

MS-OFORMS:

Office Forms Binary File Format Structure Specification

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Revision Summary			
Author	Date	Version	Comments
Microsoft Corporation	June 27, 2008	1.0	First release

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1 Introduction

The Office Forms Binary File Format Structure Specification is a specification of the Microsoft® Office 97, Microsoft® Office 2000, Microsoft® Office XP, Microsoft® Office 2003 and the 2007 Microsoft® Office system Forms, or Office Forms, file format. Office Forms are a collection of [ActiveX controls](#) that can be embedded in client applications and stored as part of a file. Office Forms controls can be used to provide additional interactive surfaces, such as command buttons, check boxes, or option buttons, to the user. The client application provides the location and requests the type of persistence; the structure of the persistence is determined by Office Forms for binary formats and by the client application for text formats.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

ASCII

big-endian

little-endian

Unicode

The following terms are defined in [\[MS-OFCGLOS\]](#):

accelerator key

ActiveX control

aggregation

Boolean

cell

character pitch

character set

class identifier (CLSID)

CLSID

color palette

datasheet

DispID

dual interface

font family

GUID

hanzi

HIMETRIC

IDispatch identifier (DispID)

IME

Input Method Editor (IME)

license key

macro

persist

point

property bag

range

storage

stream

system palette

twip

type information

variant type

worksheet

The following terms are specific to this document:

dynamic virtual table: An ordered array that contains pointers to virtual functions.

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

1.2 References

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, <http://msdn.microsoft.com/en-us/library/cc136647.aspx>, as an additional source.

[GIF89a] CompuServe Incorporated, "Graphics Interchange Format(sm)", Graphics Interchange Format Programming Reference, July 1990, <http://www.w3.org/Graphics/GIF/spec-gif89a.txt>.

[JFIF] Hamilton, E., "JPEG File Interchange Format, Version 1.02", September 1992, <http://www.w3.org/Graphics/JPEG/jfif.txt>.

[MC-IcoWin32] John Hornick, "Icons in Win32", September 29, 1995, <http://msdn.microsoft.com/en-us/library/ms997538.aspx>.

[MS-DTYP] Microsoft Corporation, "[Windows Data Types](#)", March 2008.

[MS-EMF] Microsoft Corporation, "[Enhanced Metafile Format Specification](#)", July 2007.

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", June 2008.

[MS-OAUT] Microsoft Corporation, "[OLE Automation Protocol Specification](#)", March 2007.

[MS-OFCGLOS] Microsoft Corporation, "[Microsoft Office Client Master Glossary](#)", June 2008.

[MS-OLEDS] Microsoft Corporation, "[Object Linking and Embedding \(OLE\) Data Structures: Structure Specification](#)", June 2008.

[MS-OSHARED] Microsoft Corporation, "[Office Common Data Types and Objects Structure Specification](#)", June 2008.

[MS-OVBA] Microsoft Corporation, "[Office VBA File Format Structure Specification](#)", June 2008.

[MS-WMF] Microsoft Corporation, "[Windows Metafile Format Specification](#)", March 2008.

[RFC4234] Crocker, D., Ed. and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", RFC 4234, October 2005, <http://www.ietf.org/rfc/rfc4234.txt>.

[RFC2119] Bradner, S., "Key Words for Use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.ietf.org/rfc/rfc2119.txt>.

1.2.2 Informative References

[ECMA-376] Ecma International, "Standard ECMA-376 Office Open XML File Formats", December 2006, <http://www.ecma-international.org/publications/standards/Ecma-376.htm>.

[MS-CFB] Microsoft Corporation, "[Compound File Binary File Format Specification](#)", June 2008.

[MSDN-IDPD] Microsoft Corporation, "Interpreting Data Packet Diagrams", <http://msdn.microsoft.com/en-us/library/aa506210.aspx>.

[MSDN-IPersistStream] Microsoft Corporation, "IPersistStream", [http://msdn.microsoft.com/en-us/library/ms690091\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms690091(VS.85).aspx).

[MSDN-IPropertyBag] Microsoft Corporation, "IPropertyBag", <http://msdn.microsoft.com/en-us/library/aa908373.aspx>.

[MSDN-IStorage] Microsoft Corporation, "IStorage Interface", <http://msdn.microsoft.com/en-us/library/aa380015.aspx>.

[MSDN-IStream] Microsoft Corporation, "IStream Interface", <http://msdn.microsoft.com/en-us/library/aa380034.aspx>.

[MS-DOC] Microsoft Corporation, "[Word Binary File Format \(.doc\) Structure Specification](#)", June 2008.

[MS-PPT] Microsoft Corporation, "[PowerPoint Binary File Format \(.ppt\) Structure Specification](#)", June 2008.

[MS-XLS] Microsoft Corporation, "[Excel Binary File Format \(.xls\) Structure Specification](#)", June 2008.

[MS-XLSB] Microsoft Corporation, "[Excel Binary File Format \(.xlsb\) Structure Specification](#)", June 2008.

1.3 Structure Overview (Synopsis)

1.3.1 Office Forms

Office Forms is a set of ActiveX controls that can be used to provide interactive surfaces to the user. The characteristics and behaviors of the controls are determined by the application that parses the binary file. Controls can be embedded directly into an application document or into another control; they are [persisted](#) with the same structure. This section illustrates one way to use and display Office Forms controls.

1.3.1.1 UserForm

The [UserForm](#) control is a form or a custom dialog box that can be used to get information from a user. Other controls can be added to the [UserForm](#) control to display labels, provide areas for user input of text, display drop-down selection boxes, display buttons, and perform other actions, including actions that are triggered by user interaction.

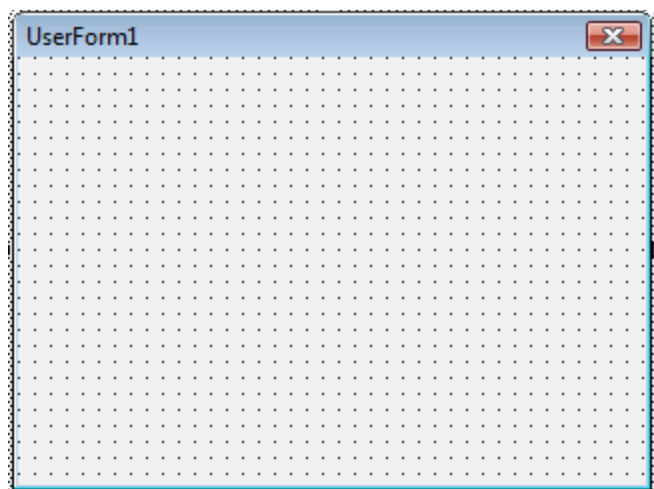


Figure 1: UserForm

1.3.1.2 Frame

The [Frame](#) control is a rectangular box with an optional label that groups controls into one visual unit. It can force mutually exclusive values among controls such as [OptionButton](#) controls or [CheckBox](#) controls within the frame.

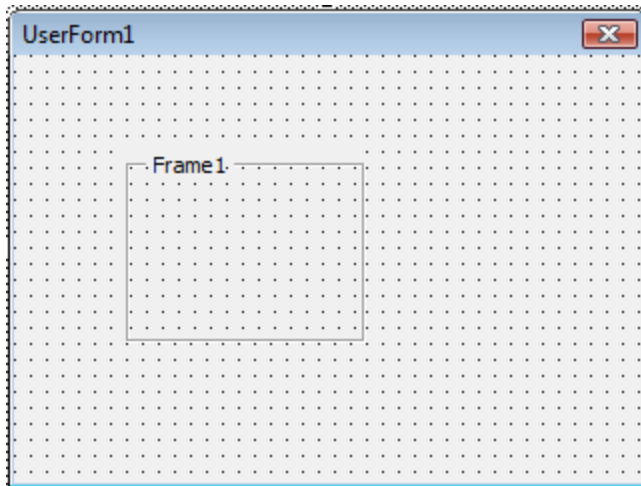


Figure 2: Frame

1.3.1.3 CheckBox

The [CheckBox](#) control toggles a value that indicates an opposite and unambiguous choice. It has three possible states: selected, cleared and neither selected nor cleared, meaning a combination of on and off states.

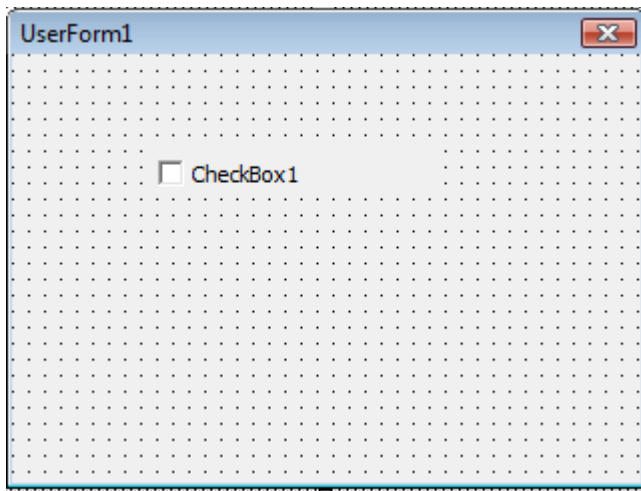


Figure 3: CheckBox

1.3.1.4 ComboBox

The [ComboBox](#) control combines a [TextBox](#) with a [ListBox](#) to create a drop-down list box. Clicking the drop button on the side of the [TextBox](#) displays the list of items. Users can type a value, which can be restricted to the list, or they can choose an item from the list to enter a value.

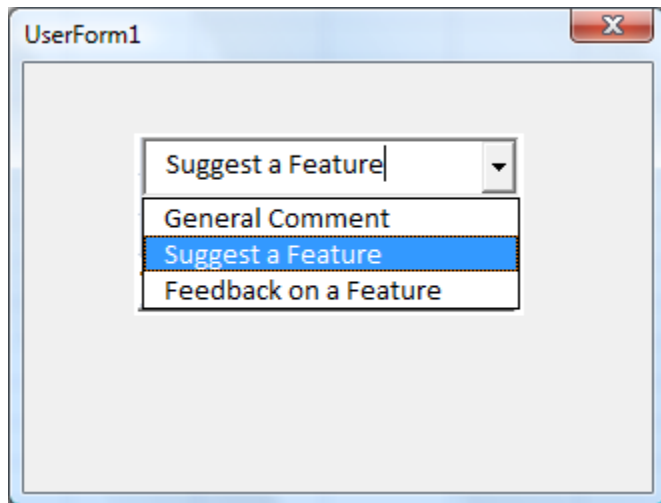


Figure 4: ComboBox

1.3.1.5 ListBox

The [ListBox](#) control displays a list of one or more items of text from which a user can choose.

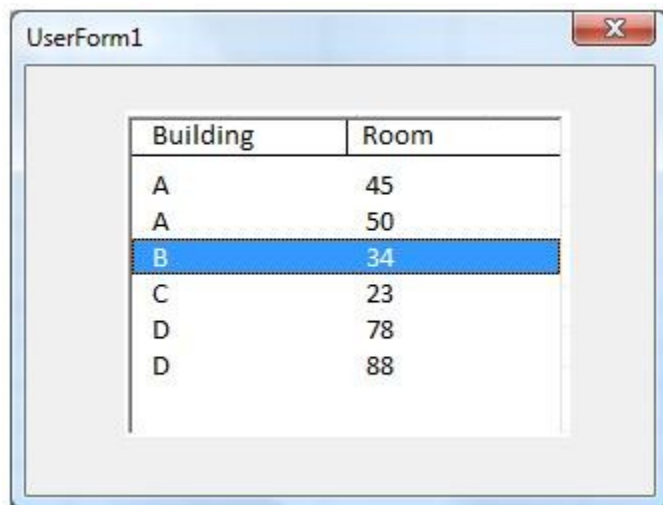


Figure 5: ListBox

1.3.1.6 OptionButton

The [OptionButton](#) control allows a single choice within a limited set of mutually exclusive choices in a [GroupName](#) or in a [Frame](#) control. It has three possible states: selected, cleared and neither selected nor cleared, meaning a combination of on and off states. An [OptionButton](#) is also referred to as a radio button.

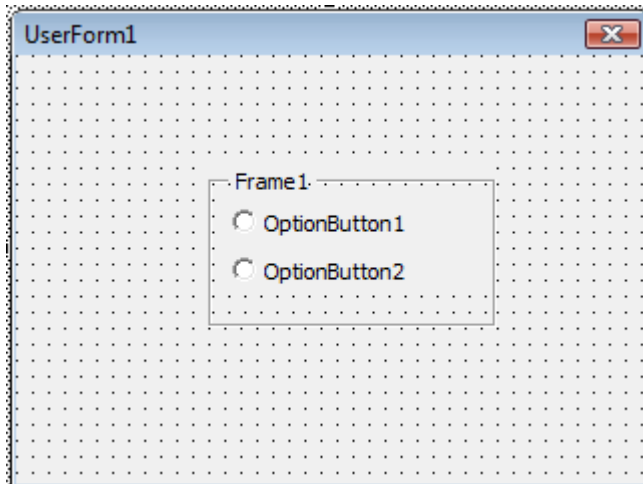


Figure 6: OptionButton controls in Frame

1.3.1.7 TextBox

The [TextBox](#) control displays text from an organized set of data or user input.

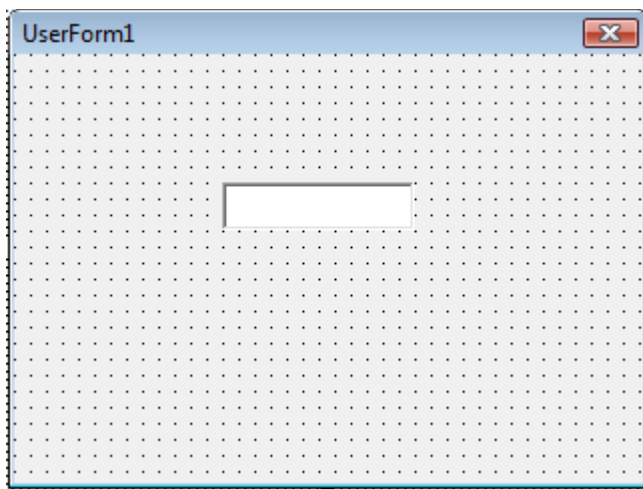


Figure 7: TextBox

1.3.1.8 ToggleButton

The [ToggleButton](#) control indicates a state, such as Yes/No, or a mode, such as On/Off. It alternates between an enabled and disabled state when it is clicked.

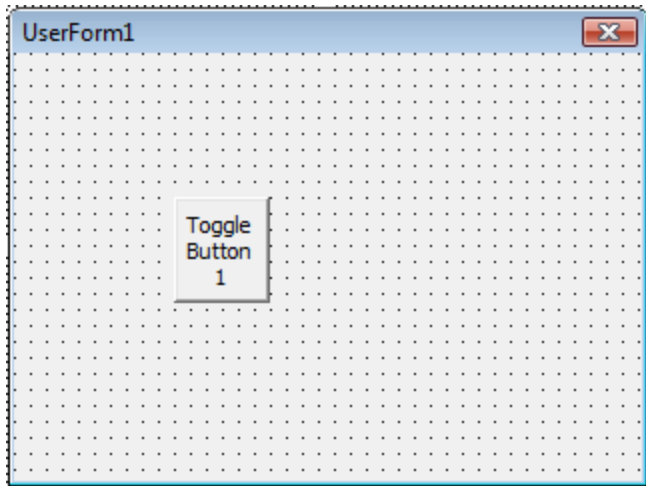


Figure 8: ToggleButton

1.3.1.9 CommandButton

The [CommandButton](#) runs a **macro** that performs an action when a user clicks it. A [CommandButton](#) is also referred to as a push button.

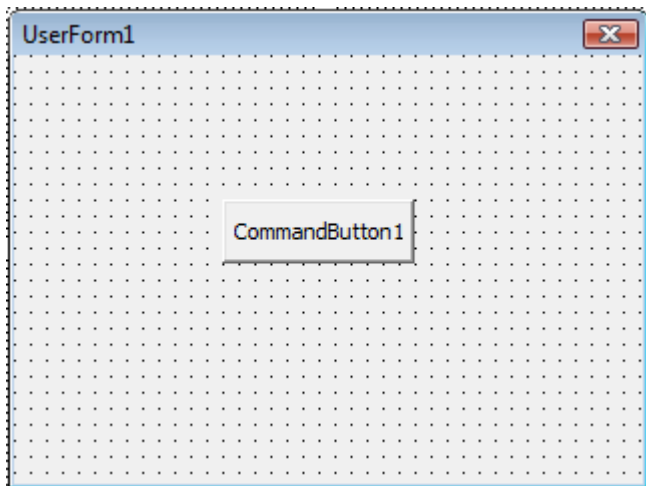


Figure 9: CommandButton

1.3.1.10 Image

The [Image](#) control is used to display a picture.

