**2.6 XCB Structures**

**2.6.1 CTBWRAPPER**

The **CTBWRAPPER** structure specifies a custom toolbar wrapper. This is the root record of the XCB binary stream where custom toolbars are stored.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| ctbSet (14 bytes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | rCTB (variable) | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ctbSet (14 bytes):**  This is a structure of type [CTBS](#Section_71f48d71a605454597653895d5d70d7f).

**rCTB (variable):** Zero-based index array of [CTB](#Section_bdffb4739783454d95545ea9a7b3c5ce) structures. The number of elements in the array MUST be equal to **ctbSet.ctb**.

**2.6.2 CTBS**

The **CTBS** record specifies the number of custom toolbars stored in the file and the number of available [**toolbar views**](#gt_c919b821-fb4f-4e0b-abd9-dc8b077f6e39).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| bSignature | | | | | | | | bVersion | | | | | | | | reserved1 | | | | | | | | | | | | | | | |
| reserved2 | | | | | | | | | | | | | | | | reserved3 | | | | | | | | | | | | | | | |
| ctb | | | | | | | | | | | | | | | | ctbViews | | | | | | | | | | | | | | | |
| ictbView | | | | | | | | | | | | | | | |

**bSignature (1 byte):** An unsigned integer that specifies the toolbar set signature number. MUST be 0x01.

**bVersion (1 byte):** An unsigned integer that specifies the toolbar set version number. MUST be 0x01.

**reserved1 (2 bytes):** 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.

**ctb (2 bytes):** An unsigned integer that specifies the number of elements in the **rCTB** array of the [CTBWRAPPER](#Section_facb605c55f5443a985c1c6cafca8f12) structure that contains this structure. The value MUST be greater than 0x0000.

**ctbViews (2 bytes):** An unsigned integer that specifies the number of available toolbar views. MUST be 0x0003. There are three view modes and therefore each toolbar has three available views. The view modes are shown in the following table:

| **View mode number** | **Meaning** |
| --- | --- |
| 0 | [**Normal view**](#gt_b3c343ae-05ca-4b91-9cc1-383ee3563990) |
| 1 | [**Full screen view**](#gt_20327411-614f-448f-aa96-4c96726830eb) |
| 2 | [**Web-only view**](#gt_5016b55e-b39a-46e5-9701-472086ebed25)[<193>](#Appendix_A_193" \o "Product behavior note 193) |

**ictbView (2 bytes):** An unsigned integer that specifies the view mode number that the application was in at the time the file was saved. MUST be equal to 0x0000 or 0x0001.

**2.6.3 CTB**

The **CTB** record specifies a custom toolbar.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| tb (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rVisualData (60 bytes, optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ectbid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| rTBC (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**tb (variable):** Structure of type TB, as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.3.1.6, that contains toolbar information.

**rVisualData (60 bytes):** A zero-based index array of TBVisualData structures, specified in [MS-OSHARED] section 2.3.1.9. The number of elements in this array MUST be equal to the value of the **ctbViews** field of the [CTBS](#Section_71f48d71a605454597653895d5d70d7f) structure contained by the [CTBWRAPPER](#Section_facb605c55f5443a985c1c6cafca8f12) structure that contains this structure. The index of each structure in the array corresponds to a view mode number. Refer to the following table for the meaning of each TBVisualData, specified in [MS-OSHARED] section 2.3.1.9, structure according to its position in this array:

| **Index of structure in array** | **Meaning of TBVisualData, specified in [MS-OSHARED] section 2.3.1.9, structure** |
| --- | --- |
| 0 | Contains the visual information for this toolbar to be used when the application is in [**Normal view**](#gt_b3c343ae-05ca-4b91-9cc1-383ee3563990). |
| 1 | Contains the visual information for this toolbar to be used when the application is in [**Full screen view**](#gt_20327411-614f-448f-aa96-4c96726830eb). |
| 2 | Contains the visual information for this toolbar to be used when the application is in [**Web-only view**](#gt_5016b55e-b39a-46e5-9701-472086ebed25). |

**ectbid (4 bytes):** A signed integer that specifies the application’s specific custom toolbar identifier. Value MUST be 0x00000FFF.

**rTBC (variable):** Number of elements in the array MUST be equal to **tb.cCL**.

**2.6.4 TBC**

The **TBC** record specifies a [**toolbar control**](#gt_8077f5ab-e200-481c-9980-3ea64760ce9d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| tbch (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tbcCmd (optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tbcd (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**tbch (variable):** Structure of type TBCHeader, as specified in [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.3.1.10, that specifies toolbar control header information.

