TextPropsStreamChecksumData

The **TextPropsStreamChecksumData** structure specifies the data used to compute the [**checksum**](#gt_fa444149-ef93-4512-a278-2e756295630c) of the [TextPropsStream](#Section_8cdced5f669142339dc3b96e3e1cf3b1) record. This data can be obtained from [Font](#Section_291a910ccb694799875ea201845d4fd1) and [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) records associated with the TextPropsStream record, as specified in TextPropsStream. If no Font record is associated with the TextPropsStream record, the fields related to the Font record MUST be omitted from this structure and thus not used to compute the checksum. If no Text record is associated with the TextPropsStream record, the Text record associated with the [DefaultText](#Section_cda28b8e07614f108b656c38368f791d) record MUST be used instead.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| stFontName (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dwFontHeight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | unused1 | | | | | boldness | | | | | | | | | | | | | | | |
| subscript | | | | | | | | | | | | | | | | bUnderline | | | | | | | | bFamily | | | | | | | |
| bCharset | | | | | | | | unused2 | | | | | | | | rgbFontColor | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | dwDrawingMode | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | bRotation | | | | | | | | dwHAlignment | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | dwVAlignment | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | bReadingOrder | | | | | | | |

**stFontName (variable):** An array of [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) characters that specify the [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2) name. The size of the array MUST be equal to **fontName**.**cch\***2, where **fontName** is a field of the associated Font record.

The value of this field MUST be equal to value of the **fontName**.**rgb** field of the associated Font record.

**dwFontHeight (4 bytes):** An unsigned integer that specifies the font height. The value of this field MUST be equal to the value of the **dyHeight** field of the associated Font record.

**A - fBold (1 bit):** A bit that specifies whether the font is bold. The value of this field MUST be 1 when the value of the **bls** field of the associated Font record is greater than 400.

**B - fItalic (1 bit):** A bit that specifies whether the font is italic. The value of this field MUST be equal to the value of the **fItalic** field of the associated Font record.

**C - fUnderline (1 bit):** A bit that specifies whether the font is single-underlined. The value of this field MUST be 1 when the value of the **uls** field of the associated Font record is not equal to 0x00.

**D - fOutline (1 bit):** A bit that specifies whether the font has an [**outline effect**](#gt_4e818802-fdc1-4227-b32f-1a3cb0943de7) applied. The value of this field MUST be equal to the value of the **fOutline** field of the associated Font record.

**E - fShadow (1 bit):** A bit that specifies whether the font has a [**shadow effect**](#gt_83056968-00f2-463b-abc6-607dbb242cbf) applied. The value of this field MUST be equal to the value of the **fShadow** field of the associated Font record.

**F - fCondense (1 bit):** A bit that specifies whether the font is condensed. The value of this field MUST be equal to the value of the **fCondense** field of the associated Font record.

**G - fExtend (1 bit):** A bit that specifies whether the font is extended. The value of this field MUST be equal to the value of the **fExtend** field of the associated Font record.

**H - fStrikeout (1 bit):** A bit that specifies whether the font has strike-through effect applied. The value of this field MUST be equal to the value of the **fStrikeOut** field of the associated Font record.

**I - fRegular (1 bit):** A bit that specifies whether the font is a regular font. The value of this field MUST be equal to 1.

**J - fJon (1 bit):** A bit that specifies whether the font is too small to be displayed. MUST have a value of 1 if the font height in pixels is less than 6.

**K - fDialogBox (1 bit):** A bit that specifies whether the font is used in the context of a dialog box. The value of this field MUST be equal to 0.

**unused1 (5 bits):** MUST be zero, and MUST be ignored.

**boldness (2 bytes):** An unsigned integer that specifies the font weight. The value of this field MUST be equal to the value of the **bls** field of the associated Font record.

**subscript (2 bytes):** An unsigned integer that specifies whether superscript, subscript, or normal script is used. The value of this field MUST be equal to the value of the **sss** field of the associated Font record.

**bUnderline (1 byte):** An unsigned integer that specifies the underline style. The value of this field MUST be equal to the value of the **uls** field of the associated Font record.

**bFamily (1 byte):** An unsigned integer that specifies the [**font family**](#gt_bca5490d-d27e-4097-b05d-9efb09083dd2) of this font. The value of this field MUST be equal to the value of the **bFamily** field of the associated Font record.

**bCharset (1 byte):** An unsigned integer that specifies the [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204). The value of this field MUST be equal to the value of the **bCharSet** field of the associated Font record.

**unused2 (1 byte):** MUST be zero, and MUST be ignored.

**rgbFontColor (4 bytes):** A [LongRGB](#Section_dfedc14244ef4981b6c650d607abf756) that specifies the font color. The value of this field MUST be equal to the value of the **icv** field of the associated Font record.

**dwDrawingMode (4 bytes):** An unsigned integer that specifies the display mode of the background of the text. The value of this field MUST be equal to 0x0000010D when the **wBkgMode** field of the associated Text record is equal to 0x0001; otherwise, it MUST be equal to 0x0000020D.

**bRotation (1 byte):** An unsigned integer that specifies the text rotation. The value of this field MUST be equal to the value of the **trot** field of the associated Text record.

**dwHAlignment (4 bytes):** An unsigned integer that specifies the horizontal alignment of the text. The value of this field MUST equal to the value of the **at** field of the associated Text record.

**dwVAlignment (4 bytes):** An unsigned integer that specifies the vertical alignment of the text. The value of this field MUST be equal to the value of the **vat** field of the associated Text record.

**bReadingOrder (1 byte):** An unsigned integer that specifies the reading order of the text. The value of this field MUST be equal to the value of the **iReadingOrder** field of the associated Text record.

### 2.5.269 Top10FT

The **Top10FT** enumeration specifies the [**top N filter**](#gt_0f30d3fd-cc8f-4c20-ab45-4ccbb3f834d9) type.

| Name | Value | Meaning |
| --- | --- | --- |
| **TOP10FTUNKNOWN** | 0x00000000 | None |
| **TOP10FTCOUNT** | 0x00000001 | Count |
| **TOP10FTPERCENT** | 0x00000002 | Percent |
| **TOP10FTSUM** | 0x00000003 | Sum |

### 2.5.270 Ts

The **Ts** structure specifies the italic and [**strikethrough formatting**](#gt_b16d9600-aebb-4a4f-bf14-c38e13c11c14) of a [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | C | unused3 | | | | | | | | | | | | | | | | | | | | | | | |

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

**B - ftsItalic (1 bit):**  A bit that specifies whether the text [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) is italic.

**unused2 (5 bits):** Undefined and MUST be ignored.

**C - ftsStrikeout (1 bit):**  A bit that specifies whether the font has strikethrough formatting applied.

**unused3 (24 bits):** Undefined and MUST be ignored.

### 2.5.271 TxOLastRun

The **TxOLastRun** structure marks the end of the [**formatting run**](#gt_10031ac8-2a26-4200-beee-cd8d9420ca96) information in the [TxORuns](#Section_31cd7d1ef21a4ddea4f42ce911c0a49d) 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 |
| cchText | | | | | | | | | | | | | | | | unused1 | | | | | | | | | | | | | | | |
| unused2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cchText (2 bytes):** An unsigned integer that specifies the number of characters in the preceding [TxO](#Section_638c08e629424783b71b144ccf758fc7) record. The value MUST be the count of characters specified in the **cchText** field of the preceding TxO record.

**unused1 (2 bytes):** Undefined and MUST be ignored.

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

### 2.5.272 TxORuns

The **TxORuns** structure specifies the [**formatting run**](#gt_10031ac8-2a26-4200-beee-cd8d9420ca96) information for the [TxO](#Section_638c08e629424783b71b144ccf758fc7) record and zero or more [Continue](#Section_999fae21d3d942e88290639782460c67) records immediately following.

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

**rgTxoRuns (variable):** An array of [Run](#Section_d738ffef2bad4c6f88bee9e174a0b5c8). Each Run specifies the formatting information for a [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553). **formatRun.ich** MUST be less than or equal to **cchText** of the preceding TxO record. The number of elements in this array is as follows:

(**cbRuns** of the preceding TxO record / 8 – 1).

**lastRun (8 bytes):**  A [TxOLastRun](#Section_6fb4c0e329c34a329c30e12a895c4074) that marks the end of the text run. This field is only present in the last Continue record following the TxO record. [<188>](#Appendix_A_188" \o "Product behavior note 188)

### 2.5.273 TxtWf

The **TxtWf** structure specifies a field in text to column.

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

**fieldType (4 bytes):**  An unsigned integer that specifies the format of the field. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | General |
| 0x00000001 | Text |
| 0x00000002 | Date in the order month, day, year |
| 0x00000003 | Date in the order day, month, year |
| 0x00000004 | Date in the order year, month, day |
| 0x00000005 | Date in the order month, year, day |
| 0x00000006 | Date in the order day, year, month |
| 0x00000007 | Date in the order year, day, month |
| 0x00000008 | Skip importing field |
| 0x00000009 | Taiwan era dates. |

**fieldStart (4 bytes):**  An unsigned integer that specifies the character position of the field. The offset is zero-based and MUST be greater than or equal to 0.

### 2.5.274 Underline

The **Underline** enumeration specifies the underline style.

| Name | Value | Meaning |
| --- | --- | --- |
| **ULSNONE** | 0x0000 | No underline |
| **ULSSINGLE** | 0x0001 | Single |
| **ULSDOUBLE** | 0x0002 | Double |
| **ULSSINGLEACCOUNTANT** | 0x0021 | [**Single accounting**](#gt_7ad49c0f-e183-47b5-bdbd-c23a5a8315fc) |
| **ULSDOUBLEACCOUNTANT** | 0x0022 | [**Double accounting**](#gt_89f4f531-9a8b-419c-8f51-98ef409b7bdf) |

### 2.5.275 VertAlign

The **VertAlign** enumeration specifies the vertical alignment.

| Name | Value | Meaning |
| --- | --- | --- |
| **ALCVTOP** | 0x00 | Top alignment |
| **ALCVCTR** | 0x01 | Center alignment |
| **ALCVBOT** | 0x02 | Bottom alignment |
| **ALCVJUST** | 0x03 | Justify alignment |
| **ALCVDIST** | 0x04 | Distributed alignment |

### 2.5.276 VertBrk

The **VertBrk** structure specifies one column [**page break**](#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 |
| col | | | | | | | | | | | | | | | | rowStart | | | | | | | | | | | | | | | |
| rowEnd | | | | | | | | | | | | | | | |

**col (2 bytes):**  A [ColU](#Section_f716fb856c90424aa99ed61b2191a224) that specifies the zero-based index of the first column to the right of the page break.

**rowStart (2 bytes):**  A [RwU](#Section_5a871cb48740466b87746adb09caacca) that specifies the zero-based index of the first row on the page.

**rowEnd (2 bytes):**  A RwU that specifies the zero-based index of the last row on the page. The value MUST be greater than **rowStart**.