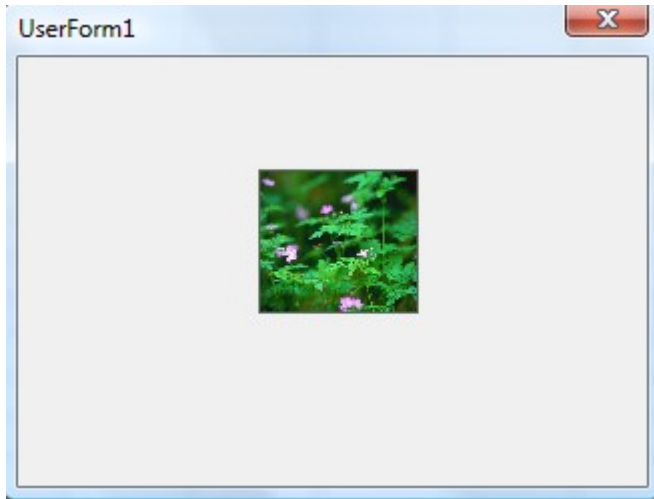


Figure 10: Image

1.3.1.11 Label

The [Label](#) control displays text, which can be used to identify the purpose of a control such as a [TextBox](#), display descriptive text, or provide brief instructions.

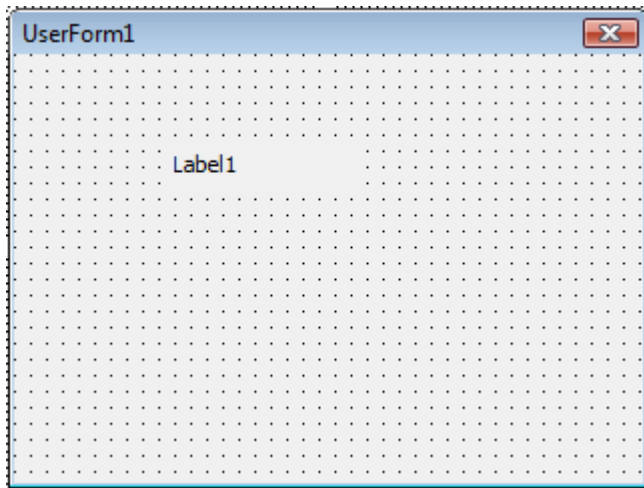


Figure 11: Label

1.3.1.12 TabStrip

The [TabStrip](#) control presents a set of related controls as a visual group. It can be used to view different sets of information for related controls. It contains a collection of one or more tabs in which each tab is selectable by the user. Each tab can show different values for the controls that are within the borders of the [TabStrip](#) control.

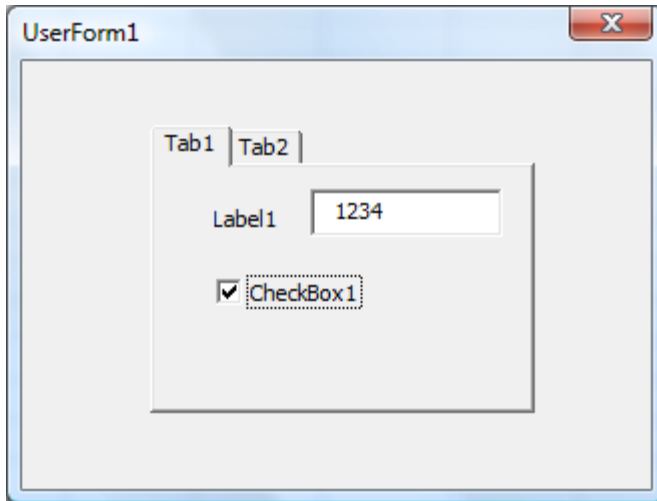


Figure 12: TabStrip, first tab selected

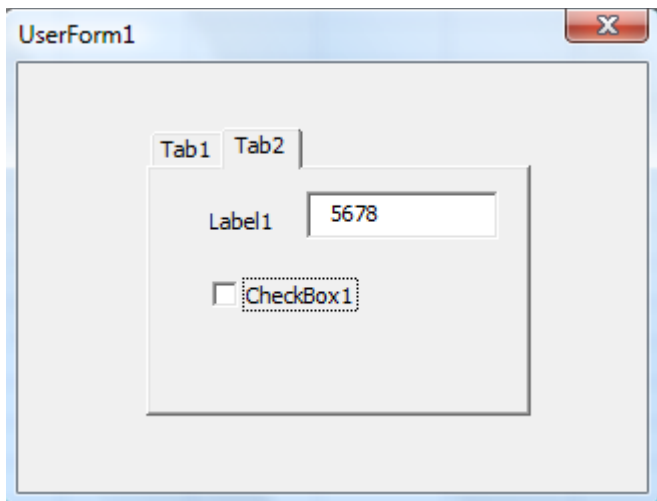


Figure 13: TabStrip, second tab selected

1.3.1.13 ScrollBar

The [ScrollBar](#) control scrolls through a range of values when a user clicks the scroll arrows, or jumps to a specific value when the user drags the scroll box. The value jumps past a preset range when the user clicks the area between the scroll box and either of the scroll arrows. The user can use the value of the [ScrollBar](#) control to set the value of another control, such as a [TextBox](#).

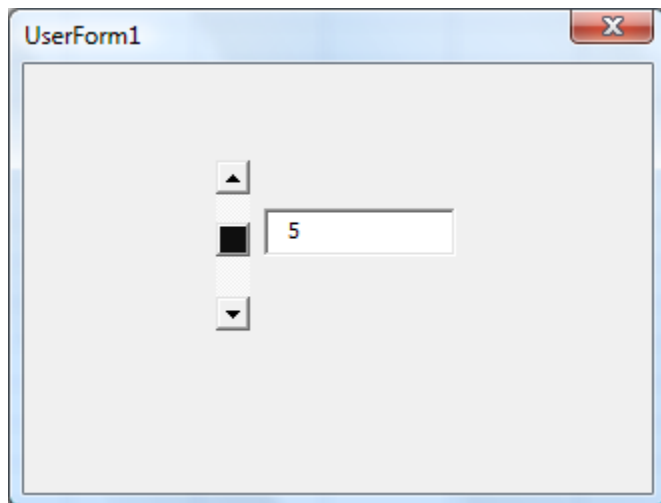


Figure 14: ScrollBar

1.3.1.14 SpinButton

The [SpinButton](#) control increases or decreases a value, such as a number, time, or date. A user increases the value by clicking the up arrow and decreases the value by clicking the down arrow. A user can use the value of the [SpinButton](#) control to set the value of another control, such as a [TextBox](#).

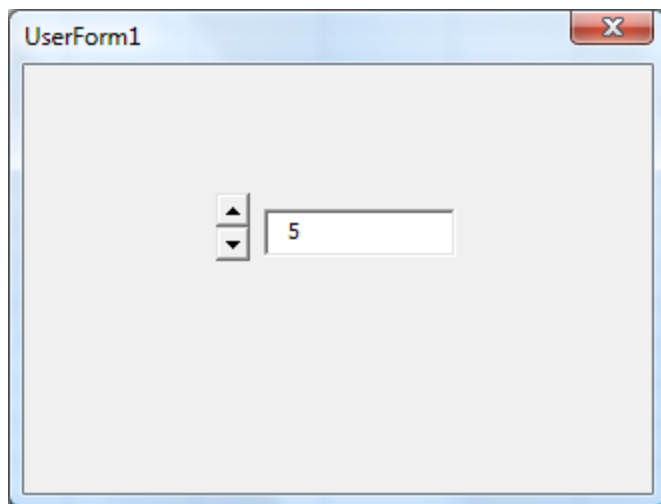


Figure 15: SpinButton

1.3.1.15 MultiPage

The [MultiPage](#) control presents multiple screens of information as a single set. It contains a collection of one or more pages in which each page is a [UserForm](#) that contains its own controls and, as such, can have a unique layout. Each page is associated with a tab on which the user can click to display the page and its contents.

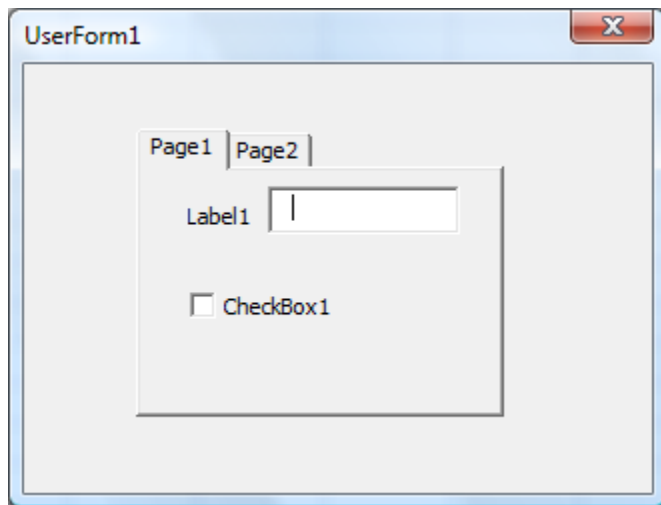


Figure 16: MultiPage, first page selected

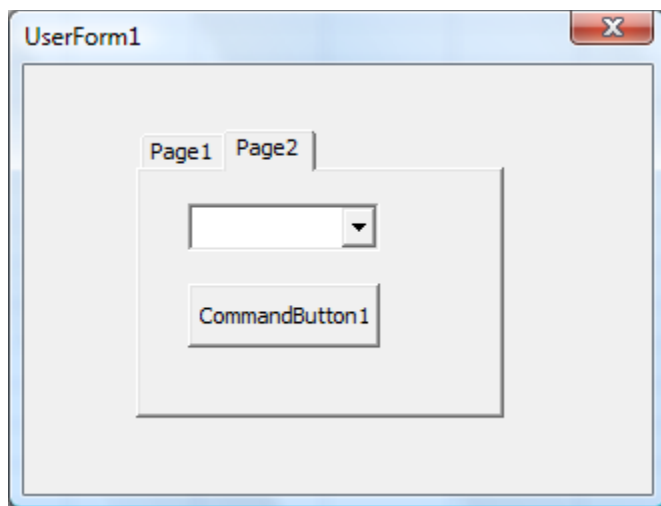


Figure 17: MultiPage, second page selected

1.3.2 Saving Controls

Office Forms controls can be stored by serializing control properties to an *IStream* interface, an *IStorage* interface, or an *IPropertyBag* interface. For more information about these interfaces, see [\[MSDN-IStream\]](#), [\[MSDN-IStorage\]](#), and [\[MSDN-IPropertyBag\]](#), respectively. Parent controls, that is, controls that can contain other controls are stored to an *IStorage* interface. Non-parent controls can be saved to any of the three interfaces.

All Office Forms controls can be saved to PowerPoint, Word and Excel file formats, as well as any other file types that support the *IStorage* and *IStream* interfaces. For more information about the PowerPoint, Word and Excel binary formats, see [\[MS-PPT\]](#), [\[MS-DOC\]](#) or [\[MS-XLS\]](#), respectively. For information about Excel Binary File Format (.xlsb), see [\[MS-XLSB\]](#). Excel Binary File Format (.xlsb) also supports *IPropertyBag*, so non-parent controls can be saved to that file format using those interfaces.

Each client application provides the desired interface to Office Forms. This document describes how Office Forms writes to these interfaces. It does not describe how the bytes are saved to disk; that format is determined by the client application.

The rest of section 1.3.2 describes the way that controls are saved to the IStream and IStorage formats.

1.3.2.1 Control Properties

Office Forms controls are stored as collections of property values. The client application is responsible for storing any information it needs to identify the control. For example, it can write the [class identifier \(CLSID\)](#) of the control, which is a [GUID](#), to the [stream](#) before passing it to the control. For more information about the GUID type, see [\[MS-DTYP\]](#).

If a client application requests that a non-parent Office Forms control be saved to a [storage](#), Office Forms creates a stream named "contents" under the storage provided by the client application and persists the control to that stream in the same way that it would persist to any IStream object.

Once an Office Forms control is given or creates a stream object, the control's properties are stored in a fixed format. Metadata is stored about the properties, including flags to indicate which properties are stored. Properties that are 4 bytes or smaller in size are stored sequentially in the DataBlock, followed by larger properties in the ExtraData block. Properties that are stored using the IPersistStream interface are stored in StreamData. For more information about IPersistStream, see [\[MSDN-IPersistStream\]](#). Figure 18 illustrates this layout.

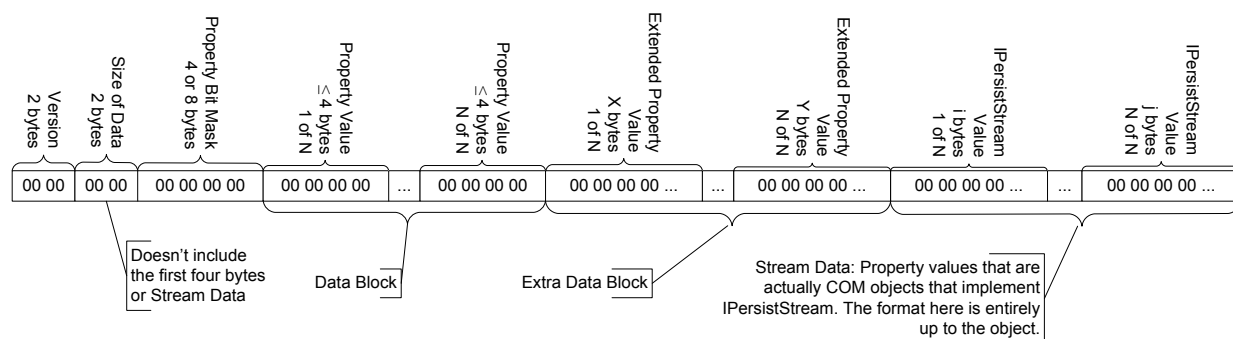


Figure 18: Control structure without additional data

Some controls store additional data, which is not depicted in Figure 18. Any additional data is stored in the stream directly following the format described above. Many controls store [TextProps](#) immediately following StreamData. The [TextProps](#) structure follows the pattern illustrated in Figure 18. These additional data structures are specified in the section specific to the applicable control.

1.3.2.2 Parent Controls

Parent controls are those, such as Frame, that can contain other controls. These controls are considered parents whether or not they actually contain embedded controls. The structure of a parent control consists of multiple streams under a storage. Figure 19 illustrates this layout.

The first stream, named "f", is the [Form stream](#); it contains the properties of the parent control, followed by the [ClassTable](#), which stores information about control types that are used by embedded controls and are unknown to the parent control. Following the [ClassTable](#), the Sites array of the [FormSiteData](#) stores information about each of the parent's embedded controls. Following the Sites array, the [DesignExtender](#) stores properties of the design surface of the parent control. The [ClassTable](#) and [DesignExtender](#) are both optional and are not stored if they're not needed.

The second stream, named "o", is the [Object stream](#); it contains the properties of each embedded child control, persisted as described in the previous section. Embedded child controls cannot be parent controls themselves; embedded parent controls are described in section 1.3.2.3.

The [CompObj](#) stream holds information about the parent control and clipboard formats.

Parent controls can create other streams in addition to the [Form stream](#) and [Object stream](#), as long as the additional streams have unique names within their storage.

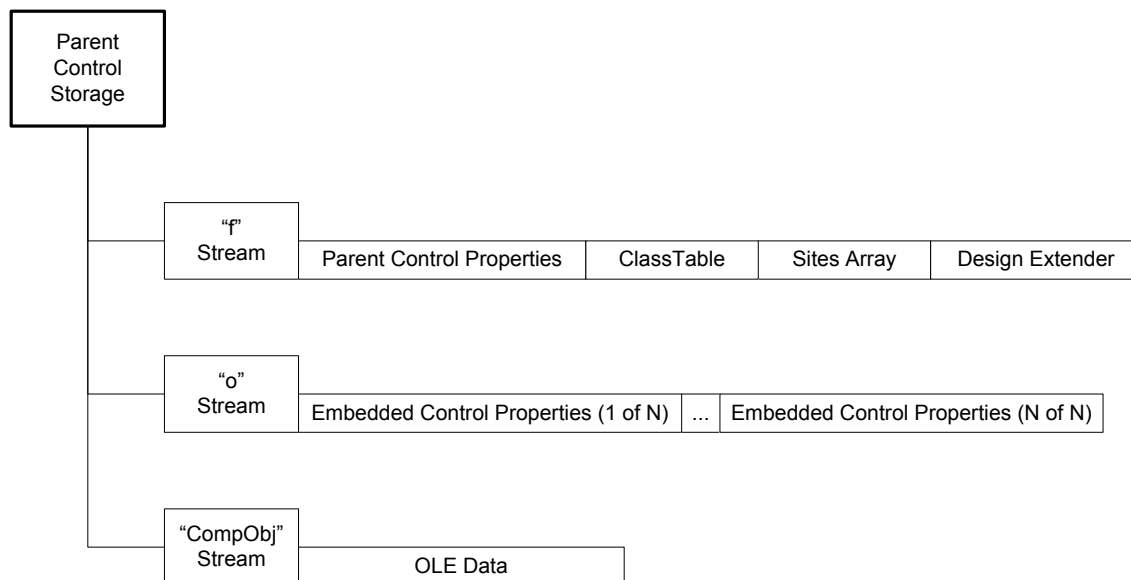


Figure 19: Parent control structure

1.3.2.2.1 ClassTable

The format of the ClassTable element in the [Form stream](#) is a count of classes, followed sequentially by information about each class.