**tbcCmd (4 bytes):** Structure of type [TBCCmd](#Section_1ae9c14668824e8a83898aed72246ef0). This field MUST only exist when **tbch.tcid** is not equal to 0x0001, 0x06CC (1740), 0x03D8 (984), 0x03EC (1004), or 0x1051 (4177), and the value of **tbch.tct** equals one of the values in the following table:

| **Value of tbch.tct** | **Meaning** |
| --- | --- |
| 0x01 | Button control |
| 0x02 | Edit control |
| 0x03 | Dropdown control |
| 0x04 | ComboBox control |
| 0x06 | [**SplitDropDown control**](#gt_809470f7-7486-4a44-a50d-2489b32389af) |
| 0x07 | [**OCXDropDown control**](#gt_e139011b-a966-4495-9264-d923ecdfeb66) |
| 0x08 | [**GraphicDropDown control**](#gt_007e8308-eee4-4435-a1f8-e2b27e58f1ac) |
| 0x0A | [**Popup control**](#gt_a259e677-3d9d-47e4-87ba-590fd09734c8) |
| 0x0C | [**ButtonPopup control**](#gt_d638405a-d78b-4c5f-aed2-8616d98d3519) |
| 0x0D | [**SplitButtonPopup control**](#gt_1c046ab6-2530-4a41-8d19-03f92914beaf) |
| 0x0E | [**SplitButtonMRUPopup control**](#gt_01b548cd-095a-4517-a468-1771a038c392) |
| 0x0F | Label control |
| 0x15 | [**Pane control**](#gt_0b77cb34-c2be-4fbe-8f82-df82f7b02b07) |

**tbcd (variable):** Structure of type TBCData, as specified in [MS-OSHARED] section 2.3.1.13, that specifies toolbar control data. MUST exist if **tbch.tct** is not equal to 0x16. MUST NOT exist if **tbch.tct** equals 0x16.

**2.6.5 TBCCmd**

The **TBCCmd** record specifies a command identifier for a [**toolbar control**](#gt_8077f5ab-e200-481c-9980-3ea64760ce9d).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 3  0 | 1 |
| cmdID | | | | | | | | | | | | | | | | A | B | cmdType | | | | | C | reserved3 | | | | | | | |

**cmdID (2 bytes):** A signed integer that specifies the command identifier for this toolbar control. Value MUST be in one of the tables specified in sections 2.3, 2.4, 2.5, 2.6, 2.7, and 2.8 of [[MS-CTXLS]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CTXLS%5d.pdf#Section_b461dcd9933e471081bcdc1c74801b6b).

**A - fHideDrawing (1 bit):** A bit that specifies whether the toolbar control is visible if it is disabled. A value of 1 specifies that the toolbar control is not visible if it is disabled. MUST only be used if **cmdType** equals 0x10 or 0x14. MUST be 0 if **cmdType** is not equal to 0x10 and is not equal to 0x14.

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

**cmdType (5 bits):** An unsigned integer that specifies the command type for this toolbar control. Value MUST be in the following table:

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0x00 | Toolbar control uses a toolbar control grid command identifier. Value of **cmdType** MUST be one of the values listed in [MS-CTXLS] section 2.8. |
| 0x01 | Toolbar control uses a toolbar control command identifier. Value of **cmdType** MUST be one of the values listed in [MS-CTXLS] section 2.4. |
| 0x02 | Toolbar control uses a general command identifier. Value of **cmdType** MUST be one of the values listed in [MS-CTXLS] section 2.3. |
| 0x03 | Toolbar control uses a menu toolbar control command identifier. Value of **cmdType** MUST be one of the values listed in [MS-CTXLS] section 2.5. |
| 0x05 | Toolbar control uses a toolbar command identifier. Value of **cmdType** MUST be one of the values listed in [MS-CTXLS] section 2.7. The value of the **tbch.tct** field of the [TBC](#Section_8dcf6bbfab3043d4b2eeffdc3b77b7c5) structure that contains this structure MUST be equal to one of the following values: 0x0A, 0x0C, 0x0D, or 0x0E. |
| 0x07 | Toolbar control uses a menu toolbar command identifier. Value of **cmdType** MUST be one of the values listed in [MS-CTXLS] section 2.6. The value of the **tbch.tct** field of the TBC structure that contains this structure MUST be equal to one of the following values: 0x0A, 0x0C, 0x0D, or 0x0E. |
| 0x08 | Toolbar control command is determined by using the value of the **tbch.tcid** field of the TBC structure that contains this structure. |
| 0x10 | Toolbar control uses an MSODGCID specifying a drawing command, as specified in [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872). |
| 0x14 | Toolbar control uses an MSODGCID specifying a drawing command, as specified in [MS-ODRAW]. |

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

**reserved3 (8 bits):** MUST be zero and MUST be ignored.

**2.7 Algorithms**

**2.7.1 Application Data For VtHyperlink**

The following algorithm specifies how hyperlink properties ([[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) section 2.3.3.1.18) that are associated with a [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) of cells or shapes in a document construct their **dwApp** structure [**member (1)**](#gt_5d78ca78-a9b1-4791-8126-bf9494304b11) value.

1. If the hyperlink is associated with a shape [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) section 2.2.31, the **dwApp** value MUST be 0xFFFFFFFF.

2. Otherwise the hyperlink MUST be associated with a range of cells on a [**sheet**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d), and the **dwApp** value is computed as follows:

3. Set an unsigned 2-byte integer (wHLIndex) equal to the zero-based index of the [HLink](#Section_f0b9de34b1474f96a1a3ac21f6fd48fa) structure or [HLinkTooltip](#Section_e85d171a913844bb8e539cef48abbc0e) structure in the sheet that the hyperlink is associated with.

4. Set an unsigned 2-byte integer (wWSIndex) equal to the zero-based index of the sheet in the document on which this range of cells that the hyperlink is associated with is defined.

5. The value of **dwApp** MUST be equal to the bitwise OR of wWSIndex shifted 16 bits to the high order and wHLIndex.

Example: dwApp = (wWSIndex << 16) | wHLIndex;