### 2.5.277 VirtualPath

**VirtualPath** is a [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies a path, a workbook, and optionally a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

MUST be a string in the following grammar:

virt-path = volume / unc-volume / rel-volume / transfer-protocol / startup / alt-startup / library / simple-file-path / ole-link

ole-link = path-string %x0003 path-string

simple-file-path = [%x0001] file-path

startup = %x0001 %x0006 file-path

This code specifies that the relative-path is relative to the [**startup directory**](#gt_801b8914-241f-4ce5-977d-81aebf73f03d).

alt-startup = %x0001 %x0007 file-path

This code specifies that the relative-path is relative to the [**alternate startup directory**](#gt_08e6e2f9-6030-4e53-a75f-ce61b18a5113).

library = %x0001 %x0008 file-path

This code specifies that the relative-path is relative to the [**library directory**](#gt_1cdac036-e397-49b5-8933-c0e8f054528a).

transfer-protocol = %x0001 %x0005 count transfer-path

This code specifies that the path is a [**transfer protocol**](#gt_627a8033-354c-4fd2-9356-bb232afbdb6a) path. The value of count MUST be equal to the number of characters following count in transfer-path.

transfer-path = transfer-base-path / "[" transfer-base-path "]" sheet-name

transfer-base-path = transfer-type "://" file-path

transfer-type = "ftp" / "http" / "https"

rel-volume = %x0001 %x0002 file-path

This code specifies that the path is relative to the drive volume of the workbook that contains the path.

volume = %x0001 %x0001 volume-character file-path

This code specifies that the path is relative to a specific drive volume. The drive volume is specified in volume-character.

unc-volume = %x0001 %x0001 %x0040 unc-path

This code specifies that the path is relative to a [**UNC volume**](#gt_dbf563c5-fee0-44dc-b90e-d302db7bcd78). The computer name is specified in computer-name and the shared folder is specified in shared-folder.

unc-path = unc-base-path / "[" unc-base-path "]" sheet-name

unc-base-path = computer-name %x0003 shared-folder %x0003 relative-path

volume-character = %x0041-%x005A / %x0061-%x007A

This code specifies a drive volume.

file-path = relative-path / "[" relative-path "]" sheet-name

sheet-name = sheet-start-end-character \*sheet-character sheet-start-end-character / sheet-start-end-character

This code specifies the name of the sheet within the workbook.

sheet-start-end-character = %x0001-%xFFFF

This code specifies a character which is a first or last character of sheet name. Such character MUST NOT include any character that matches invalid-sheet-start-end-character.

invalid-sheet-start-end-character = %x0003 / "\*" / "?" / "’" / "[" / "]" / "\" / ":" / "/"

sheet-character = %x0001-%xFFFF

This code specifies a sheet character. A sheet character MUST NOT include any character that matches invalid-sheet-character.

invalid-sheet-character = %x0003 / "\*" / "?" / / "[" / "]" / "\" / ":" / "/"

relative-path = directory \*(%x0003 directory)

This code specifies a sequence of subdirectories that comprise the path from the volume or directory.

directory = path-string

This code specifies a directory.

computer-name = path-string

This code specifies a computer name.

shared-folder = path-string

This code specifies a shared folder.

path-string = 1\*path-character

path-character = %x0020-%x0021 / %x0023-%x0029 / %x002B-%x002E / %x0030-%x0039 / %x003B / %x003D / %x0040-%x005B / %x005D-%x007B / %x007D-%xFFFF

This code specifies a path character.

count = %x00-%xFF

### 2.5.278 WebPubString

The **WebPubString** structure specifies a string for Web publishing.

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

**cch (2 bytes):** An unsigned integer that specifies the character count in the **str** field. MUST be greater than or equal to zero and less than or equal to 255.

**str (variable):** An [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066). The character count in the string MUST be equal to the value of the **cch** field.

**pad (1 byte):**  Unused and MUST be ignored. This field exists if and only if the total number of bytes in the **str** field is an odd number.

### 2.5.279 XColorType

The **XColorType** enumeration specifies the color reference types. It MUST be one of the following values:

| Name | Value | Meaning |
| --- | --- | --- |
| **XCLRAUTO** | 0x00000000 | Automatic color |
| **XCLRINDEXED** | 0x00000001 | Indexed color |
| **XCLRRGB** | 0x00000002 | RGB color |
| **XCLRTHEMED** | 0x00000003 | Theme color |
| **XCLRNINCHED** | 0x00000004 | Color not set |

### 2.5.280 XFExtGradient

The **XFExtGradient** structure specifies a gradient fill for a [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) interior.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| gradient (44 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cGradStops | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgGradStops (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**gradient (44 bytes):** An [XFPropGradient](#Section_0daabdd95c4149fe99ad813fae408f1b) that specifies the gradient fill.

**cGradStops (4 bytes):** An unsigned integer that specifies the number of items in **rgGradStops**. MUST be greater than or equal to 0 and less than or equal to 256.

**rgGradStops (variable):** An array of [GradStop](#Section_6b470eb833b44731a29778f2cf49af06). Each array element specifies a gradient stop for this gradient fill.

### 2.5.281 XFExtNoFRT

The **XFExtNoFRT** structure specifies a set of extensions to formatting 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 |
| reserved1 | | | | | | | | | | | | | | | | reserved2 | | | | | | | | | | | | | | | |
| reserved3 | | | | | | | | | | | | | | | | cexts | | | | | | | | | | | | | | | |
| rgExt (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**reserved2 (2 bytes):** MUST be equal to 0xFFFF and MUST be ignored.

**reserved3 (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 an extension to a formatting property. The element count of this field MUST be equal to **cexts**.

### 2.5.282 XFIndex

The **XFIndex** structure specifies the index of a [XF](#Section_993d15c4ec0443e9ba36594dfb336c6d) 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 |
| ixfe | | | | | | | | | | | | | | | |

**ixfe (2 bytes):** An unsigned integer that specifies a zero-based index of a XF record in the collection of XF records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1).

The XF records in the file refer to both and [Cell Style XFs](#Section_3d5348ded9df4c31b1fd9f9377273152) and [Cell XFs](#Section_518a740d71c640c8bb97e7df6915861a). For more information, see [Styles](#Section_df39e66a8f994f41beeb4f5c8a1d2593).

The XF records in the file can be divided into three sections. The first section contains the 16 built-in XF records that MUST exist and MUST be ordered as follows:

| Index | XF specifies | fStyle value |
| --- | --- | --- |
| 0 | Normal style | 1 |
| 1 | Row outline level 1 | 1 |
| 2 | Row outline level 2 | 1 |
| 3 | Row outline level 3 | 1 |
| 4 | Row outline level 4 | 1 |
| 5 | Row outline level 5 | 1 |
| 6 | Row outline level 6 | 1 |
| 7 | Row outline level 7 | 1 |
| 8 | Column outline level 1 | 1 |
| 9 | Column outline level 2 | 1 |
| 10 | Column outline level 3 | 1 |
| 11 | Column outline level 4 | 1 |
| 12 | Column outline level 5 | 1 |
| 13 | Column outline level 6 | 1 |
| 14 | Column outline level 7 | 1 |
| 15 | Default cell format | 0 |

The second section contains XF records for both built-in and user-defined Cell Style XFs. These Cell Style XFs MUST be ordered alphabetically in the file based on their name. The name of the Cell Style XF is specified by the **user** field of the corresponding [Style](#Section_13bec5ebe6ec4dc192350e7f9e5426a1) record. The corresponding Style record is the one with an **ixfe** field that specifies the XF record of the Cell Style XF. Note that the ordering depends on the localized name of the style and the language of the application that last saved the file.

For example, in a workbook created by a specific version of the application[<189>](#Appendix_A_189" \o "Product behavior note 189) with no user-defined [cell styles](#Section_f9425d3f127545be8389bf80f65b56b7) the remainder of the table is:

| Index | Name of Style | fStyle value |
| --- | --- | --- |
| 16 | 20% - Accent1 | 1 |
| 17 | 20% - Accent2 | 1 |
| 18 | 20% - Accent3 | 1 |
| 19 | 20% - Accent4 | 1 |
| 20 | 20% - Accent5 | 1 |
| 21 | 20% - Accent6 | 1 |
| 22 | 40% - Accent1 | 1 |
| 23 | 40% - Accent2 | 1 |
| 24 | 40% - Accent3 | 1 |
| 25 | 40% - Accent4 | 1 |
| 26 | 40% - Accent5 | 1 |
| 27 | 40% - Accent6 | 1 |
| 28 | 60% - Accent1 | 1 |
| 29 | 60% - Accent2 | 1 |
| 30 | 60% - Accent3 | 1 |
| 31 | 60% - Accent4 | 1 |
| 32 | 60% - Accent5 | 1 |
| 33 | 60% - Accent6 | 1 |
| 34 | Accent1 | 1 |
| 35 | Accent2 | 1 |
| 36 | Accent3 | 1 |
| 37 | Accent4 | 1 |
| 38 | Accent5 | 1 |
| 39 | Accent6 | 1 |
| 40 | Bad | 1 |
| 41 | Calculation | 1 |
| 42 | Check Cell | 1 |
| 43 | Comma | 1 |
| 44 | Comma[0] | 1 |
| 45 | Currency | 1 |
| 46 | Currency[0] | 1 |
| 47 | Explanatory Text | 1 |
| 48 | Good | 1 |
| 49 | Heading 1 | 1 |
| 50 | Heading 2 | 1 |
| 51 | Heading 3 | 1 |
| 52 | Heading 4 | 1 |
| 53 | Input | 1 |
| 54 | Linked Cell | 1 |
| 55 | Neutral | 1 |
| 56 | Note | 1 |
| 57 | Output | 1 |
| 58 | Percent | 1 |
| 59 | Title | 1 |
| 60 | Total | 1 |
| 61 | Warning Text | 1 |

The last section contains unordered XFs for any Cell XFs in the file.

### 2.5.283 XFProp

The **XFProp** structure specifies a formatting property. Instances of this structure appear as elements in the **xfPropArray** field of an [XFProps](#Section_bf4f3634ed2d4207b18ba23dd6b3d565) 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 |
| xfPropType | | | | | | | | | | | | | | | | cb | | | | | | | | | | | | | | | |
| xfPropDataBlob (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xfPropType (2 bytes):** An unsigned integer that specifies the type of the formatting property. MUST be greater than or equal to 0x0000 and less than or equal to 0x002C, and MUST NOT equal 0x0027 or 0x0028. See the table in **xfPropDataBlob** for more information about the meaning of this field.