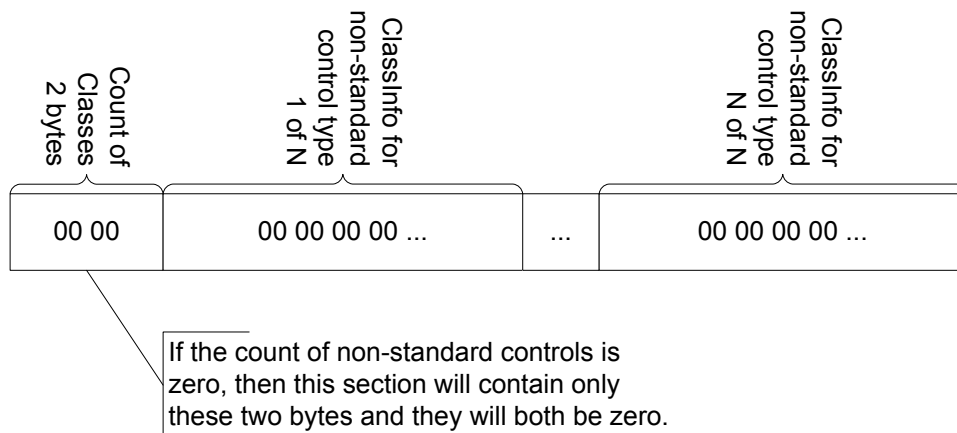


Figure 20: ClassTable structure

1.3.2.2.2 Sites Array

The format of the Sites array, as illustrated in Figure 21 is a count of embedded controls, followed by the size of the embedded control information, an array describing the types, and an array describing each site.

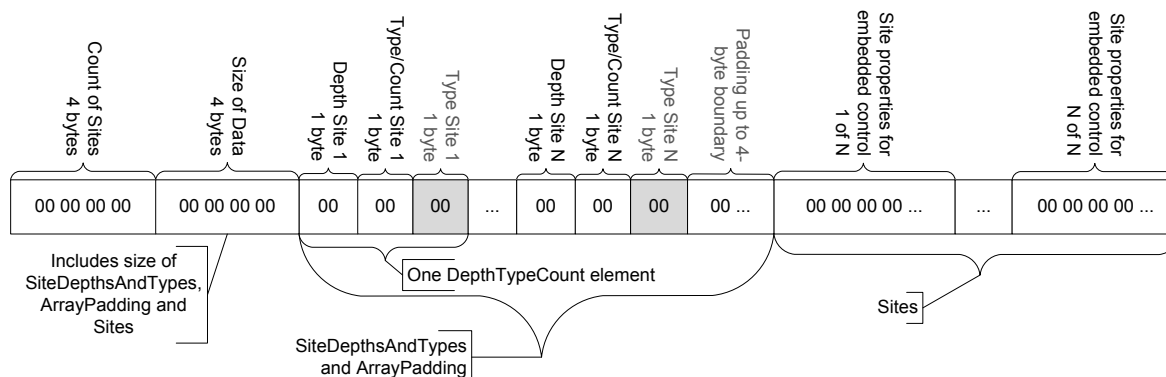


Figure 21: Sites array

The SiteDepthsAndTypes array as illustrated in Figure 21 stores the depth and type of each embedded control. Each entry is 2 or 3 bytes long, depending on whether two consecutive controls are of the same OLE type. If two or more controls of the same type occur in order, then one entry is used and that entry includes a count as well as the depth and type. The array is padded to a length that is divisible by 4. The Sites array in Figure 21 is an array of [OleSiteConcreteControl](#) structures, one for each embedded control.

1.3.2.3 Embedded Parent Controls

An embedded control can also be a parent control to its own embedded control(s). In that case, the properties of the embedded parent control are not stored in its parent's [Object stream](#) with the information about its siblings, but rather as a storage contained by its parent control's storage. Each embedded parent control is still accounted for in its parent's SiteDepthsAndTypes array, as described in the previous section.

The [Page](#) control is an example of an embedded parent control. Within the [MultiPage](#) storage, each [Page](#), itself a parent control, exists as a storage with its own streams that persist its [FormControl](#) properties and information about its child controls.

The [MultiPage](#) control adds the "x" stream to hold its [MultiPageProperties](#) and the [PageProperties](#) of each of its [Pages](#).

Figure 22 illustrates these structures.

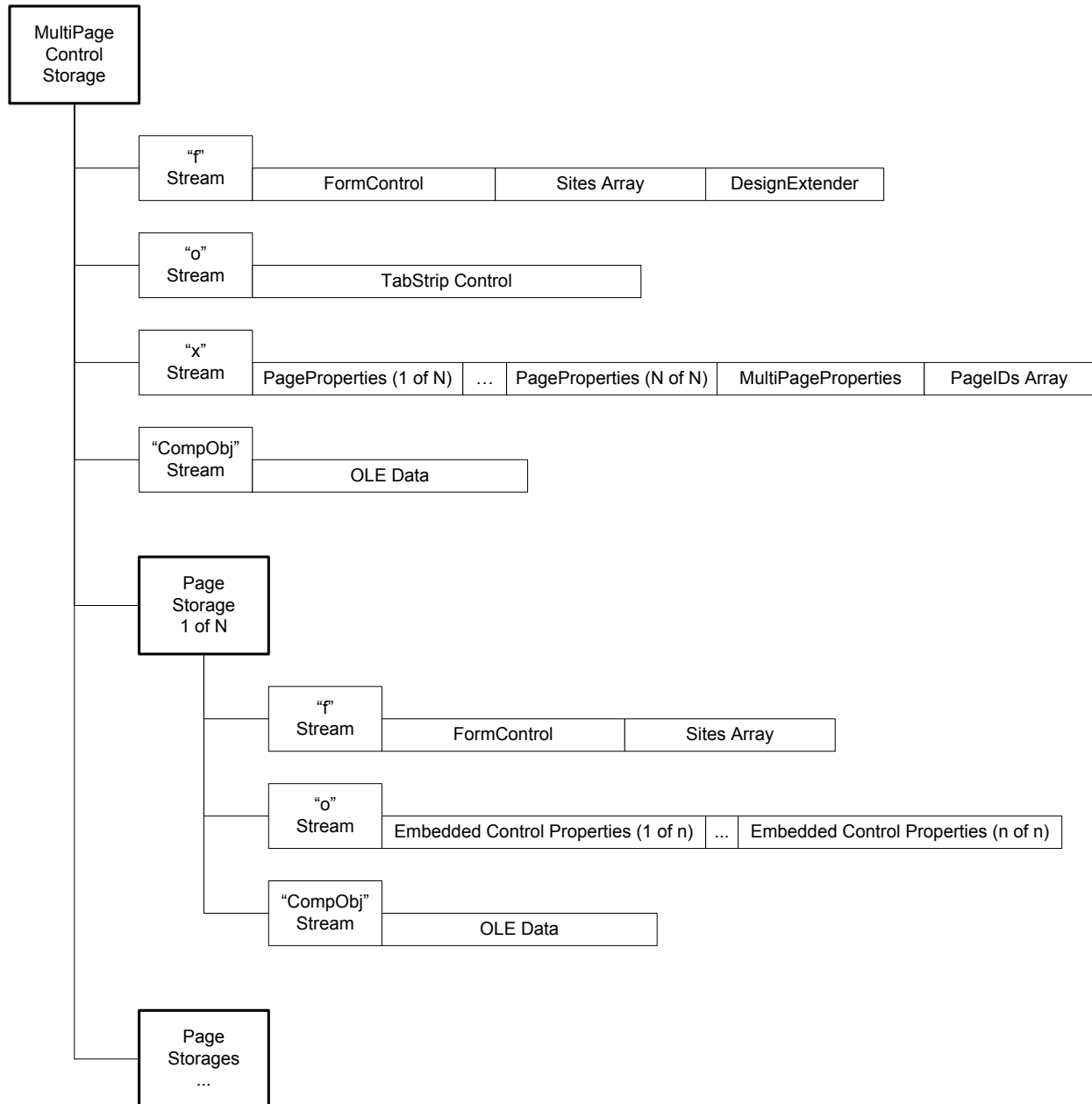


Figure 22: MultiPage control structure

1.3.3 Byte Ordering

Data in the Office Forms File Format is stored in [little-endian](#) format.

Some computer architectures number bytes in a binary word from left to right, which is referred to as [big-endian](#). The packet diagrams specified in [\[MSDN-IDPD\]](#) for this documentation are big-endian. Other architectures number the bytes in a binary word from right to left, which is referred to as little-endian. The underlying file format enumerations, objects, and records are little-endian.

Using big-endian and little-endian methods, the number 0x12345678 would be stored as shown in the following:

Byte order	Byte 0	Byte 1	Byte 2	Byte 3
Big-endian	0x12	0x34	0x56	0x78
Little-endian	0x78	0x56	0x34	0x12

1.4 Relationship to Protocols and Other Structures

The Office Forms Binary File Format is designed to be used as part of a host persistence format that specifies how and where the structures specified in this document are persisted. This structure is dependent on the host persistence formats specified in the following references:

- [\[MS-PPT\]](#) for the persistence format for presentations.
- [\[MS-DOC\]](#) for the persistence format for word processing documents.
- [\[MS-XLS\]](#) and [\[MS-XLSB\]](#) for the persistence formats for spreadsheets.
- [\[MS-OVBA\]](#) for the persistence format for a Microsoft® Visual Basic® for Applications (VBA) project.

The host persistence format also specifies whether this structure is persisted in binary or text format. For example, if the host specifies persisting Office Forms controls in a text format, then it also specifies a [property bag \[MSDN-IPropertyBag\]](#) to persist into.

If the host persistence format specifies persisting Office Forms controls in a binary format, then it also specifies a stream [\[MSDN-IStream\]](#) or storage [\[MSDN-IStorage\]](#) to persist into, as specified by the Compound Binary File Format [\[MS-CFB\]](#).

The OLE Automation Protocol, as specified in [\[MS-OAUT\]](#), can be used to embed ActiveX controls that are not specified in this document.

1.5 Applicability Statement

This document specifies a persistence format for Office Forms ActiveX controls. The controls typically represent different ways of communicating information or receiving user input through a window or dialog box.

This persistence format provides interoperability with applications that create or read documents conforming to this structure [<1>](#).

1.6 Versioning and Localization

This document covers versioning issues in the following areas:

- **Structure Versions:** There is only one version of the Office Forms structure.
- **Localization:** This structure defines no locale-specific processes or data.

1.7 Vendor-Extensible Fields

The Office Forms structure does not define any vendor extensible fields.

2 Structures

2.1 File Structure

Controls can be persisted to a file in two ways: a binary format or a text format. The text format is specified in section 2.1.1.1. The binary format is specified in sections 2.1.1.2 and following.

Unless otherwise specified, section 2.1.1.2 and following refer to the binary format.

NOTE: In this document, use of the word “property” refers specifically to named properties specified in section 2.5. Each property has a “file format default,” which is the value of the property if the property is not stored. This value **MUST NOT** be persisted.

2.1.1 Control Storage Format

Controls are stored to a file by persisting properties of the control and other control-specific information. For each control structure in section 2.2, a specific set of properties applies, and other properties **MUST NOT** be persisted.

2.1.1.1 Persistence to a Property Bag

Non-parent controls cannot contain other controls. If non-parent controls are not embedded within other controls, they can be persisted to the property bag format. The location and format of the control within the file is specified by the client application that stores it.

Parent controls can contain other controls. They cannot be persisted to the property bag format; they **MUST** be persisted to a storage as specified in section 2.1.2.1. Consequently, controls that are embedded in another control cannot be persisted to a property bag; they **MUST** be persisted as specified in section 2.1.2.2.

2.1.1.1.1 Control-specific Properties

A control that is persisted to a property bag is saved as a series of name-value pairs, where the first element in the pair is the name of a property that applies to the control and the second element in the pair is the text representation of that property’s value in that control. The properties, their names, their meanings, and the controls to which they apply are specified in section 2.5.

The format of the text representation of properties is specified in section 2.1.1.1.3. Properties that are not stored in a list and have the same value as the file format default **MUST NOT** be stored. Storage of properties in a list is specified in section 2.1.1.1.3.6.

2.1.1.1.2 Additional Persisted Properties

In addition to the properties in section 2.5 that apply to a control, certain controls save other properties, as specified in the following subsections. These additional properties **MUST** be stored in the same property bag as the control-specific properties.

2.1.1.1.2.1 TextProps

The following controls store properties that apply to [TextProps](#) in section 2.5: [CheckBox](#), [ComboBox](#), [CommandButton](#), [Label](#), [ListBox](#), [OptionButton](#), [TabStrip](#), [TextBox](#), and [ToggleButton](#).

2.1.1.1.2.2 TabFlagData

The [TabStrip](#) control stores a property named "TabState", which specifies the state of each tab. The value of this property MUST contain exactly one **<TabFlag>** for each tab and MUST conform to the following ABNF [RFC4234](#) grammar:

```
TabState = *1(TabFlags)

TabFlags = TabFlag *(";" TabFlag)
```

<TabFlag>: Specifies the state of a tab with one of the following values.

Value	Meaning
"0"	The tab is neither visible nor enabled.
"1"	The tab is visible but not enabled.
"2"	The tab is enabled but not visible.
"3"	The tab is both visible and enabled.

2.1.1.1.3 Property Value Formats

2.1.1.1.3.1 Number Properties

Numeric properties are saved as the text representation of unsigned decimal integers. The property value MUST be between 0 and 4294967295, inclusive. The text representation MUST conform to the following ABNF [RFC4234](#) grammar:

```
UINT32 = 1*10ASCII-DIGIT
```

<ASCII-DIGIT> is specified in [MS-OSHARED](#) section 2.1.

The text representation is determined using the following algorithm.

```
Treat the property value as an unsigned 32-bit integer, Value
Allocate a string buffer, String, with room for at least 11 characters
SET pointer CurrentCharacter to point to the beginning of String
SET pointer FirstDigit to point to the beginning of String
REPEAT
    SET unsigned 32-bit integer DigitValue to Value modulo 10
    SET Value to Value divided by 10
    SET the character pointed to by CurrentCharacter to DigitValue plus 48, which
        is the numeric value of the character '0'
    INCREMENT CurrentCharacter to point to the next character in String
UNTIL Value is EQUAL TO 0
SET the character pointed to by CurrentCharacter to 0 (NULL)
DECREMENT CurrentCharacter to point to the previous character in String
REPEAT
    SWAP the values of the characters pointed to by FirstDigit and CurrentCharacter
    INCREMENT FirstDigit to point to the next character in String
    DECREMENT CurrentCharacter to point to the previous character in String
UNTIL FirstDigit points to a character in String past the character to which
    CurrentCharacter points
```

2.1.1.1.3.2 Boolean Properties

[Boolean](#) properties are stored as a text representation that MUST conform to the following ABNF [\[RFC4234\]](#) grammar:

```
BOOL = "0" / "-1"
```

The possible meanings of **<BOOL>** are specified in the following table.

Value	Meaning
"0"	FALSE
"-1"	TRUE

2.1.1.1.3.3 Point Properties

Properties that are a pair of numbers, which can represent height and width or a pair of coordinates, are saved as a semi-colon delimited list. The text representation MUST conform to the following ABNF [\[RFC4234\]](#) grammar:

```
POINT = UINT32 ";" UINT32
```

2.1.1.1.3.4 Picture Properties

Properties that are a picture are persisted as a [variant type \(2\)](#) of VT_UNKNOWN. The location and format of the stored binary value are defined by the client application requesting that the control be persisted.

2.1.1.1.3.5 String Properties

Properties that are strings are saved as [Unicode](#) strings with a variant type (2) of VT_BSTR. Empty strings are valid values. String property values that are persisted to a property bag format are not compressed or padded and MUST conform to the following ABNF [\[RFC4234\]](#) grammar:

```
STRING = *(UTF16-ANY)
```

<UTF16-ANY> is specified in [\[MS-OSHARED\]](#) section 2.1.

2.1.1.1.3.6 Lists of Properties

[TabStrip](#) controls have properties that can have a different value for each tab. Values for these properties MUST be stored and MUST be persisted as a list delimited by semi-colons. The list MUST have an entry for each tab and MUST be ordered, with the first element in each list corresponding to the first tab and so on.

Lists MUST conform to the following ABNF [\[RFC4234\]](#) grammar:

```
LIST = *(VALUE ";")
```

```
VALUE = UINT32 / STRING / BOOL
```

2.1.1.2 Persistence to a Stream

The location of a control within the structure of the file to which it is persisted is specified by the client application that provides the stream. The exact format of each control as persisted to a stream is specified in section 2.2.

Each control that is persisted to a stream has the same general structure, which is:

1. Version number
2. Size
3. Property mask
4. Property values
5. Other data

2.1.1.2.1 Property Mask

The property mask is a 4-byte or 8-byte bit field that specifies which property values of a control are persisted. Each property that applies to a control is represented by a bit in the property mask of that control. Some bits in each property mask are unused, as specified per control in section 2.2. The lowest-order used bit in a property mask specifies the presence of the property that would be persisted first, and so on, until the highest-order used bit specifies the presence of the property that would be persisted last.

The value of each used bit specifies whether the corresponding property of the control has a value that is different from that property's file format default — that is, whether it is stored. Properties that are not stored in an array and have the same value as the file format default **MUST NOT** be stored. Storage of properties in an array is specified in section 2.1.1.2.5.