**cb (2 bytes):** An unsigned integer that specifies the size of this XFProp structure.

**xfPropDataBlob (variable):** A field that specifies the formatting property data. The size and data type of this field varies based on the property type as specified in **xfPropType** as follows:

| xfPropType value | xfPropDataBlob field Data and Meaning |
| --- | --- |
| 0x0000 | A [**FillPattern**](#Section_10767248ab464581ae08310ffcbf026b) that specifies the [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e). |
| 0x0001 | An [XFPropColor](#Section_4d611df5738b4724aeef0bbbc7e84279) that specifies the foreground color. |
| 0x0002 | An XFPropColor that specifies the background color. |
| 0x0003 | An [XFPropGradient](#Section_0daabdd95c4149fe99ad813fae408f1b) that specifies the [**gradient fill**](#gt_35280309-5b22-4c17-be48-f06c37ffc685). This is often followed in the same **xfPropArray** field of the XFPropsstructure by one or more XFProp structures with **xfPropType** equal to 0x0004, which provides additional specifications for the gradient fill. |
| 0x0004 | An [XFPropGradientStop](#Section_e77842460e184623809f7153210fc571) that specifies a [**gradient stop**](#gt_35b983af-d590-4f93-87cb-94786924511f) for a preceding XFProp with **xfPropType** equal to 0x0003 in the same **xfPropArray** field in the XFProps structure. |
| 0x0005 | An XFPropColor that specifies the text color. |
| 0x0006 | An [XFPropBorder](#Section_43dd1e924e734226af2fa8689af82780) that specifies the top border formatting. |
| 0x0007 | An XFPropBorder that specifies the bottom border formatting. |
| 0x0008 | An XFPropBorder that specifies the left border formatting. |
| 0x0009 | An XFPropBorder that specifies the right border formatting. |
| 0x000A | An XFPropBorder that specifies the diagonal border formatting. |
| 0x000B | An XFPropBorder that specifies the vertical border formatting. |
| 0x000C | An XFPropBorder that specifies the horizontal border formatting. |
| 0x000D | A 1-byte unsigned integer that specifies whether a [**diagonal-up**](#gt_d4878a4d-c65e-471d-b9fb-da7a5a5aa929) border is used. MUST be 0 or 1. The value of 1 means that a diagonal-up border is used. |
| 0x000E | A 1-byte unsigned integer that specifies whether a [**diagonal-down**](#gt_494c0660-9ece-4dcc-b8d3-1a5616a57782) border is used. MUST be 0 or 1. The value of 1 means that a diagonal-down border is used. |
| 0x000F | A [**HorizAlign**](#Section_75e17a8f9cd44b37927e4b0a54ef9266) that specifies the [**horizontal alignment**](#gt_f0e60ca8-51d5-4553-9126-3d89a4d08f90). |
| 0x0010 | A [**VertAlign**](#Section_1e9eb7d30cd842a3af1ef523105a5e93) that specifies the [**vertical alignment**](#gt_5a59a612-2d00-4cb5-9565-952243641878). |
| 0x0011 | An [XFPropTextRotation](#Section_828733cb953a48ceb4054d235575e9b3) that specifies the text rotation. |
| 0x0012 | A 2-byte unsigned integer that specifies the absolute text [**indentation level**](#gt_2779d3df-3c50-44dc-9d2d-6996c4573aa9). MUST be less than or equal to 15. The absolute indentation level replaces any previous indentation. |
| 0x0013 | A [**ReadingOrder**](#Section_dd395a856ae749cdae9418bab51e5357) that specifies the [**reading order**](#gt_defb8e89-c809-4682-81f3-19c547363361). |
| 0x0014 | A 1-byte unsigned integer that specifies whether [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) text is wrapped. MUST be 0 or 1. The value of 1 means that the text is wrapped. |
| 0x0015 | A 1-byte unsigned integer that specifies whether cell text is [**justify distributed**](#gt_11eced66-af2c-4391-8b45-87a60ad41483). MUST be 0 or 1. The value of 1 means that the text is justify distributed. If this value is 1 then an XFProp with **xfPropType** equal to 0x000F MUST exist in this **xfPropArray** field of the XFProps structure and MUST equal 0x07. |
| 0x0016 | A 1-byte unsigned integer that specifies whether a cell is [**shrink to fit**](#gt_4740d2ef-00d3-4a29-983c-b7b3a6aa01e0). MUST be 0 or 1. The value of 1 means that the cell is shrink to fit. |
| 0x0017 | A 1-byte unsigned integer that specifies whether a cell is merged. MUST be 0 or 1. The value of 1 means that the cell is merged. |
| 0x0018 | An [LPWideString](#Section_1f77dc803fec4b4ba55d3a41292d1dc4) that specifies the font name used by the cell data. MUST be less than or equal to 32 characters in length. |
| 0x0019 | A [**Bold**](#Section_0cd02a0c17b245a7aa09f6ff188c4997) that specifies the [**font face weight**](#gt_8fd5e2d4-bd9a-48f2-ba16-42d23697508c). |
| 0x001A | An [**Underline**](#Section_6b992267b60040b28ac54a81f01d3ef4) that specifies the underline style. |
| 0x001B | A [**Script**](#Section_f35422c1b5e7476f8893acd279c48bd3) that specifies the superscript or subscript style. |
| 0x001C | A 1-byte unsigned integer that specifies whether text is italicized. MUST be 0 or 1. The value of 1 means that the text is italic. |
| 0x001D | A 1-byte unsigned integer that specifies whether text has [**strikethrough formatting**](#gt_b16d9600-aebb-4a4f-bf14-c38e13c11c14) applied. MUST be 0 or 1. The value of 1 means that the text has strikethrough formatting applied. |
| 0x001E | A 1-byte unsigned integer that specifies whether text has an outline style. MUST be 0 or 1. The value of 1 means that the text is outline style. |
| 0x001F | A 1-byte unsigned integer that specifies whether text has a shadow style. MUST be 0 or 1. The value of 1 means that the text is shadow style. |
| 0x0020 | A 1-byte unsigned integer that specifies whether text is condensed. MUST be 0 or 1. The value of 1 means that the text is condensed. |
| 0x0021 | A 1-byte unsigned integer that specifies whether text is extended. MUST be 0 or 1. The value of 1 means that the text is extended. |
| 0x0022 | A 1-byte unsigned integer that specifies a [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204). For more information about character sets, see the Windows API LOGFONT structure in [[MSDN-FONTS]](https://go.microsoft.com/fwlink/?LinkId=90008). |
| 0x0023 | A 1-byte unsigned integer that specifies a [**font family**](#gt_bca5490d-d27e-4097-b05d-9efb09083dd2). For more information about font families, see the Windows API LOGFONT structure in [MSDN-FONTS]. MUST be greater than or equal to 0 and less than or equal to 5. |
| 0x0024 | A 4-byte unsigned integer that specifies text size in [**twips**](#gt_4b82472c-103d-4eff-a07e-6a0f784e3382). MUST be greater than or equal to 20 and less than or equal to 8191. |
| 0x0025 | A [**FontScheme**](#Section_ce82744c42a84c1a80f67d100b4550ed) that specifies the [**font scheme**](#gt_d2cfdc52-4222-46a7-8c1e-fffdcadcb973) of a [**theme**](#gt_8b5eb4c0-949b-47d9-8b63-b9bda81d61b8) [**font**](#gt_f8aa3f46-99d1-49bb-858f-b4bfa546c1c2). |
| 0x0026 | A [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) as specified by the **stFormat** field of [Format](#Section_300280fde4fe4675a9244d383af48d3b) that specifies the number [**format string**](#gt_07085e26-506a-4b35-81ad-972464e277ff). |
| 0x0029 | An [IFmt](#Section_9017e24779954a9c96e8950df24735a2) that specifies a number format identifier. |
| 0x002A | A 2-byte signed integer that specifies the relative text indentation level. The relative indentation level is added to any previous indentation. The value MUST either be greater than or equal to -15 and less than or equal to 15, or it MUST be 255. Values -15 through 15 specify a relative indentation level, and the value 255 specifies the absence of a relative indentation level. |
| 0x002B | A 1-byte unsigned integer that specifies whether the [**locked protection**](#gt_10f1ec97-0464-49da-bf78-5339b9d3520c) property is set to true. MUST be 0 or 1. The value of 1 means that the property is set to true. |
| 0x002C | A 1-byte unsigned integer that specifies whether the [**hidden protection**](#gt_1b14d877-9a96-485f-8eb8-b2c26f3355cf) property is set to true. MUST be 0 or 1. The value of 1 means that the property is set to true. |

### 2.5.284 XFPropBorder

The **XFPropBorder** structure specifies [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad).

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

**color (8 bytes):** An [XFPropColor](#Section_4d611df5738b4724aeef0bbbc7e84279) that specifies the border color.

**dgBorder (2 bytes):** A [BorderStyle](#Section_e6134bd9203f49f1bc777ab3692f2364) that specifies the border [**line style**](#gt_a6d51057-258d-42cc-9920-6e08c10d2447).

### 2.5.285 XFPropColor

The **XFPropColor** structure specifies a color.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | xclrType | | | | | | | icv | | | | | | | | nTintShade | | | | | | | | | | | | | | | |
| dwRgba | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**A - fValidRGBA (1 bit):** A bit that specifies whether the **xclrType, icv** and **nTintShade** fields were used to set the **dwRgba** field. MUST equal 1.

**xclrType (7 bits):** An [**XColorType**](#Section_7f0948f77e7a4ae785e77cdf9b83c22a) that specifies how the color information is stored.

**icv (1 byte):** An unsigned integer that specifies color information. If **xclrType** equals 0x01, this field MUST be one of the values specified in [IcvXF](#Section_6502ad1b09184ee7903410a968f39dad), or equal 0. If **xclrType** equals 0x03, this field MUST be one of the values specified in [ColorTheme](#Section_839c782d4d1a4e88bac58c2335fb7b70). Otherwise this field is undefined and MUST be ignored.

**nTintShade (2 bytes):** A signed integer that specifies the tint of the color. This value is mapped to the range -1.0 to 1.0. Positive values lighten the color, and negative values darken the color. MUST NOT equal -32768.

**dwRgba (4 bytes):** A [LongRGBA](#Section_ef480296bdc34bcbbd1ecd354b79d7c2) that specifies the color.

### 2.5.286 XFPropGradient

The **XFPropGradient** structure specifies a [**gradient fill**](#gt_35280309-5b22-4c17-be48-f06c37ffc685).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numDegree | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numFillToLeft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numFillToRight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numFillToTop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| numFillToBottom | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**type (4 bytes):**  A Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) that specifies the gradient type. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00000000 | [**Linear gradient**](#gt_66edee6e-7500-4703-853d-44f9cd16540a) |
| 0x00000001 | [**Rectangular gradient**](#gt_bc10f1e2-8a79-4d73-92ff-f4648d3f0ada) |

**numDegree (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the gradient angle in degrees for a linear gradient. The gradient angle specifies the angle at which gradient strokes are drawn.

**numFillToLeft (8 bytes):** An Xnum that specifies the left coordinate of the [**inner rectangle**](#gt_7f6fb91e-9a0b-42e8-93ff-751448f7f80f) for a rectangular gradient, where (0.0,0.0) is the upper-left hand corner of the inner rectangle. MUST be greater than or equal to 0.0 and less than or equal to 1.0.

**numFillToRight (8 bytes):** An Xnum that specifies the right coordinate of the inner rectangle for a rectangular gradient, where (0.0,0.0) is the upper-left hand corner of the inner rectangle. MUST be greater than or equal to 0.0 and less than or equal to 1.0.

**numFillToTop (8 bytes):** An Xnum that specifies the top coordinate of the inner rectangle for a rectangular gradient, where (0.0,0.0) is the upper-left hand corner of the inner rectangle. MUST be greater than or equal to 0.0 and less than or equal to 1.0.

**numFillToBottom (8 bytes):** An Xnum that specifies the bottom coordinate of the inner rectangle for a rectangular gradient, where (0.0,0.0) is the upper-left hand corner of the inner rectangle. MUST be greater than or equal to 0.0 and less than or equal to 1.0.

### 2.5.287 XFPropGradientStop

The **XFPropGradientStop** structure specifies a [**gradient stop**](#gt_35b983af-d590-4f93-87cb-94786924511f) for a [**gradient fill**](#gt_35280309-5b22-4c17-be48-f06c37ffc685).

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

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

**numPosition (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the gradient stop position. The gradient stop position is the position within the gradient range where this gradient stop’s color begins. MUST be greater than or equal to 0.0 and less than or equal to 1.0.

**color (8 bytes):** An [XFPropColor](#Section_4d611df5738b4724aeef0bbbc7e84279) that specifies the gradient stop color.

### 2.5.288 XFProps

This structure specifies an array of formatting 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 |
| reserved | | | | | | | | | | | | | | | | cprops | | | | | | | | | | | | | | | |
| xfPropArray (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

**cprops (2 bytes):** An unsigned integer that specifies the number of [XFProp](#Section_ff15a3cdf2fb4fc6aa5255f93c5ba121) structures in **xfPropArray.**

**xfPropArray (variable):** An array of XFProp. Each array element specifies a formatting property. The array of properties specifies the full set of formatting properties. If the array contains an XFProp with an **xfPropType** field equaling 0, the array MUST NOT contain any XFProp elements with **xfPropType** fields equaling 3 or 4. If the array contains an XFProp with an **xfPropType** field equaling 3 or 4, the array MUST NOT contain any XFProp elements with an **xfPropType** field equaling 0.

### 2.5.289 XFPropTextRotation

The **XFPropTextRotation** structure specifies the text rotation.

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

**trot (1 byte):** An unsigned integer that specifies the text rotation. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x00 to 0x5A (0 to 90) | Text rotated counterclockwise 0 to 90 degrees |
| 0x5B to 0xB4 (91 to 180) | Text rotated clockwise 1 to 90 degrees |
| 0xFF (255) | Vertical text |

### 2.5.290 XLNameUnicodeString

The **XLNameUnicodeString** structure 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 |
| name (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**name (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the name. The number of characters in the string, **name.cch,** MUST be greater than or equal to 1 and less than or equal to 255.

This field MUST adhere to the following grammar:

name = name-start-character, \*name-characters

name-start-character = "\_" / "\" / Unicode-character

name-character = name-start-character / "." / "?" / 0x061F / Unicode-digit

where:

Unicode-character is any code point which is a character as defined by the Unicode character properties in chapter four of the [[RFC2781]](https://go.microsoft.com/fwlink/?LinkId=90380)

Unicode-digit is any code point which is a digit as defined by the Unicode character properties in chapter four of the [RFC2781].

This field MUST NOT be equal to "TRUE" or "FALSE" using case-insensitive string comparison. This field MUST NOT be an [**R1C1**](#gt_c7769777-74d5-4020-b9e5-4cd863f70132) or [**A1**](#gt_950691d0-4b64-4e03-84ae-10d6c872bbdb) [**cell reference**](#gt_4d15aeb2-3a7d-44d7-b8d1-8a441f1cc24f).

An R1C1 [**cell**](#gt_43d1e51e-4f26-493b-b7c9-e84e920d7461) reference is defined to be:

R1C1-cell-reference= R1C1-row R1C1-column / R1C1-column R1C1-row

R1C1-row = letter-r row-number

letter-r = "R" / "r"

R1C1-column = letter-c column-number

letter-c = "C" / "c"

column-number = 1-256

row-number = 1-65536

An A1 cell reference is defined as follows:

A1-reference = A1-column A1-Row

A1-row = row-number

; See definition of row-number in R1C1 cell reference grammar specified previously.

A1-column = letter / letter-limited-one letter / letter-i letter-limited-two

letter-limited-one = "A" / "B" / "C" / "D" / "E" / "F" / "G" / "H" / "a" / "b" / "c" / "d" / "e" / "f" / "g" / "h"

letter-limited-two = letter-limited-one / "I" / "J" / "K" / "L" / "M" / "N" / "O" / "P" / "Q" / "R" / "S" / "T" / "U" / "V" / "i" / "j" / "k" / "l" / "m" / "n" / "o" / "p" / "q" / "r" / "s" / "t" / "u" / "v"

letter-i = "I" / "i"

letter = letter-limited-two / "W" / "X" / "Y" / "Z" / "w" / "x" / "y" / "z"

### 2.5.291 XlsFilter\_Criteria

The **XlsFilter\_Criteria** structure specifies [**filter**](#gt_ffbe7b55-8e84-4f41-a18d-fc29191a4cda) criteria.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ezdoper1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | ezdoper2 | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| djoin1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ezdoper1 (10 bytes):** An [SXEZDoper](#Section_b9fe316b9e6f460ca14eff869ef77999) structure that specifies the first filter operation. If the **ccriteria** field of the [SXAddl\_SXCSXFilter12\_SXDXIsFilter](#Section_cd93d0c8bd1c4202b8cae98f16ab0c41) that contains this structure is zero, then **ezdoper1.vts** MUST be zero and **ezdoper1** MUST be ignored. If **ezdoper1.vts** equals 0x6, the following record MUST be [SXAddl\_SXCSXFilter12\_SXDXlsFilterValue1](#Section_62bd1ee0e0144b8bb74cfe026660a144).

**ezdoper2 (10 bytes):** An SXEZDoper structure that specifies the second filter operation. If the **ccriteria** field of the SXAddl\_SXCSXFilter12\_SXDXIsFilter that contains this structure is not equal to 2, then **ezdoper2.vts** MUST be zero and **ezdoper2** MUST be ignored. If **ezdoper1.vts** is not 0x6 and **ezdoper2.vts** is 0x6, then the following record is [SXAddl\_SXCSXFilter12\_SXDXlsFilterValue2](#Section_fcdb22068f4045479ff52a079b7507f4). If both **ezdoper1.vts** and **ezdoper2.vts** are 0x6, then the following record is SXAddl\_SXCSXFilter12\_SXDXlsFilterValue1, and the next non- [Continue\_SxaddlSxString](#Section_9f727fbb4e08462f8a10ea873f0a5406) record after that is SXAddl\_SXCSXFilter12\_SXDXlsFilterValue2.

**djoin1 (4 bytes):** A [**DJoin**](#Section_104e4ca16f154c6a9f61d6a590be4836) that specifies the join operation between **ezdoper1** and **ezdoper2**.

MUST be DJOINNULL if the **ccriteria** field of the SXAddl\_SXCSXFilter12\_SXDXlsFilter record is less than 2.

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

### 2.5.292 XlsFilter\_Top10

The **XlsFilter\_Top10** structure specifies filter information for a [**top N filter**](#gt_0f30d3fd-cc8f-4c20-ab45-4ccbb3f834d9).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| top10ft | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | reserved1 | | | | | | | | | | | | | | | numTopN | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | reserved2 (14 bytes) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**top10ft (4 bytes):** A [Top10FT](#Section_d73f359eddc7412c950ec6e12f9b92f0)that specifies the top N filter type.

**A - fTop (1 bit):** A bit that specifies whether the filter displays the top or bottom records.

| Value | Meaning |
| --- | --- |
| 0 | Display the bottom records. |
| 1 | Display the top records. |

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

**numTopN (8 bytes):** An Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) that specifies the number or percentage of records to include.

If **top10Ft** is TOP10FTPERCENT, **numTopN** specifies the percentage of records to include; otherwise **numTopN** specifies the number of records to include.

If **top10ft** is TOP10FTPERCENT, **numTopN** MUST be greater than or equal to 0 and less than or equal to 100.

If **top10ft** is TOP10FTSUM, **numTopN** MUST be greater than or equal to 0 and less than or equal to 2147483647.

If **top10ft** is TOP10FTCOUNT, **numTopN** MUST be an integer greater than or equal to 0 and less than or equal to 2147483647.

**reserved2 (14 bytes):** MUST be zero, and MUST be ignored.

### 2.5.293 XLUnicodeRichExtendedString

The **XLUnicodeRichExtendedString** structure specifies a Unicode string, which can contain formatting information and [**phonetic string**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77) data.

This structure’s non-variable fields MUST be specified in the same record.

This structure’s variable fields can be extended with [Continue](#Section_999fae21d3d942e88290639782460c67) records. A value from the table for **fHighByte** MUST be specified in the first byte of the **continue** field of the Continue record followed by the remaining portions of this structure’s variable fields.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  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 | | | | | | | | | | | | | | | | A | B | C | D | reserved2 | | | | cRun (optional) | | | | | | | |
| ... | | | | | | | | cbExtRst (optional) | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | rgb (variable) | | | | | | | | | | | | | | | | | | | | | | | |
| … | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgRun (variable, optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| … | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ExtRst (variable, optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| … | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cch (2 bytes):** An unsigned integer that specifies the count of characters in the string.

**A -** **fHighByte (1 bit):** A bit that specifies whether the characters in **rgb** are double-byte characters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | All the characters in the string have a high byte of 0x00 and only the low bytes are in **rgb**. |
| 0x1 | All the characters in the string are saved as double-byte characters in **rgb**. |

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

**C - fExtSt (1 bit):** A bit that specifies whether the string contains phonetic string data.

**D - fRichSt (1 bit):** A bit that specifies whether the string is a rich string and the string has at least two character formats applied.

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

**cRun (2 bytes):** An optional unsigned integer that specifies the number of elements in **rgRun**. MUST exist if and only if **fRichSt** is 0x1.

**cbExtRst (4 bytes):** An optional signed integer that specifies the byte count of **ExtRst**. MUST exist if and only if **fExtSt** is 0x1. MUST be zero or greater.

**rgb (variable):** An array of bytes that specifies the characters in the string. If **fHighByte** is 0x0, the size of the array is **cch**. If **fHighByte** is 0x1, the size of the array is **cch**\*2. If **fHighByte** is 0x1 and **rgb** is extended with a Continue record the break MUST occur at the double-byte character boundary.

**rgRun (variable):** An optional array of [FormatRun](#Section_24d30c9e350e4d55a1c3f4404cc41f99) structures that specifies the formatting for each [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553). The number of elements in the array is **cRun**. MUST exist if and only if **fRichSt** is 0x1.

**ExtRst (variable):** An optional [ExtRst](#Section_5b9631bd4a0d4df7bf9c6594f4783597) that specifies the phonetic string data. The size of this field is **cbExtRst**. MUST exist if and only if **fExtSt** is 0x1.

### 2.5.294 XLUnicodeString

The **XLUnicodeString** structure specifies a [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) 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 |
| cch | | | | | | | | | | | | | | | | A | reserved | | | | | | | rgb (variable) | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cch (2 bytes):** An unsigned integer that specifies the count of characters in the string.

**A -** **fHighByte (1 bit):** A bit that specifies whether the characters in **rgb** are double-byte characters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | All the characters in the string have a high byte of 0x00 and only the low bytes are in **rgb**. |
| 0x1 | All the characters in the string are saved as double-byte characters in **rgb**. |

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

**rgb (variable):** An array of bytes that specifies the characters. If **fHighByte** is 0x0, the size of the array MUST be equal to **cch**. If **fHighByte** is 0x1, the size of the array MUST be equal to **cch\***2.