2.1.1.2.2 Property Values

Property values are persisted in up to three groups. In the first group, all property values that are less than or equal to 4 bytes in size are stored in the order in which they are referenced by the property mask; this group is the "DataBlock" of the control. Property values that are greater than 4 bytes in size, but are not font or picture properties, are stored in the order in which they are referenced by the property mask; this group is the "ExtraDataBlock" of the control. Picture properties are stored in the order in which they are referenced by the property mask; this group is the "StreamData" of the control. Font properties are stored either in the "StreamData" or following it, which is specified per control in section 2.2.

2.1.1.2.3 Other Data

Some controls have other data stored after the property values. The other data, if present, can include the [TextProps](#) structure or other control-specific data. They are specified in section 2.2 as part of each control's structure.

2.1.1.2.4 Padding and Alignment

Property values stored in the DataBlock portion of a control **MUST** be stored on alignment boundaries equal to the size of the property value, relative to the beginning of the control in the stream. All 4-byte property values **MUST** be stored beginning at an offset into the stream, from the beginning of the version number, that is divisible by 4. All 2-byte property values **MUST** be stored at an offset into the stream, from the beginning of the version number, that is divisible by 2. To effect this requirement, extra bytes **MUST** be added to the stream before any property value that would otherwise be stored

starting at an unaligned offset. The value of each of these bytes is undefined, and the bytes MUST be ignored. Padding MUST NOT be added before a property value that isn't stored.

After all property values that are less than or equal to 4 bytes in size have been persisted to the stream, extra bytes MUST be added so that the total size, in bytes, of all persisted property values and padding is divisible by 4. The value of these extra bytes at the end of the DataBlock MUST be 0, and the bytes MUST be ignored.

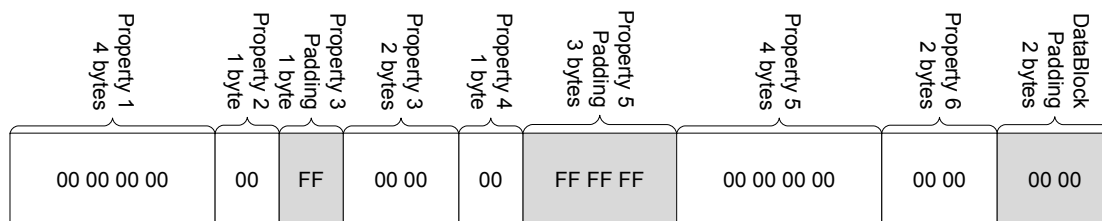


Figure 23: Padding in the DataBlock

Property values that are [strings](#) are padded to a length that is divisible by 4, as specified in section 2.4.14. Strings that are stored as part of a property of another type are not padded.

2.1.1.2.5 Arrays of Property Values

The [TabStrip](#) control stores multiple values for properties that can have a different value for each tab. These values are persisted sequentially, as an array. Arrays MUST be ordered, with the first element in each array corresponding to the first item in the control.

If all items in the control have the file format default for a property, the array for that property MUST NOT be stored. All arrays that are stored MUST have an entry for each item, including items that have the file format default.

2.1.1.3 Persistence to a Storage

If a client application requests that a non-parent control be persisted to a storage, a stream will be created within the storage provided by the client. The stream name MUST be named "contents". The control will then be persisted to that stream as specified in section 2.1.1.2. A [CompObj stream](#) will also be created within the storage provided by the client.

2.1.2 Control Streams

This section specifies the format of controls that can contain or are contained by other controls.

2.1.2.1 Parent Controls

A parent control, that is, a control that can contain embedded controls, MUST be persisted as a storage that contains multiple streams. The name of the storage and its location in the file are specified by the client application that provides the storage. The streams are specified in the following sections.

2.1.2.1.1 Form Stream

All parent controls MUST contain a [FormControl](#). The [FormControl](#) properties are persisted to a stream as specified in section 2.1.1.2. The name of this stream MUST be "f". An [OleSiteConcrete](#) is persisted

in this stream for each embedded control, as specified by the [FormControl](#) in section 2.2.10.12. The [FormControl](#) can also contain a [DesignExtender](#), as specified in section 2.2.10.11.

2.1.2.2 Embedded Controls

2.1.2.2.1 Object Stream

Embedded controls that cannot themselves contain other embedded controls are persisted sequentially as [FormEmbeddedActiveXControls](#) to a stream contained within the same storage as their parent control. The name of this stream MUST be "o". The order in which they are persisted is specified by the order of **SiteData.Sites** in the [FormControl](#) of the parent, as specified in section 2.2.10.6. If a parent control contains no embedded controls or only embedded controls that are also parent controls, this stream MUST still exist and MUST be empty.

2.1.2.2.2 Embedded Parents

Embedded controls that can contain other embedded controls are each persisted to a separate storage within the same storage as their parent control. The name of this storage MUST be "in", where *n* is the control's [ID](#). The value of [ID](#) is specified by the parent control. The value of *n* is the decimal representation of [ID](#). Values of [ID](#) less than 10 MUST be preceded by a leading "0" character when used as part of the storage name. Values of [ID](#) greater than 10 MUST NOT be preceded by a leading "0" character.

2.1.2.3 MultiPage Control Structure

A MultiPage control that is persisted in a [binary format](#) uses the storage and streams specified in sections 2.1.2.1 and 2.1.2.2. It consists of a [FormControl](#), which is stored in the [Form stream](#), a [TabStripControl](#), which is stored in the [Object stream](#), and multiple [Page](#) controls, which are stored as specified in section 2.1.2.2.2.

The storage of a MultiPage control also contains an additional stream, which MUST be named "x". This stream contains an array of [PageProperties](#) immediately followed by a [MultiPageProperties](#). The number of elements in the array of [PageProperties](#) MUST be equal to one plus the value of **DataBlock.PageCount** of the [MultiPageProperties](#). The first [PageProperties](#) in the array MUST be ignored. The remaining elements specify one [PageProperties](#) for each [Page](#) in the control. The order of the [Pages](#) is specified by the value of the **ExtraDataBlock.Items** of the [TabStripControl](#) specified in the previous paragraph.

2.1.2.3.1 Page Control Structure

A Page MUST be stored as part of a [MultiPage](#) control. A Page that is persisted in a [binary format](#) uses the storage and streams specified in sections 2.1.2.1 and 2.1.2.2. It consists of a [FormControl](#), which is stored in the [Form stream](#), optional embedded controls in the [Object stream](#), and a [PageProperties](#), which is stored in the "x" stream of its parent control, as specified in section 2.1.2.3.1.

2.1.2.4 CompObj Stream

The stream name MUST be "\001CompObj", where \001 is the character with a value 0x0001, not the string literal "\001". The contents of this stream are specified by [\[MS-OLEDS\]](#).

2.2 Control Structures

Specifications of the structure of each control.

2.2.1 CommandButton Control Structure

2.2.1.1 CommandButtonControl

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	0 ¹	1	2	3	4	5	6	7	8	9	0 ²	1	2	3	4	5	6	7	8	9	0 ³	1
MinorVersion								MajorVersion								cbCommandButton															
PropMask																															
DataBlock (variable)																															
...																															
ExtraDataBlock (variable)																															
...																															
StreamData (variable)																															
...																															
TextProps (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbCommandButton (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

PropMask (4 bytes): A [CommandButtonPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [CommandButtonDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [CommandButtonExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): A [CommandButtonStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

TextProps (variable): A [TextProps](#) that specifies text-related properties of the control.

2.2.1.2 CommandButtonPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
A	B	C	D	E	F	G	H	I	J	K	UnusedBits																				

- A - fForeColor (1 bit):** Specifies whether the [ForeColor](#) property is stored in the **DataBlock.ForeColor** of the [CommandButtonControl](#) that contains this CommandButtonPropMask.
- B - fBackColor (1 bit):** Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [CommandButtonControl](#) that contains this CommandButtonPropMask.
- C - fVariousPropertyBits (1 bit):** Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariousPropertyBits** of the [CommandButtonControl](#) that contains this CommandButtonPropMask.
- D - fCaption (1 bit):** Specifies whether the size and compression flag of the [Caption](#) property are stored in the **DataBlock.Caption** of the [CommandButtonControl](#) that contains this CommandButtonPropMask and the [Caption](#) string is stored in the **ExtraDataBlock.Caption** of the [CommandButtonControl](#).
- E - fPicturePosition (1 bit):** Specifies whether the [PicturePosition](#) property is stored in the **DataBlock.PicturePosition** of the [CommandButtonControl](#) that contains this CommandButtonPropMask.
- F - fSize (1 bit):** Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [CommandButtonControl](#) that contains this CommandButtonPropMask. MUST be 1.
- G - fMousePointer (1 bit):** Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [CommandButtonControl](#) that contains this CommandButtonPropMask.
- H - fPicture (1 bit):** Specifies whether the [Picture](#) property is stored in the **StreamData.Picture** of the [CommandButtonControl](#) that contains this CommandButtonPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.Picture** of the [CommandButtonControl](#).
- I - fAccelerator (1 bit):** Specifies whether the [Accelerator](#) property is stored in the **DataBlock.Accelerator** of the [CommandButtonControl](#) that contains this CommandButtonPropMask.
- J - fTakeFocusOnClick (1 bit):** Specifies whether the value of the [TakeFocusOnClick](#) property is not the file format default.
- K - fMouseIcon (1 bit):** Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [CommandButtonControl](#) that contains this CommandButtonPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [CommandButtonControl](#).
- UnusedBits (21 bits):** MUST be 0.

2.2.1.3 CommandButtonDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [CommandButtonControl](#) that contains this CommandButtonDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ForeColor (optional)																															
BackColor (optional)																															
VariousPropertyBits (optional)																															
Caption (optional)																															
PicturePosition (optional)																															
MousePointer (optional)										Padding1 (variable)																					
...																															
Picture (optional)																Padding2 (variable)															
...																															
Accelerator (optional)																Padding3 (variable)															
...																															
MouseIcon (optional)																Padding4 (variable)															
...																															

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

Caption (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Caption](#) property.

PicturePosition (4 bytes): An [fmPicturePosition](#) that specifies the value of the [PicturePosition](#) property.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Picture (2 bytes): MUST be 0xFFFF when **PropMask.fPicture** of the [CommandButtonControl](#) that contains this CommandButtonDataBlock is 1. Not present when **PropMask.fPicture** is 0.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Accelerator (2 bytes): A Unicode character that specifies the value of the [Accelerator](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [CommandButtonControl](#) that contains this CommandButtonDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Padding4 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this CommandButtonDataBlock divisible by 4.

2.2.1.4 CommandButtonExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [CommandButtonControl](#) that contains this CommandButtonExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Caption (variable)																															
...																															
Size (optional)																															
...																															

Caption (variable): An [fmString](#) that specifies the [Caption](#) property. The size and compression of the string is specified by the **DataBlock.Caption** of the [CommandButtonControl](#) that contains this CommandButtonExtraDataBlock.

Size (8 bytes): An [fmSize](#) that specifies the [Size](#) property.

2.2.1.5 CommandButtonStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [CommandButtonControl](#) that contains this CommandButtonStreamData is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Picture (variable)																															

...
MouseIcon (variable)
...

Picture (variable): A [GuidAndPicture](#) that specifies the [Picture](#) property.

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

2.2.2 Frame Control

A Frame control is a parent control that is persisted in binary format as specified in sections 2.1.2.1 and 2.1.2.2.2.

2.2.3 Image Control Structure

2.2.3.1 ImageControl

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MinorVersion								MajorVersion								cbImage															
PropMask																															
DataBlock (variable)																															
...																															
ExtraDataBlock (variable)																															
...																															
StreamData (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbImage (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

PropMask (4 bytes): An [ImagePropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): An [ImageDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): An [ImageExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): An [ImageStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

2.2.3.2 ImagePropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

										1										2														3				
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1							
A		B	C	D	E	F	G	H	I	J	K	L	M	N	UnusedBits2																							

A - UnusedBits1 (2 bits): MUST be 0.

B - fAutoSize (1 bit): Specifies whether the value of the [AutoSize](#) property is not the file format default.

C - fBorderColor (1 bit): Specifies whether the [BorderColor](#) property is stored in the **DataBlock.BorderColor** of the [ImageControl](#) that contains this ImagePropMask.

D - fBackColor (1 bit): Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [ImageControl](#) that contains this ImagePropMask.

E - fBorderStyle (1 bit): Specifies whether the [BorderStyle](#) property is stored in the **DataBlock.BorderStyle** of the [ImageControl](#) that contains this ImagePropMask.

F - fMousePointer (1 bit): Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [ImageControl](#) that contains this ImagePropMask.

G - fPictureSizeMode (1 bit): Specifies whether the [PictureSizeMode](#) property is stored in the **DataBlock.PictureSizeMode** of the [ImageControl](#) that contains this ImagePropMask.

H - fSpecialEffect (1 bit): Specifies whether the [SpecialEffect](#) property is stored in the **DataBlock.PictureSizeMode** of the [ImageControl](#) that contains this ImagePropMask.

I - fSize (1 bit): Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [ImageControl](#) that contains this ImagePropMask. MUST be 1.

J - fPicture (1 bit): Specifies whether the [Picture](#) property is stored in the **StreamData.Picture** of the [ImageControl](#) that contains this ImagePropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.Picture** of the [ImageControl](#).

K - fPictureAlignment (1 bit): Specifies whether the [PictureAlignment](#) property is stored in the **DataBlock.PictureAlignment** of the [ImageControl](#) that contains this ImagePropMask.

L - fPictureTiling (1 bit): Specifies whether the value of the [PictureTiling](#) property is not the file format default.

M - fVariousPropertyBits (1 bit): Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariousePropertyBits** of the [ImageControl](#) that contains this ImagePropMask.

N - fMouseIcon (1 bit): Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [ImageControl](#) that contains this ImagePropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [ImageControl](#).

UnusedBits2 (17 bits): MUST be 0.

2.2.3.3 ImageDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [ImageControl](#) that contains this ImageDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1										
BorderColor (optional)																																									
BackColor (optional)																																									
BorderStyle (optional)										MousePointer (optional)										PictureSizeMode (optional)										SpecialEffect (optional)											
Padding1 (variable)																																									
...																																									
Picture (optional)																PictureAlignment (optional)										Padding2 (variable)															
...																																									
VariousPropertyBits (optional)																																									
Padding3 (variable)																																									
...																																									
MouseIcon (optional)																Padding4 (variable)																									
...																																									

BorderColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BorderColor](#) property.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

BorderStyle (1 byte): An [fmBorderStyle](#) that specifies the value of the [BorderStyle](#) property.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

PictureSizeMode (1 byte): An [fmPictureSizeMode](#) that specifies the value of the [PictureSizeMode](#) property.

SpecialEffect (1 byte): An [fmSpecialEffect](#) that specifies the value of the [SpecialEffect](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Picture (2 bytes): MUST be 0xFFFF when **PropMask.fPicture** of the [ImageControl](#) that contains this ImageDataBlock is 1. Not present when **PropMask.fPicture** is 0.

PictureAlignment (1 byte): An [fmPictureAlignment](#) that specifies the value of the [PictureAlignment](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [ImageControl](#) that contains this ImageDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Padding4 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this ImageDataBlock divisible by 4.

2.2.3.4 ImageExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [ImageControl](#) that contains this ImageExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Size (optional)																															
...																															

Size (8 bytes): An [fmSize](#) that specifies the [Size](#) property.

2.2.3.5 ImageStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [ImageControl](#) that contains this ImageStreamData is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Picture (variable)																															
...																															

MouseIcon (variable)
...

Picture (variable): A [GuidAndPicture](#) that specifies the [Picture](#) property.

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

2.2.4 Label Control Structure

2.2.4.1 LabelControl

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MinorVersion								MajorVersion								cbLabel															
PropMask																															
DataBlock (variable)																															
...																															
ExtraDataBlock (variable)																															
...																															
StreamData (variable)																															
...																															
TextProps (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbLabel (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

PropMask (4 bytes): A [LabelPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [LabelDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [LabelExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): A [LabelStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

TextProps (variable): A [TextProps](#) that specifies text-related properties of the control.

2.2.4.2 LabelPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

										1																							
0	1	2	3	4	5	6	7	8	9	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	UnusedBits																				

A - fForeColor (1 bit): Specifies whether the [ForeColor](#) property is stored in the **DataBlock.ForeColor** of the [LabelControl](#) that contains this LabelPropMask.

B - fBackColor (1 bit): Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [LabelControl](#) that contains this LabelPropMask.

C - fVariousPropertyBits (1 bit): Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariousPropertyBits** of the [LabelControl](#) that contains this LabelPropMask.

D - fCaption (1 bit): Specifies whether the size and compression flag of the [Caption](#) property are stored in the **DataBlock.Caption** of the [LabelControl](#) that contains this LabelPropMask and the [Caption](#) string is stored in the **ExtraDataBlock.Caption** of the [LabelControl](#).

E - fPicturePosition (1 bit): Specifies whether the [PicturePosition](#) property is stored in the **DataBlock.PicturePosition** of the [LabelControl](#) that contains this LabelPropMask.

F - fSize (1 bit): Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [LabelControl](#) that contains this LabelPropMask. MUST be 1.