### 2.5.295 XLUnicodeStringMin2

The **XLUnicodeStringMin2** structure specifies a [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) 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 |
| cch | | | | | | | | | | | | | | | | st (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cch (2 bytes):**  An unsigned integer that specifies the count of characters in the string. MUST be equal to the number of characters in **st**.

**st (variable):**  An optional [XLUnicodeStringNoCch](#Section_e64abeee2f3a4004b9e33d67e29d6066) that specifies the string. MUST exist if and only if **cch** is greater than zero.

### 2.5.296 XLUnicodeStringNoCch

The **XLUnicodeStringNoCch** structure specifies a Unicode string. When an XLUnicodeStringNoCch is used, the count of characters in the string MUST be specified in the structure that uses the XLUnicodeStringNoCch.

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

**A - fHighByte (1 bit):** A bit that specifies whether the characters in **rgb** are double-byte characters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | All the characters in the string have a high byte of 0x00 and only the low bytes are in **rgb**. |
| 0x1 | All the characters in the string are saved as double-byte characters in **rgb**. |

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

**rgb (variable):** An array of bytes that specifies the characters. If **fHighByte** is 0x0, the size of the array MUST be equal to the count of characters in the string. If **fHighByte** is 0x1, the size of the array MUST be equal to 2 times the count of characters in the string.

### 2.5.297 XLUnicodeStringSegmented

The **XLUnicodeStringSegmented** structure specifies a [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) string that is split into multiple string segments. If the count of characters in the string is greater than 512, the string is split into multiple string segments, each of which has a character count of 512 or less.

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

**cchTotal (4 bytes):** An unsigned integer that specifies the total count of characters in the string. MUST be less than 2147483644.

**strings (variable):** An array of [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671). Each element specifies a string segment.The **cch** field of each XLUnicodeString element MUST be less than or equal to 512 and greater than 0, and the sum of the **cch** fields of all XLUnicodeString elements MUST be equal to **cchTotal**. MUST exist if and only if **cchTotal** is greater than zero.

### 2.5.298 XLUnicodeStringSegmentedRTD

The **XLUnicodeStringSegmentedRTD** structure specifies a Unicode string that contains a set of sub-strings.

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

**cch (4 bytes):** An unsigned integer that specifies the size of **rgb**.

**A - fHighByte (1 bit):** A bit that specifies whether the characters in **rgb** are double-byte characters. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0 | All the characters in the string have a high byte of 0x00 and only the low bytes are in **rgb**. |
| 0x1 | All the characters in the string are saved as double-byte characters in **rgb**. |

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

**rgb (variable):** An array of bytes that specifies a set of sub-strings. If **fHighByte** is 0x0, the size of the array is **cch**. If **fHighByte** is 0x1, the size of the array is **cch\***2. Each sub-string begins with one or two bytes specifying the count of characters in the sub-string. The count is one byte in length if **fHighByte** is zero and two bytes in length if **fHighByte** is 1. The number of the sub-strings MUST be greater than 2 and less than 40.

### 2.5.299 XLUnicodeStringSegmentedSXAddl

The **XLUnicodeStringSegmentedSXAddl** structure specifies a Unicode string segment. [SXAddl](#Section_54370a1209c34832a72c37d317bf069e) records use this structure to represent Unicode strings. If the count of characters in the string is greater than 255, the string is split into multiple segments. Each string segment has a character count of 255 or less, and each segment is stored in an 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 |
| cchTotal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| reserved | | | | | | | | | | | | | | | | strings (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**cchTotal (4 bytes):** An unsigned integer that specifies the total count of characters in the string. If this is the first segment of a string, **cchTotal** MUST be greater than 0. If this is not the first segment of a string, **cchTotal** MUST be zero.

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

**string (variable):** An [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) that specifies the string segment. The **cch** field of **string** MUST be less than or equal to 255 and greater than 0.

### 2.5.300 XmlTkBackWallThicknessFrt

The **XmlTkBackWallThicknessFrt** structure specifies the thickness of the back wall of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) as a percentage of the depth of the 3-D [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). The back wall is the [**wall**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c) that is parallel to the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the back wall thickness is greater than 0. MUST only be specified if the chart contains 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 |
| wallThickness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**wallThickness (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the thickness of the back wall of the chart as a percentage of the depth of the 3-D plot area. The **wallThickness.dValue** MUST be greater than 0, and less than or equal to 100. The **wallThickness.xtHeader.xmlTkTag** field MUST be equal to 0x0035.

### 2.5.301 XmlTkBaseTimeUnitFrt

The **XmlTkBaseTimeUnitFrt** structure specifies the value of the smallest unit of time used by the date [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoBase** field of the corresponding [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record is set to 1 and the **fDateAxis** of the corresponding AxcExt record is 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 |
| baseUnit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**baseUnit (6 bytes):** An [XmlTkToken](#Section_fa8134797387450cb3524e0308810a3b) that specifies a value that can override the **duBase** field of the corresponding AxcExt record. The **baseUnit**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x005F. This field overrides the **duBase** field of the corresponding AxcExt record when the **fAutoBase** field of the AxcExt record is set to 1. The **baseUnit.dValue** MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0060 | Time value is measured in days. |
| 0x0061 | Time value is measured in months. |
| 0x0062 | Time value is measured in years. |

### 2.5.302 XmlTkBlob

The **XmlTkBlob** structure specifies an array of bytes for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cbBlob | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbBlob (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x07.

**cbBlob (4 bytes):** An unsigned integer that specifies the count of bytes of the **rgbBlob** field.

**rgbBlob (variable):** An array of bytes for the **xmltkChain** field of the CrtMlFrt record. The size of this field, in bytes, is specified by the **cbBlob** field.

### 2.5.303 XmlTkBool

The **XmlTkBool** structure specifies a Boolean (section [2.5.14](#Section_ae6bc85a10f94f2d868842913466c971)) value for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dValue | | | | | | | | unused | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x02.

**dValue (1 byte):** A Boolean that specifies the value of this structure.

**unused (1 byte):** Undefined, and MUST be ignored.

### 2.5.304 XmlTkChain

The **XmlTkChain** structure specifies a chain of structures that specifies a group of additional properties or property overrides for a given [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) element, specified by the **xmltkParent** field. See meanings of the additional properties or property overrides in each token 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 |
| recordVersion | | | | | | | | unused | | | | | | | | xmltkParent | | | | | | | | | | | | | | | |
| chainRecords (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**recordVersion (1 byte):** An unsigned integer that specifies the chain version. MUST be 0.

**unused (1 byte):** Undefined, and MUST be ignored.

**xmltkParent (2 bytes):** An unsigned integer that specifies the chart element targeted by the token structures in the chain. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0001 | The record that contains this structure MUST be in a sequence of records that conforms to the [DVAXIS](#section_732ff614d939416bb7c76d983471ff11) rule. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify scaling properties and MUST be one of the following: [XmlTkMaxFrt](#Section_060c15588b774c688c2a99602fa8253f), [XmlTkMinFrt](#Section_9825dfb7d96d4ac8b0b47095013082da), [XmlTkLogBaseFrt](#Section_270f46e58f16498c94279eed13948bed) |
| 0x0002 | The record that contains this structure MUST be in a sequence of records that conforms to the CHARTSHEET or CHARTSHEETCONTENT rule. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify chart space properties and MUST be one of the following: [XmlTkStyle](#Section_d1c5cf7c1313416592ea02e82845e8c6), [XmlTkThemeOverride](#Section_f2ee45fe007343828461104fe9a9bc9f), [XmlTkColorMappingOverride](#Section_09d5c0147be5486e997053393bc97050) |
| 0x0004 | The record that contains this structure MUST be in a sequence of records that conforms to the IVAXIS rule and SERIESAXIS rule. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify [Axis](#Section_4117f73aa0f348d89c0f65864918ffb3) properties and MUST be one of the following: [XmlTkNoMultiLvlLbl](#Section_2f614fc5d2e7498ebf4ca3557250637f), [XmlTkTickLabelSkipFrt](#Section_134918ee267f433091575dc2c10b08ee), [XmlTkTickMarkSkipFrt](#Section_bbcf1c2dd41f4e138e5896d9d1ee9274), [XmlTkMajorUnitFrt](#Section_8b6094405a6b4257a18c08485a78d338), [XmlTkMinorUnitFrt](#Section_f00bfd7bdef64800b7ff96b3db4b71fa), [XmlTkTickLabelPositionFrt](#Section_7df9d656b814438091f1c05188b72db0), [XmlTkBaseTimeUnitFrt](#Section_40987418b1cc49fc861a42af8327de0f), [XmlTkFormatCodeFrt](#Section_cfb8c01722564c95addf66a606944f88), [XmlTkMajorUnitTypeFrt](#Section_e87d4895030a413fb2d79d38514e7b6a), [XmlTkMinorUnitTypeFrt](#Section_f6982b226b6a42af91ee91d4dd0c3753) |
| 0x0005 | The record that contains this structure MUST be in a sequence of records that conforms to the CHARTFORMATS rule and appears directly before the [End](#Section_abe8fd1db6a847b8864052ba75a76f5c) record. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify chart properties and MUST be one of the following: [XmlTkShowDLblsOverMax](#Section_28e0e3811f2f4a3c807303e8b1b5607c), [XmlTkBackWallThicknessFrt](#Section_7220649678224015bbda3e1d65f549a2), [XmlTkFloorThicknessFrt](#Section_8f30189025414fd8bd007dea936bdc4c), [XmlTkDispBlanksAsFrt](#Section_a64de9eac0cf4b309772ed022d41d85d), [XmlTkStartSurface](#Section_0da75c4eee604e38aee07e7a98ac032a), XmlTkFormatCodeFrt, [XmlTkSpb](#Section_2f20a447b13e4267b70f9d6392c9d115), [XmlTkTpb](#Section_7b417647d9374a14bb4f410e730d68cf), [XmlTkEndSurface](#Section_f0af12c9230340b6860440a2ebee0884) |
| 0x000F | The [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) record that contains this structure MUST be in a sequence of records that conforms to the LD rule. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify [Legend](#Section_1832229b7d1945f488d455e9c07466f0) properties and MUST be: [XmlTkOverlay](#Section_2328dbdda3d549b98fde75e1291a83de) |
| 0x0013 | The record that contains this structure MUST be in a sequence of records that conforms to the SS rule. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify [**data marker**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) properties and MUST be: [XmlTkSymbolFrt](#Section_9289879e5a294261a5dc76a44dcb88de) |
| 0x0016 | The record that contains this structure MUST be in a sequence of records that conforms to the CHARTFORMATS rule and appears directly before the End record. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify [**Plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) properties and MUST be: [XmlTkPieComboFrom12Frt](#Section_d92eff0b54c24632ac187c899eec9103) |
| 0x0019 | The record that contains this structure MUST be in a sequence of records that conforms to the ATTACHEDLABEL within the CHARTFORMATS rule. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify Chart title properties and MUST be: XmlTkOverlay |
| 0x0037 | The record that contains this structure MUST be in a sequence of records that conformed to the CHARTFORMATS rule and appears directly before the End record. This sequence of records specifies the chart element targeted by the token structures in this chain.  The token structures in the chain specify View 3-D properties and MUST be one of the following: [XmlTkRAngAxOffFrt](#Section_50fe9201fb74452bb7e1c97463726d41), [XmlTkPerspectiveFrt](#Section_d800dc3ae8ed4d7fa188d2e5ec62939b), [XmlTkRotYFrt](#Section_00d6431653c6450eab845b4dc36a5bf9), [XmlTkRotXFrt](#Section_987af7feeb764cd891f6679e83b73466), [XmlTkHeightPercent](#Section_e323b5c8190241bc8373cc1979357d8d) |