G - fMousePointer (1 bit): Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [LabelControl](#) that contains this LabelPropMask.

H - fBorderColor (1 bit): Specifies whether the [BorderColor](#) property is stored in the **DataBlock.BorderColor** of the [LabelControl](#) that contains this LabelPropMask.

I - fBorderStyle (1 bit): Specifies whether the [BorderStyle](#) property is stored in the **DataBlock.BorderStyle** of the [LabelControl](#) that contains this LabelPropMask.

J - fSpecialEffect (1 bit): Specifies whether the [SpecialEffect](#) property is stored in the **DataBlock.SpecialEffect** of the [LabelControl](#) that contains this LabelPropMask.

K - fPicture (1 bit): Specifies whether the [Picture](#) property is stored in the **StreamData.Picture** of the [LabelControl](#) that contains this LabelPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.Picture** of the [LabelControl](#).

...	
MouseIcon (optional)	Padding7 (variable)
...	

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

Caption (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Caption](#) property.

PicturePosition (4 bytes): An [fmPicturePosition](#) that specifies the value of the [PicturePosition](#) property.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

BorderColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BorderColor](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

BorderStyle (2 bytes): An [fmBorderStyle](#) that specifies the value of the [BorderStyle](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

SpecialEffect (2 bytes): An [fmSpecialEffect](#) that specifies the value of the [SpecialEffect](#) property.

Padding4 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Picture (2 bytes): MUST be 0xFFFF when **PropMask.fPicture** of the [LabelControl](#) that contains this LabelDataBlock is 1. Not present when **PropMask.fPicture** is 0.

Padding5 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Accelerator (2 bytes): A Unicode character that specifies the value of the [Accelerator](#) property.

Padding6 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [LabelControl](#) that contains this LabelDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Padding7 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this LabelDataBlock divisible by 4.

2.2.4.4 LabelExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [LabelControl](#) that contains this LabelExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Caption (variable)																															
...																															
Size (optional)																															
...																															

Caption (variable): An [fmString](#) that specifies the [Caption](#) property. The size and compression of the string is specified by the **DataBlock.Caption** of the [LabelControl](#) that contains this LabelExtraDataBlock.

Size (8 bytes): An [fmSize](#) that specifies the [Size](#) property.

2.2.4.5 LabelStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [LabelControl](#) that contains this LabelStreamData is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Picture (variable)																															
...																															
MouseIcon (variable)																															
...																															

Picture (variable): A [GuidAndPicture](#) that specifies the [Picture](#) property.

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

2.2.5 MorphData Control Structure

The MorphDataControl is an aggregate of six controls: the CheckBox control, the ComboBox control, the ListBox control, the OptionButton control, the TextBox control, and the ToggleButton control. The type of control is specified by the [DisplayStyle](#) property. This section specifies the persistence format for all six controls.

2.2.5.1 MorphDataControl

The structure of the control as persisted to a stream.

											1											2												3					
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1								
MinorVersion								MajorVersion								cbMorphData																							
PropMask																																							
...																																							
DataBlock (variable)																																							
...																																							
ExtraDataBlock (variable)																																							
...																																							
StreamData (variable)																																							
...																																							
TextProps (variable)																																							
...																																							
rgColumnInfo (variable)																																							
...																																							

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbMorphData (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

PropMask (8 bytes): A [MorphDataPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [MorphDataDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [MorphDataExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): A [MorphDataStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

TextProps (variable): A [TextProps](#) that specifies text-related properties of the control.

rgColumnInfo (variable): An array of [MorphDataColumnInfo](#). Specifies the width of columns in ComboBox and ListBox controls. MUST NOT exist for other types of controls. The number of elements in this array MUST be equal to the value of the [cColumnInfo](#) property.

2.2.5.2 MorphDataPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

All properties that do not apply to the specific type of control specified by the [DisplayStyle](#) property MUST have their corresponding bit set to 0 in this structure.

										1									2											3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	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	UnusedBits3																														

A - fVariousPropertyBits (1 bit): Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariouPropertyBits** of the [MorphDataControl](#) that contains this MorphDataPropMask.

B - fBackColor (1 bit): Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [MorphDataControl](#) that contains this MorphDataPropMask.

C - fForeColor (1 bit): Specifies whether the [ForeColor](#) property is stored in the **DataBlock.ForeColor** of the [MorphDataControl](#) that contains this MorphDataPropMask.

D - fMaxLength (1 bit): Specifies whether the [MaxLength](#) property is stored in the **DataBlock.MaxLength** of the [MorphDataControl](#) that contains this MorphDataPropMask.

E - fBorderStyle (1 bit): Specifies whether the [BorderStyle](#) property is stored in the **DataBlock.BorderStyle** of the [MorphDataControl](#) that contains this MorphDataPropMask.

F - fScrollBars (1 bit): Specifies whether the [ScrollBars](#) property is stored in the **DataBlock.ScrollBars** of the [MorphDataControl](#) that contains this MorphDataPropMask.

G - fDisplayStyle (1 bit): Specifies whether the [DisplayStyle](#) property is stored in the **DataBlock.DisplayStyle** of the [MorphDataControl](#) that contains this MorphDataPropMask.

H - fMousePointer (1 bit): Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [MorphDataControl](#) that contains this MorphDataPropMask.

I - fSize (1 bit): Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [MorphDataControl](#) that contains this MorphDataPropMask. MUST be 1.

J - fPasswordChar (1 bit): Specifies whether the [PasswordChar](#) property is stored in the **DataBlock.PasswordChar** of the [MorphDataControl](#) that contains this MorphDataPropMask.

K - fListWidth (1 bit): Specifies whether the [ListWidth](#) property is stored in the **DataBlock.ListWidth** of the [MorphDataControl](#) that contains this MorphDataPropMask.

- L - fBoundColumn (1 bit):** Specifies whether the [BoundColumn](#) property is stored in the **DataBlock.BoundColumn** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- M - fTextColumn (1 bit):** Specifies whether the [TextColumn](#) property is stored in the **DataBlock.TextColumn** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- N - fColumnCount (1 bit):** Specifies whether the [ColumnCount](#) property is stored in the **DataBlock.ColumnCount** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- O - fListRows (1 bit):** Specifies whether the [ListRows](#) property is stored in the **DataBlock.ListRows** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- P - fcColumnInfo (1 bit):** Specifies whether the [cColumnInfo](#) property is stored in the **DataBlock.cColumnInfo** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- Q - fMatchEntry (1 bit):** Specifies whether the [MatchEntry](#) property is stored in the **DataBlock.MatchEntry** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- R - fListStyle (1 bit):** Specifies whether the [ListStyle](#) property is stored in the **DataBlock.ListStyle** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- S - fShowDropButtonWhen (1 bit):** Specifies whether the [ShowDropButtonWhen](#) property is stored in the **DataBlock.ShowDropButtonWhen** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- T - UnusedBits1 (1 bit):** MUST be 0.
- U - fDropButtonStyle (1 bit):** Specifies whether the [DropButtonStyle](#) property is stored in the **DataBlock.DropButtonStyle** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- V - fMultiSelect (1 bit):** Specifies whether the [MultiSelect](#) property is stored in the **DataBlock.MultiSelect** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- W - fValue (1 bit):** Specifies whether the size and compression flag of the [Value](#) property are stored in the **DataBlock.Value** of the [MorphDataControl](#) that contains this MorphDataPropMask and the [Value](#) string is stored in the **ExtraDataBlock.Value** of the [MorphDataControl](#).
- X - fCaption (1 bit):** Specifies whether the size and compression flag of the [Caption](#) property are stored in the **DataBlock.Caption** of the [MorphDataControl](#) that contains this MorphDataPropMask and the [Caption](#) string is stored in the **ExtraDataBlock.Caption** of the [MorphDataControl](#).
- Y - fPicturePosition (1 bit):** Specifies whether the [PicturePosition](#) property is stored in the **DataBlock.PicturePosition** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- Z - fBorderColor (1 bit):** Specifies whether the [BorderColor](#) property is stored in the **DataBlock.BorderColor** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- a - fSpecialEffect (1 bit):** Specifies whether the [SpecialEffect](#) property is stored in the **DataBlock.SpecialEffect** of the [MorphDataControl](#) that contains this MorphDataPropMask.
- b - fMouseIcon (1 bit):** Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [MorphDataControl](#) that contains this MorphDataPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [MorphDataControl](#).
- c - fPicture (1 bit):** Specifies whether the [Picture](#) property is stored in the **StreamData.Picture** of the [MorphDataControl](#) that contains this MorphDataPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.Picture** of the [MorphDataControl](#).

d - fAccelerator (1 bit): Specifies whether the [Accelerator](#) property is stored in the **DataBlock.Accelerator** of the [MorphDataControl](#) that contains this MorphDataPropMask.

e - UnusedBits2 (1 bit): MUST be 0.

f - Reserved (1 bit): MUST be 1 and MUST be ignored.

g - fGroupName (1 bit): Specifies whether the size and compression flag of the [GroupName](#) property are stored in the **DataBlock.GroupName** of the [MorphDataControl](#) that contains this MorphDataPropMask and the [GroupName](#) string is stored in the **ExtraDataBlock.GroupName** of the [MorphDataControl](#).

UnusedBits3 (31 bits): MUST be 0.

2.2.5.3 MorphDataDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [MorphDataControl](#) that contains this MorphDataDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
VariousPropertyBits (optional)																															
BackColor (optional)																															
ForeColor (optional)																															
MaxLength (optional)																															
BorderStyle (optional)								ScrollBars (optional)								DisplayStyle (optional)								MousePointer (optional)							
Padding1 (variable)																															
...																															
PasswordChar (optional)																Padding2 (variable)															
...																															
ListWidth (optional)																															
Padding3 (variable)																															
...																															
BoundColumn (optional)																Padding4 (variable)															
...																															

TextColumn (optional)		Padding5 (variable)	
...			
ColumnCount (optional)		Padding6 (variable)	
...			
ListRows (optional)		Padding7 (variable)	
...			
cColumnInfo (optional)		MatchEntry (optional)	ListStyle (optional)
ShowDropButtonWhen (optional)	DropButtonStyle (optional)	MultiSelect (optional)	Padding8 (variable)
...			
Value (optional)			
Padding9 (variable)			
...			
Caption (optional)			
Padding10 (variable)			
...			
PicturePosition (optional)			
Padding11 (variable)			
...			
BorderColor (optional)			
Padding12 (variable)			
...			
SpecialEffect (optional)			
Padding13 (variable)			
...			
MouseIcon (optional)		Padding14 (variable)	

...	
Picture (optional)	Padding15 (variable)
...	
Accelerator (optional)	Padding16 (variable)
...	
GroupName (optional)	
Padding17 (variable)	
...	

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

MaxLength (4 bytes): An unsigned integer that specifies the value of the [MaxLength](#) property.

BorderStyle (1 byte): An [fmBorderStyle](#) that specifies the value of the [BorderStyle](#) property.

ScrollBars (1 byte): An [fmScrollBars](#) that specifies the value of the [ScrollBars](#) property.

DisplayStyle (1 byte): An [fmDisplayStyle](#) that specifies the value of the [DisplayStyle](#) property.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

PasswordChar (2 bytes): A Unicode character that specifies the value of the [PasswordChar](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ListWidth (4 bytes): An unsigned integer that specifies the value of the [ListWidth](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

BoundColumn (2 bytes): An unsigned integer that specifies the value of the [BoundColumn](#) property.

Padding4 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TextColumn (2 bytes): A signed integer that specifies the value of the [TextColumn](#) property.

Padding5 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ColumnCount (2 bytes): A signed integer that specifies the value of the [ColumnCount](#) property.

Padding6 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ListRows (2 bytes): An unsigned integer that specifies the value of the [ListRows](#) property.

Padding7 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

cColumnInfo (2 bytes): An unsigned integer that specifies the value of the [cColumnInfo](#) property.

MatchEntry (1 byte): An [fmMatchEntry](#) that specifies the value of the [MatchEntry](#) property.

ListStyle (1 byte): An [fmListStyle](#) that specifies the value of the [ListStyle](#) property.

ShowDropButtonWhen (1 byte): An [fmShowDropButtonWhen](#) that specifies the value of the [ShowDropButtonWhen](#) property.

DropButtonStyle (1 byte): An [fmDropButtonStyle](#) that specifies the value of the [DropButtonStyle](#) property.

MultiSelect (1 byte): An [fmMultiSelect](#) that specifies the value of the [MultiSelect](#) property.

Padding8 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Value (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Value](#) property.

Padding9 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Caption (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Caption](#) property.

Padding10 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

PicturePosition (4 bytes): An [fmPicturePosition](#) that specifies the value of the [PicturePosition](#) property.

Padding11 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

BorderColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BorderColor](#) property.

Padding12 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

SpecialEffect (4 bytes): An [fmSpecialEffect](#) that specifies the value of the [SpecialEffect](#) property.

Padding13 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [MorphDataControl](#) that contains this MorphDataDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Padding14 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Picture (2 bytes): MUST be 0xFFFF when **PropMask.fPicture** of the [MorphDataControl](#) that contains this MorphDataDataBlock is 1. Not present when **PropMask.fPicture** is 0.

Padding15 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Accelerator (2 bytes): A Unicode character that specifies the value of the [Accelerator](#) property.

Padding16 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

GroupName (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [GroupName](#) property.

Padding17 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this MorphDataDataBlock divisible by 4.

2.2.5.4 MorphDataExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [MorphDataControl](#) that contains this MorphDataExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Size (optional)																															
...																															
Value (variable)																															
...																															
Caption (variable)																															
...																															
GroupName (variable)																															
...																															

Size (8 bytes): An [fmSize](#) that specifies the [Size](#) property.

Value (variable): An [fmString](#) that specifies the [Value](#) property. The size and compression of the string is specified by the **DataBlock.Value** of the [MorphDataControl](#) that contains this MorphDataExtraDataBlock.

Caption (variable): An [fmString](#) that specifies the [Caption](#) property. The size and compression of the string is specified by the **DataBlock.Caption** of the [MorphDataControl](#) that contains this MorphDataExtraDataBlock.

GroupName (variable): An [fmString](#) that specifies the [GroupName](#) property. The size and compression of the string is specified by the **DataBlock.GroupName** of the [MorphDataControl](#) that contains this MorphDataExtraDataBlock.

2.2.5.5 MorphDataStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [MorphDataControl](#) that contains this MorphDataStreamData is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MouseIcon (variable)																															
...																															
Picture (variable)																															
...																															

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

Picture (variable): A [GuidAndPicture](#) that specifies the [Picture](#) property.

2.2.5.6 MorphDataColumnInfo

Specifies the width of a column in a ComboBox control or a ListBox 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
MinorVersion								MajorVersion								cbColumnInfo															
PropMask																															
DataBlock (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbColumnInfo (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask** and **DataBlock**.

PropMask (4 bytes): A [MorphDataColumnInfoPropMask](#) that specifies whether the [Width](#) property of the column is set to a value that doesn't match the file format default.

DataBlock (variable): A [MorphDataColumnInfoDataBlock](#) that specifies the [Width](#) property of the column when it is set to a value that doesn't match the file format default.

2.2.5.7 MorphDataColumnInfoPropMask

Specifies whether this column's width is set to a value that doesn't match the file format default. A value of 0 in **fColumnWidth** specifies that the [Width](#) property is the file format default and is not stored in the file.

											1											2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1		
A	UnusedBits																																

A - fColumnWidth (1 bit): Specifies whether the [Width](#) property is stored in the **DataBlock.ColumnWidth** of the [MorphDataColumnInfo](#) that contains this MorphDataColumnInfoPropMask.

UnusedBits (31 bits): MUST be 0.

2.2.5.8 MorphDataColumnInfoDataBlock

Specifies the [Width](#) property of this column if it is not set to its file format defaults. If the value of **PropMask.fColumnWidth** of the [MorphDataColumnInfo](#) that contains this MorphDataColumnInfoDataBlock is 0, then the property value MUST NOT be stored in the file.

											1											2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1		
ColumnWidth (optional)																																	

ColumnWidth (4 bytes): A signed integer that specifies the value of the [Width](#) property.

2.2.6 MultiPage Properties

MultiPage Controls are [parent controls](#). They are persisted in [binary format](#) as specified in section 2.1.2. This section specifies the format of the MultiPage Control as persisted in the ["x" stream](#).

2.2.6.1 MultiPageProperties

The structure of the control as persisted to a stream.

											1											2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1		
MinorVersion								MajorVersion								cbMultiPageControlProperties																	
PropMask																																	
DataBlock (variable)																																	
...																																	

PageIDs (variable)
...

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbMultiPageControlProperties (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask** and **DataBlock**.

PropMask (4 bytes): A [MultiPagePropertiesPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [MultiPagePropertiesDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

PageIDs (variable): An array of [ID](#). Specifies the value of the [ID](#) property for each [Page](#) of the [MultiPage](#) control, where the first entry in the array specifies the [ID](#) of the first [Page](#), and so on.

2.2.6.2 MultiPagePropertiesPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each field, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
A	B	C	D	UnusedBits																											

A - Unused1 (1 bit): MUST be 0.

B - fPageCount (1 bit): Specifies whether the [PageCount](#) property is stored in the **DataBlock.PageCount** of the [MultiPageProperties](#) that contains this MultiPagePropertiesPropMask.

C - fID (1 bit): Specifies whether the [ID](#) property is stored in the **DataBlock.ID** of the [MultiPageProperties](#) that contains this MultiPagePropertiesPropMask.

D - fFlags (1 bit): Specifies whether the value of the [Flags](#) property is not the file format default.

UnusedBits (28 bits): MUST be 0.

2.2.6.3 MultiPagePropertiesDataBlock

Specifies the properties of the control that are not set to their file format defaults. If the value of a property's corresponding field in the **PropMask** of the [MultiPageProperties](#) that contains this MultiPagePropertiesDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
PageCount																															
ID (optional)																															

PageCount (4 bytes): A signed integer that specifies the value of the [PageCount](#) property.

ID (4 bytes): A signed integer that specifies the value of the [ID](#) property.

2.2.6.4 Page Properties

Page Controls are [parent controls](#). They are persisted in [binary format](#) as specified in section 2.1.2. This section specifies the format of the [Page](#) Control.

2.2.6.4.1 PageProperties

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	0 ¹	1	2	3	4	5	6	7	8	9	0	1 ²	2	3	4	5	6	7	8	9	0 ³	1
MinorVersion								MajorVersion								cbPage															
PropMask																															
DataBlock (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbPage (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask** and **DataBlock**.

PropMask (4 bytes): A [PagePropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [PageDataBlock](#) that specifies the properties of the control that are not set to their file format defaults.

2.2.6.4.2 PagePropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each field, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

										1										2											3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
A	B	C	UnusedBits																													

A - Unused1 (1 bit): MUST be 0.

B - fTransitionEffect (1 bit): Specifies whether the [TransitionEffect](#) property is stored in the **DataBlock.TransitionEffect** of the [PageProperties](#) that contains this PagePropMask.

C - fTransitionPeriod (1 bit): Specifies whether the [TransitionPeriod](#) property is stored in the **DataBlock.TransitionPeriod** of the [PageProperties](#) that contains this PagePropMask.

UnusedBits (29 bits): MUST be 0.

2.2.6.4.3 PageDataBlock

Specifies the properties of the Page that are not set to their file format defaults. If the value of a property's corresponding field in the **PropMask** of the [PageProperties](#) that contains this PageDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TransitionEffect (optional)																															
TransitionPeriod (optional)																															

TransitionEffect (4 bytes): An [fmTransitionEffect](#) that specifies the value of the [TransitionEffect](#) property.

TransitionPeriod (4 bytes): An unsigned integer that specifies the value of the [TransitionPeriod](#) property.

2.2.7 ScrollBar Control Structure

2.2.7.1 ScrollBarControl

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MinorVersion										MajorVersion										cbScrollBar											
PropMask																															
DataBlock (variable)																															

...
ExtraDataBlock (variable)
...
StreamData (variable)
...

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbScrollBar (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

PropMask (4 bytes): A [ScrollBarPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [ScrollBarDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [ScrollBarExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): A [ScrollBarStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

2.2.7.2 ScrollBarPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

										1										2											3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	UnusedBits2															

A - fForeColor (1 bit): Specifies whether the [ForeColor](#) property is stored in the **DataBlock.ForeColor** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.

B - fBackColor (1 bit): Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.

C - fVariousPropertyBits (1 bit): Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariousPropertyBits** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.

D - fSize (1 bit): Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [ScrollBarControl](#) that contains this ScrollBarPropMask. MUST be 1.

- E - fMousePointer (1 bit):** Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- F - fMin (1 bit):** Specifies whether the [Min](#) property is stored in the **DataBlock.Min** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- G - fMax (1 bit):** Specifies whether the [Max](#) property is stored in the **DataBlock.Max** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- H - fPosition (1 bit):** Specifies whether the [Position](#) property is stored in the **DataBlock.Position** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- I - UnusedBits1 (1 bit):** MUST be 0.
- J - fPrevEnabled (1 bit):** When **fVariousPropertyBits** is 1, this MUST be equal to the inverse value of **DataBlock.VariousPropertyBits.Enabled** of the [ScrollBarControl](#) that contains this ScrollBarPropMask. When **fVariousPropertyBits** is 0, this MUST be 0.
- K - fNextEnabled (1 bit):** MUST be equal to **fPrevEnabled**.
- L - fSmallChange (1 bit):** Specifies whether the [SmallChange](#) property is stored in the **DataBlock.SmallChange** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- M - fLargeChange (1 bit):** Specifies whether the [LargeChange](#) property is stored in the **DataBlock.LargeChange** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- N - fOrientation (1 bit):** Specifies whether the [Orientation](#) property is stored in the **DataBlock.Orientation** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- O - fProportionalThumb (1 bit):** Specifies whether the [ProportionalThumb](#) property is stored in the **DataBlock.ProportionalThumb** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- P - fDelay (1 bit):** Specifies whether the [Delay](#) property is stored in the **DataBlock.Delay** of the [ScrollBarControl](#) that contains this ScrollBarPropMask.
- Q - fMouseIcon (1 bit):** Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [ScrollBarControl](#) that contains this ScrollBarPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [ScrollBarControl](#).
- UnusedBits2 (15 bits):** MUST be 0.

2.2.7.3 ScrollBarDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [ScrollBarControl](#) that contains this ScrollBarDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ForeColor (optional)																															
BackColor (optional)																															
VariousPropertyBits (optional)																															

MousePointer (optional)	Padding1 (variable)
...	
Min (optional)	
Padding2 (variable)	
...	
Max (optional)	
Padding3 (variable)	
...	
Position (optional)	
Padding4 (variable)	
...	
PrevEnabled (optional)	
Padding5 (variable)	
...	
NextEnabled (optional)	
Padding6 (variable)	
...	
SmallChange (optional)	
Padding7 (variable)	
...	
LargeChange (optional)	
Padding8 (variable)	
...	
Orientation (optional)	
Padding9 (variable)	

...	
ProportionalThumb (optional)	Padding10 (variable)
...	
Delay (optional)	
Padding11 (variable)	
...	
MouseIcon (optional)	Padding12 (variable)
...	

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Min (4 bytes): A signed integer that specifies the value of the [Min](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Max (4 bytes): A signed integer that specifies the value of the [Max](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Position (4 bytes): A signed integer that specifies the value of the [Position](#) property.

Padding4 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

PrevEnabled (4 bytes): A signed integer that specifies the value of the [PrevEnabled](#) property.

Padding5 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

NextEnabled (4 bytes): A signed integer that specifies the value of the [NextEnabled](#) property.

Padding6 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

SmallChange (4 bytes): A signed integer that specifies the value of the [SmallChange](#) property.

Padding7 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

LargeChange (4 bytes): A signed integer that specifies the value of the [LargeChange](#) property.

Padding8 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Orientation (4 bytes): An [fmOrientation](#) that specifies the value of the [Orientation](#) property.

Padding9 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ProportionalThumb (2 bytes): A signed integer that specifies the value of the [ProportionalThumb](#) property.

Padding10 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Delay (4 bytes): An unsigned integer that specifies the value of the [Delay](#) property.

Padding11 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [ScrollBarControl](#) that contains this ScrollBarDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Padding12 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this ScrollBarDataBlock divisible by 4.

2.2.7.4 ScrollBarExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [ScrollBarControl](#) that contains this ScrollBarExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

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Size (8 bytes): An [fmSize](#) that specifies the [Size](#) property.

2.2.7.5 ScrollBarStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [ScrollBarControl](#) that contains this ScrollBarStreamData is 0, then the property value MUST NOT be stored in the file.

											1												2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1			
MouseIcon (variable)																																		
...																																		

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

2.2.8 SpinButton Control Structure

2.2.8.1 SpinButtonControl

The structure of the control as persisted to a stream.

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MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbSpinButton (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

PropMask (4 bytes): A [SpinButtonPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [SpinButtonDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [SpinButtonExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): A [SpinButtonStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

2.2.8.2 SpinButtonPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

										1										2													3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	UnusedBits2																			

- A - fForeColor (1 bit):** Specifies whether the [ForeColor](#) property is stored in the **DataBlock.ForeColor** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- B - fBackColor (1 bit):** Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- C - fVariousPropertyBits (1 bit):** Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariousPropertyBits** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- D - fSize (1 bit):** Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [SpinButtonControl](#) that contains this SpinButtonPropMask. MUST be 1.
- E - UnusedBits1 (1 bit):** MUST be 0.
- F - fMin (1 bit):** Specifies whether the [Min](#) property is stored in the **DataBlock.Min** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- G - fMax (1 bit):** Specifies whether the [Max](#) property is stored in the **DataBlock.Max** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- H - fPosition (1 bit):** Specifies whether the [Position](#) property is stored in the **DataBlock.Position** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- I - fPrevEnabled (1 bit):** When **fVariousPropertyBits** is 1, this MUST be equal to the inverse value of **DataBlock.VariousPropertyBits.Enabled** of the [SpinButtonControl](#) that contains this SpinButtonPropMask. When **fVariousPropertyBits** is 0, this MUST be 0.
- J - fNextEnabled (1 bit):** MUST be equal to **fPrevEnabled**.
- K - fSmallChange (1 bit):** Specifies whether the [SmallChange](#) property is stored in the **DataBlock.SmallChange** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- L - fOrientation (1 bit):** Specifies whether the [Orientation](#) property is stored in the **DataBlock.Orientation** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- M - fDelay (1 bit):** Specifies whether the [Delay](#) property is stored in the **DataBlock.Delay** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.
- N - fMouseIcon (1 bit):** Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [SpinButtonControl](#) that contains this SpinButtonPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [SpinButtonControl](#).
- O - fMousePointer (1 bit):** Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [SpinButtonControl](#) that contains this SpinButtonPropMask.

UnusedBits2 (17 bits): MUST be 0.

2.2.8.3 SpinButtonDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [SpinButtonControl](#) that contains this SpinButtonDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
ForeColor (optional)																															
BackColor (optional)																															
VariousPropertyBits (optional)																															
Min (optional)																															
Max (optional)																															
Position (optional)																															
PrevEnabled (optional)																															
NextEnabled (optional)																															
SmallChange (optional)																															
Orientation (optional)																															
Delay (optional)																															
MouseIcon (optional)																MousePointer (optional)								Padding (variable)							
...																															

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

Min (4 bytes): A signed integer that specifies the value of the [Min](#) property.

Max (4 bytes): A signed integer that specifies the value of the [Max](#) property.

Position (4 bytes): A signed integer that specifies the value of the [Position](#) property.

PrevEnabled (4 bytes): A signed integer that specifies the value of the [PrevEnabled](#) property.

NextEnabled (4 bytes): A signed integer that specifies the value of the [NextEnabled](#) property.

SmallChange (4 bytes): A signed integer that specifies the value of the [SmallChange](#) property.

Orientation (4 bytes): An [fmOrientation](#) that specifies the value of the [Orientation](#) property.

Delay (4 bytes): An unsigned integer that specifies the value of the [Delay](#) property.

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [SpinButtonControl](#) that contains this SpinButtonDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

Padding (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this SpinButtonDataBlock divisible by 4.

2.2.8.4 SpinButtonExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [SpinButtonControl](#) that contains this SpinButtonExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Size (optional)																															
...																															

Size (8 bytes): An [fmSize](#) that specifies the [Size](#) property.

2.2.8.5 SpinButtonStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [SpinButtonControl](#) that contains this SpinButtonStreamData is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MouseIcon (variable)																															
...																															

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

2.2.9 TabStrip Control Structure

2.2.9.1 TabStripControl

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31									
MinorVersion								MajorVersion								cbTabStrip																								
PropMask																																								
DataBlock (variable)																																								
...																																								
ExtraDataBlock (variable)																																								
...																																								
StreamData (variable)																																								
...																																								
TextProps (variable)																																								
...																																								
TabStripTabFlags (variable)																																								
...																																								

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbTabStrip (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock** and **ExtraDataBlock**.

PropMask (4 bytes): A [TabStripPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [TabStripDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [TabStripExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

StreamData (variable): A [TabStripStreamData](#) that specifies picture properties of the control that are not set to their file format defaults.

TextProps (variable): A [TextProps](#) that specifies text-related properties of the control. If the value of the **PropMask.fNewVersion** of this TabStripControl is 0, then TextProps MUST NOT be stored.

TabStripTabFlags (variable): A [TabStripTabFlagData](#) that specifies properties that apply to a single tab in the TabStrip.

2.2.9.2 TabStripPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

											1									2												3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	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	UnusedBits								

- A - fListIndex (1 bit):** Specifies whether the [ListIndex](#) property is stored in the **DataBlock.ListIndex** of the [TabStripControl](#) that contains this TabStripPropMask.
- B - fBackColor (1 bit):** Specifies whether the [BackColor](#) property is stored in the **DataBlock.BackColor** of the [TabStripControl](#) that contains this TabStripPropMask.
- C - fForeColor (1 bit):** Specifies whether the [ForeColor](#) property is stored in the **DataBlock.ForeColor** of the [TabStripControl](#) that contains this TabStripPropMask.
- D - Unused1 (1 bit):** MUST be 0.
- E - fSize (1 bit):** Specifies whether the [Size](#) property is stored in the **ExtraDataBlock.Size** of the [TabStripControl](#) that contains this TabStripPropMask. MUST be 1.
- F - fItems (1 bit):** Specifies whether **ExtraDataBlock.Items** and **DataBlock.ItemsSize** are stored in the [TabStripControl](#) that contains this TabStripPropMask.
- G - fMousePointer (1 bit):** Specifies whether the [MousePointer](#) property is stored in the **DataBlock.MousePointer** of the [TabStripControl](#) that contains this TabStripPropMask.
- H - Unused2 (1 bit):** MUST be 0.
- I - fTabOrientation (1 bit):** Specifies whether the [TabOrientation](#) property is stored in the **DataBlock.TabOrientation** of the [TabStripControl](#) that contains this TabStripPropMask.
- J - fTabStyle (1 bit):** Specifies whether the [TabStyle](#) property is stored in the **DataBlock.TabStyle** of the [TabStripControl](#) that contains this TabStripPropMask.
- K - fMultiRow (1 bit):** Specifies whether the value of the [MultiRow](#) property is not the file format default.
- L - fTabFixedWidth (1 bit):** Specifies whether the [TabFixedWidth](#) property is stored in the **DataBlock.TabFixedWidth** of the [TabStripControl](#) that contains this TabStripPropMask.
- M - fTabFixedHeight (1 bit):** Specifies whether the [TabFixedHeight](#) property is stored in the **DataBlock.TabFixedHeight** of the [TabStripControl](#) that contains this TabStripPropMask.
- N - fTooltips (1 bit):** Specifies whether the value of the [Tooltips](#) property is not the file format default.
- O - Unused3 (1 bit):** MUST be 0.
- P - fTipStrings (1 bit):** Specifies whether **ExtraDataBlock.TipStrings** and **DataBlock.TipStringsSize** are stored in the [TabStripControl](#) that contains this TabStripPropMask.
- Q - Unused4 (1 bit):** MUST be 0.

- R - fName (1 bit):** Specifies whether **ExtraDataBlock.TabNames** and **DataBlock.NamesSize** are stored in the [TabStripControl](#) that contains this TabStripPropMask.
- S - fVariousPropertyBits (1 bit):** Specifies whether the [VariousPropertyBits](#) property is stored in the **DataBlock.VariousPropertyBits** of the [TabStripControl](#) that contains this TabStripPropMask.
- T - fNewVersion (1 bit):** Specifies whether the value of the [NewVersion](#) property is not the file format default.
- U - fTabsAllocated (1 bit):** Specifies whether the [TabsAllocated](#) property is stored in the **DataBlock.TabsAllocated** of the [TabStripControl](#) that contains this TabStripPropMask.
- V - fTags (1 bit):** Specifies whether **ExtraDataBlock.Tags** and **DataBlock.TagsSize** are stored in the [TabStripControl](#) that contains this TabStripPropMask.
- W - fTabData (1 bit):** Specifies whether the [TabData](#) property is stored in the **DataBlock.TabData** of the [TabStripControl](#) that contains this TabStripPropMask.
- X - fAccelerator (1 bit):** Specifies whether **ExtraDataBlock.Accelerators** and **DataBlock.AcceleratorsSize** are stored in the [TabStripControl](#) that contains this TabStripPropMask.
- Y - fMouseIcon (1 bit):** Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [TabStripControl](#) that contains this TabStripPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [TabStripControl](#).
- UnusedBits (7 bits):** MUST be 0.

2.2.9.3 TabStripDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [TabStripControl](#) that contains this TabStripDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ListIndex (optional)																															
BackColor (optional)																															
ForeColor (optional)																															
ItemsSize (optional)																															
MousePointer (optional)										Padding1 (variable)																					
...																															
TabOrientation (optional)																															
Padding2 (variable)																															
...																															

TabStyle (optional)
Padding3 (variable)
...
TabFixedWidth (optional)
Padding4 (variable)
...
TabFixedHeight (optional)
Padding5 (variable)
...
TipStringsSize (optional)
Padding6 (variable)
...
NamesSize (optional)
Padding7 (variable)
...
VariousPropertyBits (optional)
Padding8 (variable)
...
TabsAllocated (optional)
Padding9 (variable)
...
TagsSize (optional)
Padding10 (variable)
...
TabData (optional)

Padding11 (variable)	
...	
AcceleratorsSize (optional)	
Padding12 (variable)	
...	
MouseIcon (optional)	Padding13 (variable)
...	