**chainRecords (variable):** A chain of structures that specifies the additional properties or property overrides for a given chart element, specified by the **xmltkParent** field. The token sequence [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf) for each **xmltkParent** is specified according to the following table:

| xmltkParent | ABNF |
| --- | --- |
| 0x0001 | **chainRecords** = [XmlTkMaxFrt] [XmlTkMinFrt] [XmlTkLogBaseFrt] |
| 0x0002 | **chainRecords** = [XmlTkStyle] [XmlTkThemeOverride] [XmlTkColorMappingOverride] |
| 0x0004 | **chainRecords** = [XmlTkNoMultiLvlLbl] [XmlTkTickLabelSkipFrt] [XmlTkTickMarkSkipFrt] [XmlTkMajorUnitFrt] [XmlTkMinorUnitFrt] [XmlTkTickLabelPositionFrt] [XmlTkBaseTimeUnitFrt] [XmlTkFormatCodeFrt] [XmlTkMajorUnitTypeFrt] [XmlTkMinorUnitTypeFrt] |
| 0x0005 | **chainRecords** = [XmlTkShowDLblsOverMax] [XmlTkBackWallThicknessFrt] [XmlTkFloorThicknessFrt] [XmlTkDispBlanksAsFrt] [SURFACE]  SURFACE = XmlTkStartSurface [XmlTkFormatCodeFrt [XmlTkSpb]] [XmlTkTpb] XmlTkEndSurface |
| 0x000F | **chainRecords** = [XmlTkOverlay] |
| 0x0013 | **chainRecords** = [XmlTkSymbolFrt] |
| 0x0016 | **chainRecords** = [XmlTkPieComboFrom12Frt] |
| 0x0019 | **chainRecords** = [XmlTkOverlay] |
| 0x0037 | **chainRecords** = [XmlTkRAngAxOffFrt] [XmlTkPerspectiveFrt] [XmlTkRotYFrt] [XmlTkRotXFrt] [XmlTkHeightPercent] |

### 2.5.305 XmlTkColorMappingOverride

The **XmlTkColorMappingOverride** structure specifies the color mapping override for a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), stored as an **XML stream** (section [2.1.7.22](#Section_e25e01370b9c4429bd260eed92e01c35)) as specified in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4, section 4.4.1.7.

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

**rgThemeOverride (variable):** An [XmlTkBlob](#Section_0799bf910a774f16857c58231b0f1ade) that specifies the color mapping override. The **rgThemeOverride.xtHeader.xmlTkTag** MUST be equal to 0x0034. The **XML stream** (section 2.1.7.22) is specified in [ECMA-376] Part 4, section 4.4.1.7, and compressed by the compression algorithm specified in [[RFC1951]](https://go.microsoft.com/fwlink/?LinkId=90302).

### 2.5.306 XmlTkDispBlanksAsFrt

The **XmlTkDispBlanksAsFrt** structure specifies how blank data entries are represented. This structure MUST only be present if the current [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) does not support displaying blank entries. The following [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5) types do not support blank entries: area chart group, pie chart group, line chart group with **fStacked** field of the [Line](#Section_fec395304bd54a469cec5e4ffae452c9) record equal to 1, bar of pie chart group, pie of pie chart group and doughnut 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 |
| blanksAs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**blanksAs (6 bytes):** An [XmlTkToken](#Section_fa8134797387450cb3524e0308810a3b) that specifies how blank data entries are represented on the current chart. The **blanksAs.xtHeader.xmlTkTag** field MUST be equal to 0x0066. This field overrides the **mdBlank** field of the [ShtProps](#Section_8de5048d5e784a8da3288a8293e1fe40) record that specifies the current [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). The **blanksAs.dValue** field MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0067 | Specifies that blank values are shown as a gap. |
| 0x0069 | Specifies that blank values are spanned with a line. The current chart group type MUST be area chart group or line chart group with **fStacked** field of the Line record equal to 1. |

### 2.5.307 XmlTkDouble

The **XmlTkDouble** structure specifies an Xnum (section [2.5.342](#Section_f4aa57255bb846a99fb57f0393070a4c)) value for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| unused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x03.

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

**dValue (8 bytes):** An Xnum that specifies the value of this structure.

### 2.5.308 XmlTkDWord

The **XmlTkDWord** structure specifies an integer value for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x04.

**dValue (4 bytes):** A signed integer that specifies the value of this structure.

### 2.5.309 XmlTkEnd

The **XmlTkEnd** structure specifies the end of a group of structures for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x01.

### 2.5.310 XmlTkEndSurface

The **XmlTkEndSurface** structure specifies the end of a back wall definition. The back wall is the [**wall**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c) that is parallel to the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure defines additional properties for the back wall of the current [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c). This structure MUST have a corresponding [XmlTkStartSurface](#Section_0da75c4eee604e38aee07e7a98ac032a) 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 |
| endSurface | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**endSurface (4 bytes):** An [XmlTkEnd](#Section_09d524f8ffe04d9bb077463181d4e891) that specifies the end of a back wall definition. The **endSurface.xtHeader.xmlTkTag** field MUST be equal to the **startSurface.xtHeader.xmlTkTag** of the corresponding XmlTkStartSurface structure.

### 2.5.311 XmlTkFloorThicknessFrt

The **XmlTkFloorThicknessFrt** structure specifies the thickness of the [**floor**](#gt_dc38c098-e0d3-4701-9656-5f2cf4d80f29) of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) as a percentage of the height of the 3-D [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). This structure MUST only be present if the floor thickness is greater than 0. MUST only be specified if the chart contains 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 |
| floorThickness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**floorThickness (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the thickness of the floor of the chart as a percentage of the height of the 3-D plot area. The **floorThickness.dValue** MUST be greater than 0, and less than or equal to 100. The **floorThickness.xtHeader.xmlTkTag** field MUST be equal to 0x0036.

### 2.5.312 XmlTkFormatCodeFrt

The **XmlTkFormatCodeFrt** structure specifies the number formatting to use for the [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) labels on the date axis. This structure MUST only be present if the **fUnlinkedIfmt** field of the [BRAI](#Section_c4e36e616c174a75b414f33803c7456b) record that corresponds to the axis labels of the date axis is set to 0. This structure MUST only be present if the **fDateAxis** of the corresponding [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record is 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 |
| stFormat (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**stFormat (variable):** An [XmlTkString](#Section_9e4d40f174384d8b85cefd2d345ec018) that specifies the number formatting to use for the axis labels of the date axis. Details about the structure of [**number format**](#gt_16fc3e8f-047a-42fe-b28c-4856c09cd74b) string are specified in [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) Part 4: Markup Language Reference, section 3.8.31. This field overrides the **ifmt** field of the corresponding BRAI record when the **fUnlinkedIfmt** field of the BRAI record is set to 0. The **stFormat.xtHeader.xmlTkTag** field MUST be equal to 0x0064.

### 2.5.313 XmlTkHeader

The **XmlTkHeader** structure specifies the header of the [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) token data types.

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

**drType (1 byte):** An unsigned integer that specifies the data type. MUST be specified by the containing structure.

**unused (1 byte):** Undefined, and MUST be ignored.

**xmlTkTag (2 bytes):** An unsigned integer that specifies the token identifier. MUST be specified by the containing structure.

### 2.5.314 XmlTkHeightPercent

The **XmlTkHeightPercent** structure specifies the height of the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) as a percentage of its width. This record MUST NOT exist for a pie [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), and MUST only exist when a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record is present and the **f3DScaling** field of the Chart3d record is 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 |
| heightPercent (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**heightPercent (16 bytes):** An [XmlTkDouble](#Section_f5b7dd418dd3403eb49d618d84dbd0c2) that specifies the height of the plot area as a percentage of its width. **heightPercent.dValue** MUST be greater than or equal to 5, MUST be less than the maximum value of Xnum , and SHOULD[<190>](#Appendix_A_190" \o "Product behavior note 190) be less than or equal to 500. This field overrides the **pcHeight** field of the Chart3d record in the [chart sheet](#section_732ff614d939416bb7c76d983471ff11) substream. The **heightPercent.xtHeader.xmlTkTag** MUST be equal to 0x0065.

### 2.5.315 XmlTkLogBaseFrt

The **XmlTkLogBaseFrt** structure specifies the logarithmic base of a logarithmic value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fLog** field of the corresponding [ValueRange](#Section_8a75a0b49985443aa154308516fa359a) record is set to 1, and the logarithmic base is not 10.

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

**logScale (16 bytes):** An [XmlTkDouble](#Section_f5b7dd418dd3403eb49d618d84dbd0c2) that specifies the logarithmic base of a logarithmic value axis. **logScale.dValue** MUST be greater than or equal to 2, and less than or equal to 1000. The **logScale**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0000. This field overrides the base, 10, of the logarithmic value axis when the **fLog** field of the corresponding ValueRange record is set to 1.

### 2.5.316 XmlTkMajorUnitFrt

The **XmlTkMajorUnitFrt** structure specifies the value of the interval at which the [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) are displayed on the date [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoBase** field of the corresponding [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record is set to 1 and the **fDateAxis** field of the corresponding AxcExt record is 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 |
| majorUnit (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**majorUnit (16 bytes):** An [XmlTkDouble](#Section_f5b7dd418dd3403eb49d618d84dbd0c2) that specifies a value that can override the **catMajor** field of the corresponding AxcExt record. The **majorUnit**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0053. This field overrides the **catMajor** field of the corresponding AxcExt record when the **fAutoMajor** field of the AxcExt record is set to 1.

### 2.5.317 XmlTkMajorUnitTypeFrt

The **XmlTkMajorUnitTypeFrt** structure specifies the value of the unit of time used by the interval at which the [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) are displayed on the date [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoBase** field of the corresponding [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record is set to 1 and the **fDateAxis** of the corresponding AxcExt record is 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 |
| majorUnit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**majorUnit (6 bytes):** An [XmlTkToken](#Section_fa8134797387450cb3524e0308810a3b) that specifies a value that can override the **duMajor** field of the corresponding AxcExt record. The **majorUnit**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x006A. This field overrides the **duMajor** field of the corresponding AxcExt record when the **fAutoMajor** field of the AxcExt record is set to 1. The **majorUnit.dValue** MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0060 | Time value is measured in days. |
| 0x0061 | Time value is measured in months. |
| 0x0062 | Time value is measured in years. |

### 2.5.318 XmlTkMaxFrt

The **XmlTkMaxFrt** structure specifies the maximum value on a logarithmic value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoMax** field of the corresponding [ValueRange](#Section_8a75a0b49985443aa154308516fa359a) record is set to 0, the **fLog** field of the corresponding ValueRange record is set to 1, and the logarithmic base is not 10.