ListIndex (4 bytes): A signed integer that specifies the value of the [ListIndex](#) property.

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

ItemsSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **ExtraDataBlock.Items** of the [TabStripControl](#) that contains this TabStripDataBlock. MUST be greater than 0.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TabOrientation (4 bytes): An [fmTabOrientation](#) that specifies the value of the [TabOrientation](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TabStyle (4 bytes): An [fmTabStyle](#) that specifies the value of the [TabStyle](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TabFixedWidth (4 bytes): An unsigned integer that specifies the value of the [TabFixedWidth](#) property.

Padding4 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TabFixedHeight (4 bytes): An unsigned integer that specifies the value of the [TabFixedHeight](#) property.

Padding5 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TipStringsSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **ExtraDataBlock.TipStrings** of the [TabStripControl](#) that contains this TabStripDataBlock. MUST be greater than 0.

Padding6 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

NamesSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **ExtraDataBlock.Names** of the [TabStripControl](#) that contains this TabStripDataBlock. MUST be greater than 0.

Padding7 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

VariousPropertyBits (4 bytes): A [VariousPropertiesBitfield](#) that specifies the value of the [VariousPropertyBits](#) properties.

Padding8 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TabsAllocated (4 bytes): An unsigned integer that specifies the value of the [TabsAllocated](#) property.

Padding9 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TagsSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **ExtraDataBlock.Tags** of the [TabStripControl](#) that contains this TabStripDataBlock. MUST be greater than 0.

Padding10 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

TabData (4 bytes): An unsigned integer that specifies the value of the [TabData](#) property.

Padding11 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

AcceleratorsSize (4 bytes): An unsigned integer that specifies the size, in bytes, of the **ExtraDataBlock.Accelerators** of the [TabStripControl](#) that contains this TabStripDataBlock. MUST be greater than 0.

Padding12 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [TabStripControl](#) that contains this TabStripDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Padding13 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this TabStripDataBlock divisible by 4.

2.2.9.4 TabStripExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [TabStripControl](#) that contains this TabStripExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

Properties that can have a different value for each tab MUST be stored if at least one tab has a non-default value for the property. The property values are persisted as [arrays](#), as specified in section 2.1.1.2.5.

The order of elements in **Items** specifies the order of the tabs in this control. The other property arrays MUST use the same order if they are stored.

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
Size (optional)																															
...																															
Items (variable)																															
...																															
TipStrings (variable)																															
...																															
TabNames (variable)																															
...																															
Tags (variable)																															
...																															
Accelerators (variable)																															
...																															

Size (8 bytes): An [fmSize](#) that specifies the value of the [Size](#) property.

Items (variable): An array of [ArrayString](#). Specifies the value of the [Caption](#) property for each tab in the [TabStripControl](#) that contains this TabStripExtraDataBlock. The first element in the array corresponds to the first tab, and so on. The number of elements MUST be equal to the value of the **DataBlock.ItemsSize** in the [TabStripControl](#) that contains this TabStripExtraDataBlock.

TipStrings (variable): An array of [ArrayString](#). Specifies the value of the [Tooltip](#) property for each tab in the [TabStripControl](#) that contains this TabStripExtraDataBlock. The first element in the array corresponds to the first tab, and so on. The number of elements MUST be equal to the value of the **DataBlock.TipStringsSize** in the [TabStripControl](#) that contains this TabStripExtraDataBlock.

TabNames (variable): An array of [ArrayString](#). Specifies the value of the [Name](#) property for each tab in the [TabStripControl](#) that contains this TabStripExtraDataBlock. The first element in the array corresponds to the first tab, and so on. The number of elements MUST be equal to the value of the **DataBlock.TabNamesSize** in the [TabStripControl](#) that contains this TabStripExtraDataBlock.

Tags (variable): An array of [ArrayString](#). Specifies the value of the [Tag](#) property for each tab in the [TabStripControl](#) that contains this TabStripExtraDataBlock. The first element in the array corresponds to the first tab, and so on. The number of elements MUST be equal to the value of the **DataBlock.TagsSize** in the [TabStripControl](#) that contains this TabStripExtraDataBlock.

Accelerators (variable): An array of [ArrayString](#). Specifies the value of the [Accelerator](#) property for each tab in the [TabStripControl](#) that contains this TabStripExtraDataBlock. The first element in the array corresponds to the first tab, and so on. The number of elements MUST be equal to the value

of the **DataBlock.AcceleratorsSize** in the [TabStripControl](#) that contains this TabStripExtraDataBlock.

2.2.9.5 TabStripStreamData

Specifies picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [TabStripControl](#) that contains this TabStripStreamData is 0, then the property value MUST NOT be stored in the file.

											1											2											3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1			
MouseIcon (variable)																																		
...																																		

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

2.2.9.6 TabStripTabFlagData

Specifies properties for individual tabs in the [TabStripControl](#) that contains this TabStripTabFlagData. If the value of **PropMask.fTabData** is 0, then these properties MUST NOT be stored in the file.

Arrays in this structure are ordered. The first element in each array corresponds to the first tab. The order of elements in **ExtraDataBlock.Items** specifies the order of the tabs.

											1												2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1			
TabStripTabFlags (variable)																																		
...																																		

TabStripTabFlags (variable): An array of [TabStripTabFlag](#). Specifies Boolean properties of each tab. The number of elements in this array MUST be equal to the value of the **DataBlock.TabData** of the [TabStripControl](#) that contains this TabStripTabFlagData.

2.2.9.7 TabStripTabFlag

Specifies whether a tab is visible and whether it is enabled.

											1											2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1		
A	B	Unused																															

A - fTabVisible (1 bit): Specifies whether the tab is visible.

B - fTabEnabled (1 bit): Specifies whether the tab is enabled.

Unused (30 bits): MUST be 0.

2.2.10 UserForm Structure

Forms are [parent controls](#). They are persisted in [binary format](#) as specified in section 2.1.2. This section specifies the format of the [Form stream](#).

2.2.10.1 FormControl

The structure of the control as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MinorVersion								MajorVersion								cbForm															
PropMask																															
DataBlock (variable)																															
...																															
ExtraDataBlock (variable)																															
...																															
StreamData (variable)																															
...																															
SiteData (variable)																															
...																															
DesignExData (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x04.

cbForm (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock** and **ExtraDataBlock**.

PropMask (4 bytes): A [FormPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [FormDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [FormExtraDataBlock](#) that specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults.

- O - fMouseIcon (1 bit):** Specifies whether the [MouseIcon](#) property is stored in the **StreamData.MouseIcon** of the [FormControl](#) that contains this FormPropMask. When this bit is 1, a value of 0xFFFF MUST be stored in the **DataBlock.MouseIcon** of the [FormControl](#).
- P - fCycle (1 bit):** Specifies whether the [Cycle](#) property is stored in the **DataBlock.Cycle** of the [FormControl](#) that contains this FormPropMask.
- Q - fSpecialEffect (1 bit):** Specifies whether the [SpecialEffect](#) property is stored in the **DataBlock.SpecialEffect** of the [FormControl](#) that contains this FormPropMask.
- R - fBorderColor (1 bit):** Specifies whether the [BorderColor](#) property is stored in the **DataBlock.BorderColor** of the [FormControl](#) that contains this FormPropMask.
- S - fCaption (1 bit):** Specifies whether the size and compression flag of the [Caption](#) property are stored in the **DataBlock.Caption** of the [FormControl](#) that contains this FormPropMask and the [Caption](#) string is stored in the **ExtraDataBlock.Caption** of the [FormControl](#).
- T - fFont (1 bit):** Specifies whether the [Font](#) property is stored in the **StreamData.Font** of the [FormControl](#) that contains this FormPropMask.
- U - fPicture (1 bit):** Specifies whether the [Picture](#) property is stored in the **StreamData.Picture** of the [FormControl](#) that contains this FormPropMask.
- V - fZoom (1 bit):** Specifies whether the [Zoom](#) property is stored in the **DataBlock.Zoom** of the [FormControl](#) that contains this FormPropMask.
- W - fPictureAlignment (1 bit):** Specifies whether the [PictureAlignment](#) property is stored in the **DataBlock.PictureAlignment** of the [FormControl](#) that contains this FormPropMask.
- X - fPictureTiling (1 bit):** Specifies whether the value of the [PictureTiling](#) property is not the file format default.
- Y - fPictureSizeMode (1 bit):** Specifies whether the [PictureSizeMode](#) property is stored in the **DataBlock.PictureSizeMode** of the [FormControl](#) that contains this FormPropMask.
- Z - fShapeCookie (1 bit):** Specifies whether the [ShapeCookie](#) property is stored in the **DataBlock.ShapeCookie** of the [FormControl](#) that contains this FormPropMask.
- a - fDrawBuffer (1 bit):** Specifies whether the [DrawBuffer](#) property is stored in the **DataBlock.DrawBuffer** of the [FormControl](#) that contains this FormPropMask. MUST be 1.
- Unused3 (4 bits):** MUST be 0.

2.2.10.3 FormDataBlock

Specifies the properties of Form that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [FormControl](#) that contains this FormDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BackColor (optional)																															
ForeColor (optional)																															
NextAvailableID (optional)																															

BooleanProperties (optional)			
BorderStyle (optional)	MousePointer (optional)	ScrollBars (optional)	Padding1 (variable)
...			
GroupCnt (optional)			
Padding2 (variable)			
...			
MouseIcon (optional)		Cycle (optional)	SpecialEffect (optional)
Padding3 (variable)			
...			
BorderColor (optional)			
Padding4 (variable)			
...			
LengthAndCompression (optional)			
Padding5 (variable)			
...			
Font (optional)		Padding6 (variable)	
...			
Picture (optional)		Padding7 (variable)	
...			
Zoom (optional)			
PictureAlignment (optional)	PictureSizeMode (optional)	Padding8 (variable)	
...			
ShapeCookie (optional)			
Padding9 (variable)			
...			

DrawBuffer (optional)
Padding10 (variable)
...

BackColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BackColor](#) property.

ForeColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [ForeColor](#) property.

NextAvailableID (4 bytes): An unsigned integer that specifies the value of the [NextAvailableID](#) property.

BooleanProperties (4 bytes): An unsigned integer that specifies the value of the [BooleanProperties](#) property.

BorderStyle (1 byte): An [fmBorderStyle](#) that specifies the value of the [BorderStyle](#) property.

MousePointer (1 byte): An unsigned integer that specifies the value of the [MousePointer](#) property.

ScrollBars (1 byte): An unsigned integer that specifies the value of the [FormScrollBars](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

GroupCnt (4 bytes): A signed integer that specifies the value of the [GroupCount](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

MouseIcon (2 bytes): MUST be 0xFFFF when **PropMask.fMouseIcon** of the [FormControl](#) that contains this FormDataBlock is 1. Not present when **PropMask.fMouseIcon** is 0.

Cycle (1 byte): An [fmCycle](#) that specifies the value of the [Cycle](#) property.

SpecialEffect (1 byte): An [fmSpecialEffect](#) that specifies the value of the [SpecialEffect](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

BorderColor (4 bytes): An [OLE_COLOR](#) that specifies the value of the [BorderColor](#) property.

Padding4 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

LengthAndCompression (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Caption](#) property.

Padding5 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Font (2 bytes): MUST be 0xFFFF when **PropMask.fFont** of the [FormControl](#) that contains this FormDataBlock is 1. Not present when **PropMask.fFont** is 0.

Padding6 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Picture (2 bytes): MUST be 0xFFFF when **PropMask.fPicture** of the [FormControl](#) that contains this FormDataBlock is 1. Not present when **PropMask.fPicture** is 0.

Padding7 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

Zoom (4 bytes): An unsigned integer that specifies the value of the [Zoom](#) property.

PictureAlignment (1 byte): An unsigned integer that specifies the value of the [PictureAlignment](#) property.

PictureSizeMode (1 byte): An unsigned integer that specifies the value of the [PictureSizeMode](#) property.

Padding8 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ShapeCookie (4 bytes): An unsigned integer that specifies the value of the [ShapeCookie](#) property.

Padding9 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

DrawBuffer (4 bytes): An unsigned integer that specifies the value of the [DrawBuffer](#) property.

Padding10 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this FormDataBlock divisible by 4.

2.2.10.4 FormExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [FormControl](#) that contains this FormExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
DisplayedSize (optional)																															
...																															
LogicalSize (optional)																															
...																															
ScrollPosition (optional)																															
...																															
CaptionString (variable)																															
...																															

DisplayedSize (8 bytes): An [fmSize](#) that specifies the value of the [DisplayedSize](#) property.

LogicalSize (8 bytes): An [fmSize](#) that specifies the value of the [LogicalSize](#) property.

ScrollPosition (8 bytes): An [fmPosition](#) that specifies the value of the [ScrollPosition](#) property.

CaptionString (variable): An [fmString](#) that specifies the [Caption](#) property. The size and compression of the string is specified by the **DataBlock.Caption** of the [FormControl](#) that contains this FormExtraDataBlock.

2.2.10.5 FormStreamData

Specifies font and picture properties of the control that are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [FormControl](#) that contains this FormStreamData is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MouseIcon (variable)																															
...																															
GuidAndFont (variable)																															
...																															
Picture (variable)																															
...																															

MouseIcon (variable): A [GuidAndPicture](#) that specifies the [MouseIcon](#) property.

GuidAndFont (variable): A [GuidAndFont](#) that specifies the [Font](#) property.

Picture (variable): A [GuidAndPicture](#) that specifies the [Picture](#) property.

2.2.10.6 FormSiteData

Specifies the depth, [SITE_TYPE](#) and properties of each embedded control in the [FormControl](#) that contains this FormSiteData.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ArrayPadding (variable)
...
Sites (variable)
...

CountOfSiteClassInfo (2 bytes): An unsigned integer that specifies the number of elements in **ClassTable**. This field MUST NOT be stored if the value of **DataBlock.BooleanProperties.FORM_FLAG_DONTSAVECLASSTABLE** in the [FormControl](#) that contains this FormSiteData is 1.

ClassTable (variable): An array of [SiteClassInfo](#). Specifies class information of controls that are not recognized by [FormEmbeddedActiveXControlCached](#). If **CountOfSiteClassInfo** is 0 or not stored, this field MUST NOT be stored.

CountOfSites (4 bytes): An unsigned integer that specifies the number of elements in **Sites**.

CountOfBytes (4 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **SiteDepthsAndTypes**, **ArrayPadding**, and **Sites**.

SiteDepthsAndTypes (variable): An array of [FormObjectDepthTypeCount](#). Specifies the depth and [SITE_TYPE](#) of each control in **Sites**. The order of this array MUST be the same as the order of **Sites**, but one element in this array can specify more than one consecutive element in **Sites**. If the **fCount** of an element in this array is 1, then **TypeOrCount** specifies the number of consecutive elements in **Sites** represented by that element in this array. The sum of the number of elements in this array in which **fCount** is 0 and the **TypeOrCount** of each element in this array in which **fCount** is 1 MUST equal **CountOfSites**.

ArrayPadding (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes that, when added to the size, in bytes, of **SiteDepthsAndTypes**, produces a sum divisible by 4.

Sites (variable): An array of [OleSiteConcreteControl](#). Specifies properties of each embedded control in the [FormControl](#) that contains this FormSiteData.

2.2.10.7 FormObjectDepthTypeCount

Specifies the depth and [SITE_TYPE](#) of an embedded control. Optionally specifies a count of consecutive controls that have the same depth and [SITE_TYPE](#).

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
Depth									TypeOrCount							A	OptionalType (optional)															

Depth (1 byte): An unsigned integer that specifies the depth of an embedded control, that is, how many controls exist in the hierarchy between the embedded control and the parent control.

TypeOrCount (7 bits): An unsigned integer. If **fCount** is 0, this field specifies the [SITE_TYPE](#) of an embedded control. If **fCount** is 1, this field specifies the number of consecutive embedded controls of the same depth and [SITE_TYPE](#).

A - fCount (1 bit): Specifies whether **TypeOrCount** is a count of consecutive embedded controls.

OptionalType (1 byte): Specifies the [SITE_TYPE](#) of **TypeOrCount** consecutive embedded controls when **fCount** is 1. If **fCount** is 0, this field MUST NOT be stored.

2.2.10.8 SITE_TYPE

Specifies the type of an embedded control. MUST be 1.

Name	Value	Meaning
ST_Ole	0x01	An OLE control.

2.2.10.9 FormDesignExData

Specifies design-time properties of this form.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
DesignEx (variable)																															
...																															

DesignEx (variable): A [DesignExtender](#) that specifies the properties of the design surface of this form. If the value of **DataBlock.BooleanProperties.FORM_FLAG_DESINKPERSISTED** of the [FormControl](#) that contains this FormDesignExData is 0, then this structure MUST NOT be stored.

2.2.10.10 ClassTable Structure

This structure specifies the [type information](#) of a **ControlNonCached** in a [FormEmbeddedActiveXControl](#). The control MUST be able to interact via OLE Automation, as specified in [\[MS-OAUT\]](#).