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

**maxScale (16 bytes):** An [XmlTkDouble](#Section_f5b7dd418dd3403eb49d618d84dbd0c2) that specifies the maximum value on a logarithmic value axis. The **maxScale.dValue** MUST be greater than the value specified in the **minScale.dValue** field of the [XmlTkMinFrt](#Section_9825dfb7d96d4ac8b0b47095013082da) structure. The **maxScale**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0055. This field overrides the **numMax** field of the associated ValueRange record when the **fLog** field of the ValueRange record is set to 1.

### 2.5.319 XmlTkMinFrt

The **XmlTkMinFrt** structure specifies the minimum value on a logarithmic value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoMin** field of the corresponding [ValueRange](#Section_8a75a0b49985443aa154308516fa359a) record is set to 0, the **fLog** field of the corresponding ValueRange record is set to 1, and the logarithmic base is not 10.

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

**minScale (16 bytes):** An [XmlTkDouble](#Section_f5b7dd418dd3403eb49d618d84dbd0c2) that specifies the minimum value on a logarithmic value axis. The **minScale.dValue** MUST be less than the value specified in the **maxScale.dValue** field of the [XmlTkMaxFrt](#Section_060c15588b774c688c2a99602fa8253f) structure. The **minScale**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0056. This field overrides the **numMin** field of the associated ValueRange record when the **fLog** field of the ValueRange record is set to 1.

### 2.5.320 XmlTkMinorUnitFrt

The **XmlTkMinorUnitFrt** structure specifies the value of the interval at which the [**minor tick marks**](#gt_c2eb605a-6c5a-427e-8608-f16940de82a6) are displayed on the date [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoBase** field of the corresponding [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record is set to 1 and the **fDateAxis** of the corresponding AxcExt record is 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 |
| minorUnit (16 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**minorUnit (16 bytes):** An [XmlTkDouble](#Section_f5b7dd418dd3403eb49d618d84dbd0c2) that specifies a value that can override the **catMinor** field of the corresponding AxcExt record. The **minorUnit**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0054. This field overrides the **catMinor** field of the corresponding AxcExt record when the **fAutoMinor** field of the AxcExt record is set to 1.

### 2.5.321 XmlTkMinorUnitTypeFrt

The **XmlTkMinorUnitTypeFrt** structure specifies the value of the unit of time used by the interval at which the [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) are displayed on the date [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST only be present if the **fAutoBase** field of the corresponding [AxcExt](#Section_91c0fd3c16e7438ebfc196b738535991) record is set to 1 and the **fDateAxis** of the corresponding AxcExt record is 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 |
| minorUnit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**minorUnit (6 bytes):** An [XmlTkToken](#Section_fa8134797387450cb3524e0308810a3b) that specifies a value that can override the **duMinor** field of the corresponding AxcExt record. The **minorUnit**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x006B. This field overrides the **duMinor** field of the corresponding AxcExt record when the **fAutoMinor** field of the AxcExt record is set to 1. The **minorUnit.dValue** MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0060 | Time value is measured in days. |
| 0x0061 | Time value is measured in months. |
| 0x0062 | Time value is measured in years. |

### 2.5.322 XmlTkNoMultiLvlLbl

The **XmlTkNoMultiLvlLbl** structure specifies whether multi-level labeling is enabled for a [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [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 |
| fNoMultiLvlLbl | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**fNoMultiLvlLbl (6 bytes):** An [XmlTkBool](#Section_7e209b0df5bd4281a90e9c3e9e10a8e0) that specifies whether single-level labeling is enabled for a category (2) axis. The **fNoMultiLvlLbl**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x002E. MUST be a value from the following table:

| Value | Meaning |
| --- | --- |
| 0 | Multi-level labeling is enabled for a category (2) axis. |
| 1 | Single-level labeling is enabled for a category (2) axis. |

### 2.5.323 XmlTkOverlay

The **XmlTkOverlay** structure specifies whether the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) [legend](#Section_1832229b7d1945f488d455e9c07466f0) and title can overlap or can overlap other chart elements.

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

**fOverlay (6 bytes):** An [XmlTkBool](#Section_7e209b0df5bd4281a90e9c3e9e10a8e0) that specifies whether the chart legend or title can overlap or can overlap other chart elements. **fOverlay.dValue** MUST be 1. The **fOverlay**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x002F.

### 2.5.324 XmlTkPerspectiveFrt

The **XmlTkPerspectiveFrt** structure specifies the angle of the field of view for the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c). This structure MUST exist only for bar [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5) and pie chart groups, and MUST exist only when the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) contains a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record and the **fPerspective** field of the Chart3d record equal to 1. When the angle of the field of view is the default angle, 20, this structure MUST NOT be present.

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

**perspectiveAngle (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the angle of the field of view. The **perspectiveAngle.xtHeader.xmlTkTag** field MUST be 0x004D. The value of **perspectiveAngle.dValue** field MUST equal to two times the view angle and MUST be greater than or equal to 0 and less than or equal to 200. This field overrides the **pcDist** field of the Chart3d record in the [chart sheet](#section_732ff614d939416bb7c76d983471ff11) substream.

### 2.5.325 XmlTkPieComboFrom12Frt

The **XmlTkPieComboFrom12Frt** structure specifies whether the current [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) contains multiple [chart groups](#Section_c91fdf3195e2495fa48a5546ce20c0c5) and one of them is a 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 |
| fPieCombo | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**fPieCombo (6 bytes):** An [XmlTkBool](#Section_7e209b0df5bd4281a90e9c3e9e10a8e0) that specifies whether the current chart contains multiple chart groups and one of them is a pie chart group. **fPieCombo.dValue** MUST be 1. The **fPieCombo**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x005E.

### 2.5.326 XmlTkRAngAxOffFrt

The **XmlTkRAngAxOffFrt** structure specifies whether the [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) is rendered with a vanishing point, rather than rendered at right angles. This structure MUST only exist for a bar [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), and only when the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) contains a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record is present and the **fPerspective** field of the Chart3d record 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 |
| fRightAngAxOff | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | |

**fRightAngAxOff (6 bytes):** An [XmlTkBool](#Section_7e209b0df5bd4281a90e9c3e9e10a8e0) that specifies whether the plot area is rendered with a vanishing point. This field corresponds to the **fPerspective** field of Chart3d record, and it MUST only be present when the **fPerspective** field of the Chart3d record in the [chart sheet](#section_732ff614d939416bb7c76d983471ff11) substream is equal to 1. The **fRightAngAxOff.dValue** field MUST be equal to 0x01. The **fRightAngAxOff.xtHeader.xmlTkTag** field MUST be equal to 0x0050.

### 2.5.327 XmlTkRotXFrt

The **XmlTkRotXFrt** structure specifies the clockwise rotation, in degrees, of the 3-D [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) around a horizontal line through the center of the 3-D plot area. It MUST only be present when the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) contains a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f), and as specified by the **fPerspective** field of the Chart3d record. This structure MUST only exist for a bar [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), and only when the rotation angle is less than 0 or greater than 44.

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

**rotationX (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the rotation angle. The **rotationX.xtHeader.xmlTkTag** field MUST be 0x004E. The **rotationX.dValue** field MUST be either greater than or equal to -90 and less than 0, or greater than or equal to 45 and less than or equal to 90. It overrides the **anElev** field of the Chart3d record in the [chart sheet](#section_732ff614d939416bb7c76d983471ff11) substream.

### 2.5.328 XmlTkRotYFrt

The **XmlTkRotYFrt** structure specifies the clockwise rotation, in degrees, of the 3-D [**plot area**](#gt_5bf6768b-586e-4869-8247-e0f9e899183c) around a vertical line through the center of the 3-D plot area. MUST exist only when the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) contains a [Chart3d](#Section_caefd44b1e5542acaed4c475442be33f) record, and as specified by the **fPerspective** field of the Chart3d record. This record MUST only exist for a bar [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5), and only when the rotation angle is greater than 44.

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

**rotationY (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the rotation angle. The **rotationY.xtHeader.xmlTkTag** field MUST be 0x004F. The **rotationY.dValue** field MUST be greater than or equal to 45, and less than or equal to 359. It overrides the **anRot** field of the Chart3d record [chart sheet](#section_732ff614d939416bb7c76d983471ff11) substream.

### 2.5.329 XmlTkShowDLblsOverMax

The **XmlTkShowDLblsOverMax** structure specifies whether [data labels](#Section_cac7f43a3af142f58ff2814c2870427f) with values over the maximum value of the value [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) of the [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) are displayed.

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

**fVDLOverMax (6 bytes):** An [XmlTkBool](#Section_7e209b0df5bd4281a90e9c3e9e10a8e0) that specifies whether data labels with values over the maximum value of the value axis of the chart are displayed. The **fVDLOverMax**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x005B.

### 2.5.330 XmlTkSpb

The **XmlTkSpb** structure specifies the shape formatting information of a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) object, stored as 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.

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

**shapePropsStream (variable):** An [XmlTkBlob](#Section_0799bf910a774f16857c58231b0f1ade) that specifies the shape formatting information. The **shapePropsStream.xtHeader.xmlTkTag** MUST be equal to 0x001E. The **XML stream** (section 2.1.7.22) is defined in [ECMA-376] Part 4, section 5.7.2.198, and compressed by the compression algorithm specified in [[RFC1951]](https://go.microsoft.com/fwlink/?LinkId=90302).

### 2.5.331 XmlTkStart

The **XmlTkStart** structure specifies the start of a group of structures for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x00.

### 2.5.332 XmlTkStartSurface

The **XmlTkStartSurface** structure specifies the beginning of a back wall. The back wall definition applies to the current [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) back wall. The back wall is the [**wall**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c) that is parallel to the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3). This structure MUST have a corresponding [XmlTkEndSurface](#Section_f0af12c9230340b6860440a2ebee0884) 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 |
| startSurface | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**startSurface (4 bytes):** An [XmlTkStart](#Section_5e9aff137dfc4dcf841e764a86957add) that specifies which surface is defined. The **startSurface.xtHeader.xmlTkTag** field MUST be equal to a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0059 | The side wall is being defined. |

### 2.5.333 XmlTkString

The **XmlTkString** structure specifies a [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) string value for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cchValue | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rgbValue (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x05.

**cchValue (4 bytes):** An unsigned integer that specifies the count of characters of the **rgbValue** field.

**rgbValue (variable):** An array of Unicode characters. The size of the array, in characters, is specified by the **cchValue** field. The size of the field, in bytes, MUST equal the result of the following formula:

cchValue \* 2.

### 2.5.334 XmlTkStyle

The **XmlTkStyle** structure specifies which built-in [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c) [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) is applied to the chart. This structure MUST only exist when a non-default chart style is used.

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

**chartStyle (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies a one-based index into the [Style](#Section_13bec5ebe6ec4dc192350e7f9e5426a1) record of the [Global substream](#Section_ca4c174887294a93abb94602b3a01fb1). MUST be greater than or equal to 1 and less than or equal to 48. MUST NOT be 2. The **chartStyle.xtHeader.xmlTkTag** MUST be equal to 0x0003.

### 2.5.335 XmlTkSymbolFrt

The **XmlTkSymbolFrt** structure specifies which built-in marker [**style**](#gt_b1e1f096-9da0-411f-909a-f69b92c17633) is applied to the [**data markers**](#gt_4a742a31-af1c-4e9d-a104-7c9be0f37c2b) of the current line, scatter or radar [chart group](#Section_c91fdf3195e2495fa48a5546ce20c0c5).

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

**markerStyle (6 bytes):** An [XmlTkToken](#Section_fa8134797387450cb3524e0308810a3b) that specifies the built-in marker style applied to the data markers of the current line, scatter or radar chart group. The **markerStyle.xtHeader.xmlTkTag** MUST be equal to 0x0022. It overrides the **imk** field of the [MarkerFormat](#Section_28ad6229e22f477dbc1403cd93220277) record when the **fAuto** field of the MarkerFormat record is set to 1. The **markerStyle.dValue** field MUST be equal to a value from the following table:

| Value | Meaning |
| --- | --- |
| 0x0023 | Specifies nothing shall be drawn at each [data point](#Section_9c986ad250d44fa1a157063ac5c971a0). |
| 0x0024 | Specifies a diamond shall be drawn at each data point. |
| 0x0025 | Specifies a square shall be drawn at each data point. |
| 0x0026 | Specifies a triangle shall be drawn at each data point. |
| 0x0027 | Specifies an X shall be drawn at each data point. |
| 0x0028 | Specifies a star shall be drawn at each data point. |
| 0x0029 | Specifies a dot shall be drawn at each data point. |
| 0x002A | Specifies a dash shall be drawn at each data point. |
| 0x002B | Specifies a circle shall be drawn at each data point. |
| 0x002C | Specifies a plus shall be drawn at each data point. |

### 2.5.336 XmlTkThemeOverride

The **XmlTkThemeOverride** structure specifies theme definition override for a [chart](#Section_f9430fdccd0f40dd93243bdf4ce7cc4c), stored as 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 5.1.8.12.

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

**rgThemeOverride (variable):** An [XmlTkBlob](#Section_0799bf910a774f16857c58231b0f1ade) that specifies the theme override. The **rgThemeOverride.xtHeader.xmlTkTag** MUST be equal to 0x0033. The **XML stream** (section 2.1.7.22) is defined in [ECMA-376] Part 4, section 5.1.8.12, and compressed by the compression algorithm specified in [[RFC1951]](https://go.microsoft.com/fwlink/?LinkId=90302).

### 2.5.337 XmlTkTickLabelPositionFrt

The **XmlTkTickLabelPositionFrt** structure specifies that [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) labels on a series axis are center-aligned.

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

**xmltkHigh (6 bytes):** An [XmlTkToken](#Section_fa8134797387450cb3524e0308810a3b) that specifies that axis labels on a series axis are center-aligned. This is equivalent to the **vat** field of the corresponding [Text](#Section_362cfe7d650949fb81402ad59c16b4c4) record being set to 0x02. The **xmltkHigh**.**dValue** MUST be set to 0x005D. The **xmltkHigh**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x005C. This value overrides the **vat** field of the corresponding Text record when the **vat** field of the Text record is not set to 0x02.

### 2.5.338 XmlTkTickLabelSkipFrt

The **XmlTkTickLabelSkipFrt** structure specifies the interval of labels on the [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) or series axis. This structure MUST only be present if the **catLabel** field of the corresponding [CatSerRange](#Section_07bdb87444424468a7e2bd166769e6a9) record is not 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 |
| nInterval | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**nInterval (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the number of categories (2) between axis labels on a category (2) axis or series axis. The **nInterval**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0051. It overrides the **catLabel** field of the corresponding CatSerRange record when the **catLabel** field of the CatSerRange record is not set to 1.

### 2.5.339 XmlTkTickMarkSkipFrt

The **XmlTkTickMarkSkipFrt** structure specifies the number of [**major tick marks**](#gt_a0f545a5-4d18-4580-903b-8d563f4b65fb) to skip on a [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1) [axis](#Section_4117f73aa0f348d89c0f65864918ffb3) or a [series](#Section_527ce4dfc9f84e50a314d4b07519593c) axis. This structure MUST only be present if the **catMark** field of the corresponding [CatSerRange](#Section_07bdb87444424468a7e2bd166769e6a9) record is not 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 |
| nInterval | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**nInterval (8 bytes):** An [XmlTkDWord](#Section_00c0bf38c3d34f799cfa00a4d7e1edd6) that specifies the number of major tick marks to skip on a category (2) axis or a series axis. The **nInterval**.**xtHeader**.**xmlTkTag** field MUST be equal to 0x0052. It overrides the **catMark** field of the corresponding CatSerRange record when the **catMark** field of the CatSerRange record is not set to 1.

### 2.5.340 XmlTkToken

The **XmlTkToken** structure specifies a constant value for the **xmltkChain** field of the [CrtMlFrt](#Section_4bbe91b24c4f4fa692ee49d35608566c) 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 |
| xtHeader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dValue | | | | | | | | | | | | | | | |

**xtHeader (4 bytes):** An [XmlTkHeader](#Section_21307b1deaee408c9756cec0aa95692e). The **xtHeader**.**drType** field MUST be equal to 0x06.

**dValue (2 bytes):** An unsigned integer that specifies the value of this structure.

### 2.5.341 XmlTkTpb

The **XmlTkTpb** structure specifies text formatting information for the current chart [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) element, stored as an **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.

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

**textPropsStream (variable):** An [XmlTkBlob](#Section_0799bf910a774f16857c58231b0f1ade) that specifies the text formatting information. The **textPropsStream.xtHeader.xmlTkTag** MUST be equal to 0x0020. The **XML stream** (section 2.1.7.22) is specified in [ECMA-376] Part 4, section 5.7.2.217, and compressed by the compression algorithm specified in [[RFC1951]](https://go.microsoft.com/fwlink/?LinkId=90302).

### 2.5.342 Xnum

**Xnum** is a 64-bit binary [**floating-point number**](#gt_237156df-b9cf-4b8a-9753-98001801a90d) as specified in [[IEEE754]](https://go.microsoft.com/fwlink/?LinkId=89903). This value MUST NOT[<191>](#Appendix_A_191" \o "Product behavior note 191) be infinity, denormalized, not-a-number (NaN), nor negative zero.

### 2.5.343 XORObfuscation

The **XORObfuscation** structure specifies the [**XOR obfuscation**](#gt_cbfd1a35-e8c9-4c5a-bc26-e618633d2f50).

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

**key (2 bytes):** An unsigned integer that specifies the [**obfuscation key**](#gt_ae0e1916-4ac2-4c7e-9781-4fc8d8e63362). See [[MS-OFFCRYPTO]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OFFCRYPTO%5d.pdf#Section_3c34d72a1a614b52a893196f9157f083), 2.3.6.2 section, the first step of initializing XOR array where it describes the generation of 16-bit XorKey value.

**verificationBytes (2 bytes):** An unsigned integer that specifies the password verification identifier. See [Password Verifier Algorithm](#Section_e8a5fbec6cdc40d89fef9ad80e4172f4).

### 2.5.344 XTI

The **XTI** structure specifies a [supporting link](#Section_cc5920ba01074d92bbdfc12ca986f31f) and scope information about that supporting link.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| iSupBook | | | | | | | | | | | | | | | | itabFirst | | | | | | | | | | | | | | | |
| itabLast | | | | | | | | | | | | | | | |

**iSupBook (2 bytes):** An unsigned integer that specifies the zero-based index of a [SupBook](#Section_31ed3738e4ff4b60804cac49ac1ee6c0) record in the collection of SupBook records in the [Globals Substream](#Section_ca4c174887294a93abb94602b3a01fb1) [**ABNF**](#gt_24ddbbb4-b79e-4419-96ec-0fdd229c9ebf). The referenced SupBook specifies the supporting link referenced by this structure. This value MUST be less than the number of SupBook records in this file.

**itabFirst (2 bytes):** A signed integer that specifies the scope of the supporting link, and if a scope is specified, the first [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d) in the scope of that supporting link. If the type of supporting link specified by the **cch** and **virtPath** fields of the SupBook record is same-sheet referencing, add-in referencing, DDE [**data source**](#gt_e091613c-6901-4874-b9b2-27273ead1075) referencing, or [**OLE**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c) data source referencing, then no scope is specified and this value MUST be -2. Otherwise, this field MUST contain a value from the following table:

| Value | Meaning |
| --- | --- |
| -2 | [**Workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe)-level reference that applies to the entire workbook. |
| -1 | Sheet-level reference. The first sheet in the reference could not be found. |
| >= 0 | Sheet-level reference. This specifies the first sheet in the reference.  If the supporting link type is unused or [external workbook](#Section_c8bd9cdbb0784622a3bffb87f35a36cc) referencing, then this value specifies the zero-based index of an [XLUnicodeString](#Section_36ca6de7be1648bcaa5e3eaf4942f671) in the **rgst** field of the SupBook record specified in **iSupBook.**This XLUnicodeString specifies the name of the first sheet within the external workbook that is in scope. This sheet MUST be a [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615) or [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491).  If the supporting link type is self-referencing, then this value specifies the zero-based index of a [BoundSheet8](#Section_b9ec509a235d424e871df8e721106501) record in the Globals Substream ABNF that specifies the first sheet within the scope of this reference. This sheet MUST be a worksheet or a macro sheet. |

**itabLast (2 bytes):** A signed integer that specifies the scope of the supporting link, and if a scope is specified, the last sheet in the scope of that supporting link. If the type of supporting link specified by the **cch** and **virtPath** fields of the SupBook record is same-sheet referencing, add-in referencing, [**DDE**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) data source referencing, or OLE data source referencing, then no scope is specified and this value MUST be -2. Otherwise, this field MUST contain a value from the following table:

| Value | Meaning |
| --- | --- |
| -2 | Workbook-level reference that applies to the entire workbook. MUST NOT be used if **itabFirst** is not equal to -2. |
| -1 | Sheet-level reference. The last sheet in the reference could not be found. SHOULD NOT[<192>](#Appendix_A_192" \o "Product behavior note 192) be used if **itabFirst** is equal to -2. |
| >= 0 | Sheet-level reference. This specifies the last sheet in the reference. MUST NOT be used if **itabFirst** is equal to -2.  If the supporting link type is unused or referring to an external workbook, then this value specifies the zero-based index of an XLUnicodeString in the **rgst** field of the SupBook record specified in **iSupBook.**This XLUnicodeString specifies the name of the last sheet within the external workbook that is in scope. This sheet MUST be a worksheet or macro sheet.  If the supporting link type is self-referencing, then this value specifies the zero-based index of a BoundSheet8 record in the Globals Substream ABNF that specifies the last sheet within the scope of this reference. This sheet MUST be a worksheet or a macro sheet. |