2.2.10.10.1 SiteClassInfo

The structure, as persisted to a stream, of type information of an embedded ActiveX control.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																
Version																cbClassTable																															
PropMask																																															
DataBlock (variable)																																															
...																																															
ExtraDataBlock (variable)																																															
...																																															

Version (2 bytes): An unsigned integer that specifies the version of this SiteClassInfo. MUST be 0x0000.

cbClassTable (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock** and **ExtraDataBlock**.

PropMask (4 bytes): A [ClassInfoPropMask](#) that specifies which properties of this SiteClassInfo are set to a value that doesn't match the file format default.

DataBlock (variable): A [ClassInfoDataBlock](#) that specifies the properties of this SiteClassInfo that are 4 bytes or smaller and are not set to their file format defaults.

ExtraDataBlock (variable): A [ClassInfoExtraDataBlock](#) that specifies the properties of this SiteClassInfo that are larger than 4 bytes and are not set to their file format defaults.

2.2.10.10.2 ClassInfoPropMask

Specifies which properties of the [SiteClassInfo](#) that contains this SitePropMask are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

											1										2										3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Unused2																	

A - fClsID (1 bit): Specifies whether **ExtraDataBlock.ClsID** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

B - fDispEvent (1 bit): Specifies whether **ExtraDataBlock.DispEvent** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

C - Unused1 (1 bit): MUST be 0.

D - fDefaultProg (1 bit): Specifies whether **ExtraDataBlock.DefaultProg** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

E - fClassFlags (1 bit): Specifies whether **DataBlock.ClassTableFlags** and **DataBlock.VarFlags** are stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

F - fCountOfMethods (1 bit): Specifies whether **DataBlock.CountOfMethods** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

G - fDispidBind (1 bit): Specifies whether **DataBlock.DispidBind** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

H - fGetBindIndex (1 bit): Specifies whether **DataBlock.GetBindIndex** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

I - fPutBindIndex (1 bit): Specifies whether **DataBlock.PutBindIndex** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

J - fBindType (1 bit): Specifies whether **DataBlock.BindType** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

K - fGetValueIndex (1 bit): Specifies whether **DataBlock.GetValueIndex** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.

- L - fPutValueIndex (1 bit):** Specifies whether **DataBlock.PutValueIndex** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.
- M - fValueType (1 bit):** Specifies whether **DataBlock.ValueType** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.
- N - fDispidRowset (1 bit):** Specifies whether **DataBlock.DispidRowset** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.
- O - fSetRowset (1 bit):** Specifies whether **DataBlock.SetRowset** is stored in the [SiteClassInfo](#) that contains this ClassInfoPropMask.
- Unused2 (17 bits):** MUST be 0.

2.2.10.10.3 ClassInfoDataBlock

Specifies the properties of the embedded control's type information that are 4 bytes or smaller and are not set to their file format defaults. If the value of a field's corresponding bit in the **PropMask** of the [SiteClassInfo](#) that contains this ClassInfoDataBlock is 0, then the field MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ClassTableFlags (optional)																VarFlags (optional)															
CountOfMethods (optional)																															
DispidBind (optional)																															
GetBindIndex (optional)																PutBindIndex (optional)															
BindType (optional)																GetValueIndex (optional)															
PutValueIndex (optional)																ValueType (optional)															
Padding1 (variable)																															
...																															
DispidRowset (optional)																															
SetRowset (optional)																Padding2 (variable)															
...																															

ClassTableFlags (2 bytes): A [CLSTABLE_FLAGS](#) that specifies Boolean properties of the type information.

The file format default is 0x0000.

VarFlags (2 bytes): A VARFLAGS, as specified in [\[MS-OAUT\] section 2.2.18](#), that specifies Boolean properties of the type information.

The file format default is 0x0000.

CountOfMethods (4 bytes): An unsigned integer that specifies the number of methods on the default [dual interface](#) of the type information.

The file format default is 0x00000000.

DispIdBind (4 bytes): An unsigned integer that specifies the [IDispatch identifier \(DispID\)](#) of the default bindable property, as specified in [\[MS-OAUT\] section 2.2.49.5.2](#), in this type information. The value of this field is the **memid** field of the function's VARDESC, as specified in [\[MS-OAUT\] section 2.2.43](#). The VARDESC.**wVarFlags** field MUST have a value of 0x00000014, or FUNCFLAG_FBINDABLE and FUNCFLAG_FDISPLAYBIND, as specified in [\[MS-OAUT\] section 2.2.11](#).

The file format default is 0xFFFFFFFF, DISPID_UNKNOWN.

GetBindIndex (2 bytes): An unsigned integer that specifies the index of the "get" function of the default bindable property, as specified in [\[MS-OAUT\] section 2.2.49.5.2](#), into the [dynamic virtual table](#) of a type information that implements a dual interface. The value of this field is the **ovft** field of the FUNCDESC that specifies the function, as specified in [\[MS-OAUT\] section 2.2.42](#). The **memid** field of this FUNCDESC MUST NOT have a value of DISPID_VALUE, as specified in [\[MS-OAUT\] section 2.2.32.1](#). The **invkind** field of this FUNCDESC MUST have a value of INVOKE_PROPERTYGET, as specified in [\[MS-OAUT\] section 2.2.14](#).

The file format default is 0x0000.

PutBindIndex (2 bytes): An unsigned integer that specifies the index of the "put" function of the default bindable property, as specified in [\[MS-OAUT\] section 2.2.49.5.2](#), into the dynamic virtual table of a type information that implements a dual interface. The value of this field is the **ovft** field of the FUNCDESC that specifies the function, as specified in [\[MS-OAUT\] section 2.2.42](#). The **memid** field of this FUNCDESC MUST NOT have a value of DISPID_VALUE, as specified in [\[MS-OAUT\] section 2.2.32.1](#). The **invkind** field of this FUNCDESC MUST have a value of INVOKE_PROPERTYPUT, as specified in [\[MS-OAUT\] section 2.2.14](#).

The file format default is 0x0000.

BindType (2 bytes): A variant type (2) that specifies the type of the default bindable property, as specified in [\[MS-OAUT\] section 2.2.49.5.2](#). The value of this field is the **vt** field of the TYPEDESC, as specified in [\[MS-OAUT\] section 2.2.37](#), of the FUNCDESC.**elemdescFunc**, as specified in [\[MS-OAUT\] section 2.2.42](#), of the function referenced by **GetBindIndex** or **PutBindIndex** in this ClassInfoDataBlock.

The file format default is 0x0000, VT_EMPTY.

GetValueIndex (2 bytes): An unsigned integer that specifies the index into the class's dynamic virtual table of the function that retrieves the control's value. The value of this field is the **ovft** field of the FUNCDESC that specifies the function, as specified in [\[MS-OAUT\] section 2.2.42](#). The **memid** of the FUNCDESC MUST be DISPID_VALUE, as specified in [\[MS-OAUT\] section 2.2.32.1](#). The **invkind** field of the FUNCDESC MUST have a value of INVOKE_PROPERTYGET, as specified in [\[MS-OAUT\] section 2.2.14](#).

The file format default is 0x0000.

PutValueIndex (2 bytes): An unsigned integer that specifies the index into the class's dynamic virtual table of the function that sets the control's value. The value of this field is the **ovft** field of the FUNCDESC that specifies the function, as specified in [\[MS-OAUT\] section 2.2.42](#). The **memid** of the FUNCDESC MUST be DISPID_VALUE, as specified in [\[MS-OAUT\] section 2.2.32.1](#). The

The file format default is 0x0000.

The file format default is 0x0000, VT_EMPTY.

DispidRowset (4 bytes): An unsigned integer that specifies the [Dispid](#) of a property that supports a method for fetching rows sequentially, getting the data from those rows, and managing rows. The value of this field is the **memid** field of the FUNCDESC that specifies the property “set” method, as specified in [\[MS-OAUT\] section 2.2.42](#), or of the VARDESC that specifies the property, as specified in [\[MS-OAUT\] section 2.2.43](#). The value of **memid** can be determined by the result of the algorithm specified in section 2.6.1.1.

SetRowset (2 bytes): An unsigned integer that specifies the index into the class's dynamic virtual table of the "set" function for a property that supports a method for fetching rows sequentially, getting the data from those rows, and managing rows. The value of this field is the **ovft** field of the FUNCDESC that specifies the property "set" method, as specified in [\[MS-OAUT\] section 2.2.42](#). The value of **ovft** can be determined by the result of the algorithm specified in section 2.6.1.2.

The file format default is 0x0000.

2.2.10.10.4 CLSTABLE_FLAGS

0	1	2	3	4	5	6	7	8	9	0 ¹	1	2	3	4	5	6	7	8	9	0 ²	1	2	3	4	5	6	7	8	9	0 ³	1
A	B	C	Unused																												

C - fNoAggregation (1 bit): Specifies whether this type information supports [aggregation](#). A value of 1 specifies that the control does not support aggregation.

Unused (13 bits): MUST be 0.

2.2.10.10.5 ClassInfoExtraDataBlock

Specifies the properties of the class that are larger than 4 bytes and are not set to their file format defaults. If the value of a field's corresponding bit in the **PropMask** of the [SiteClassInfo](#) that contains this ClassInfoDataBlock is 0, then the field MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ClsID (16 bytes, optional)																															
...																															
DispEvent (16 bytes, optional)																															
...																															
DefaultProg (16 bytes, optional)																															
...																															

ClsID (16 bytes): A GUID, as specified in [\[MS-DTYP\]](#), that specifies the **CLSID** of a control.

The file format default is {00000000-0000-0000-0000-000000000000}.

DispEvent (16 bytes): A GUID, as specified in [\[MS-DTYP\]](#), that specifies the source interface as specified in [\[MS-OAUT\] section 2.2.49.8](#), in this type information.

The file format default is {00020400-0000-0000-C000-000000000046}.

DefaultProg (16 bytes): A GUID, as specified in [\[MS-DTYP\]](#), that specifies the default interface as specified in [\[MS-OAUT\] section 2.2.49.8](#), in this type information.

The file format default is {00020400-0000-0000-C000-000000000046}.

2.2.10.11 DesignExtender Structure

The design surface of a [UserForm](#) control.

2.2.10.11.1 DesignExtender

Design-time properties of a [FormControl](#) as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	0 ¹	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0 ²	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0 ³	1
MinorVersion								MajorVersion								cbDesignExtender																																			
PropMask																																																			
DataBlock (variable)																																																			
...																																																			

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbDesignExtender (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask** and **DataBlock**.

PropMask (4 bytes): A [DesignExtenderPropMask](#) that specifies which properties of the control are set to a value that doesn't match the file format default.

DataBlock (variable): A [DesignExtenderDataBlock](#) that specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults.

2.2.10.11.2 DesignExtenderPropMask

Specifies which properties of the control are set to a value that doesn't match the file format default. For each bit, a value of 0 specifies that the corresponding property is the file format default and is not stored in the file.

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
A	B	C	D	E	Unused																										

A - fBitFlags (1 bit): Specifies whether the [BitFlags](#) property is stored in the **DataBlock.BitFlags** of the [DesignExtender](#) that contains this DesignExtenderPropMask.

B - fGridX (1 bit): Specifies whether the [GridX](#) property is stored in the **DataBlock.GridX** of the [DesignExtender](#) that contains this DesignExtenderPropMask.

C - fGridY (1 bit): Specifies whether the [GridY](#) property is stored in the **DataBlock.GridY** of the [DesignExtender](#) that contains this DesignExtenderPropMask.

D - fClickControlMode (1 bit): Specifies whether the [ClickControlMode](#) property is stored in the **DataBlock.ClickControlMode** of the [DesignExtender](#) that contains this DesignExtenderPropMask.

E - fDbClickControlMode (1 bit): Specifies whether the [DbClickControlMode](#) property is stored in the **DataBlock.DbClickControlMode** of the [DesignExtender](#) that contains this DesignExtenderPropMask.

Unused (27 bits): MUST be 0.

2.2.10.11.3 DesignExtenderDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [DesignExtender](#) that contains this DesignExtenderDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BitFlags (optional)																															
GridX (optional)																															
GridY (optional)																															
ClickControlMode (optional)										DbIClickControlMode (optional)										Padding (variable)											
...																															

BitFlags (4 bytes): A [DX_MODE](#) that specifies the value of the [BitFlags](#) property.

GridX (4 bytes): A signed integer that specifies the value of the [GridX](#) property.

GridY (4 bytes): A signed integer that specifies the value of the [GridY](#) property.

ClickControlMode (1 byte): An [fmClickControlMode](#) that specifies the value of the [ClickControlMode](#) property.

DbIClickControlMode (1 byte): An [fmDbIClickControlMode](#) that specifies the value of the [DbIClickControlMode](#) property.

Padding (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this DesignExtenderDataBlock divisible by 4.

2.2.10.12 OleSiteConcrete Structure

Properties stored for each embedded control in a [UserForm](#) control.

2.2.10.12.1 OleSiteConcreteControl

Properties of embedded controls in a [FormControl](#) as persisted to a stream.

										1									2												3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
Version																cbSite																
PropMask																																
DataBlock (variable)																																

- I - fPosition (1 bit):** Specifies whether the [Position](#) property is stored in the **ExtraDataBlock.Position** of the [OleSiteConcreteControl](#) that contains this SitePropMask.
- J - fGroupID (1 bit):** Specifies whether the [GroupID](#) property is stored in the **DataBlock.GroupID** of the [OleSiteConcreteControl](#) that contains this SitePropMask.
- K - Unused1 (1 bit):** MUST be 0.
- L - fControlTipText (1 bit):** Specifies whether the size and compression flag of the [Tooltip](#) property are stored in the **DataBlock.ControlTipTextData** of the [OleSiteConcreteControl](#) that contains this SitePropMask and the [Tooltip](#) string is stored in the **ExtraDataBlock.ControlTipText** of the [OleSiteConcreteControl](#).
- M - fRuntimeLicKey (1 bit):** Specifies whether the size and compression flag of the [RuntimeLicKey](#) property are stored in the **DataBlock.RuntimeLicKeyData** of the [OleSiteConcreteControl](#) that contains this SitePropMask and the [RuntimeLicKey](#) string is stored in the **ExtraDataBlock.RuntimeLicKeyData** of the [OleSiteConcreteControl](#).
- N - fControlSource (1 bit):** Specifies whether the size and compression flag of the [ControlSource](#) property are stored in the **DataBlock.ControlSourceData** of the [OleSiteConcreteControl](#) that contains this SitePropMask and the [ControlSource](#) string is stored in the **ExtraDataBlock.ControlSource** of the [OleSiteConcreteControl](#).
- O - fRowSource (1 bit):** Specifies whether the size and compression flag of the [RowSource](#) property are stored in the **DataBlock.RowSourceData** of the [OleSiteConcreteControl](#) that contains this SitePropMask and the [RowSource](#) string is stored in the **ExtraDataBlock.RowSource** of the [OleSiteConcreteControl](#).
- Unused2 (17 bits):** MUST be 0.

2.2.10.12.3 SiteDataBlock

Specifies the properties of the control that are 4 bytes or smaller and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [OleSiteConcrete](#) that contains this SiteDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
NameData (optional)																															
TagData (optional)																															
ID (optional)																															
HelpContextID (optional)																															
BitFlags (optional)																															
ObjectStreamSize (optional)																															
TabIndex (optional)																ClsidCacheIndex (optional)															
GroupID (optional)																Padding1 (variable)															

...
ControlTipTextData (optional)
Padding2 (variable)
...
RuntimeLicKeyData (optional)
Padding3 (variable)
...
ControlSourceData (optional)
Padding4 (variable)
...
RowSourceData (optional)
Padding5 (variable)
...

NameData (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Name](#) property.

TagData (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Tag](#) property.

ID (4 bytes): A signed integer that specifies the value of the [ID](#) property.

HelpContextID (4 bytes): A signed integer that specifies the value of the [HelpContextID](#) property.

BitFlags (4 bytes): A [SITE_FLAG](#) that specifies the value of the [BitFlags](#) property.

ObjectStreamSize (4 bytes): An unsigned integer that specifies the value of the [ObjectStreamSize](#) property.

TabIndex (2 bytes): A signed integer that specifies the value of the [TabIndex](#) property.

ClsidCacheIndex (2 bytes): A signed integer that specifies the value of the [ClsidCacheIndex](#) property.

GroupID (2 bytes): An unsigned integer that specifies the value of the [GroupID](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ControlTipTextData (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [Tooltip](#) property.

Padding2 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

RuntimeLicKeyData (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [RuntimeLicKey](#) property.

Padding3 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

ControlSourceData (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [ControlSource](#) property.

Padding4 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

RowSourceData (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [RowSource](#) property.

Padding5 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this SiteDataBlock divisible by 4.

2.2.10.12.4 SiteExtraDataBlock

Specifies the properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [OleSiteConcrete](#) that contains this SiteDataBlock is 0, then the property value MUST NOT be stored in the file.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Name (variable)																															
...																															
Tag (variable)																															
...																															
SitePosition (optional)																															
...																															
ControlTipText (variable)																															
...																															
RuntimeLicKey (variable)																															
...																															
ControlSource (variable)																															
...																															

RowSource (variable)
...

Name (variable): An [fmString](#) that specifies the value of the [Name](#) property.

Tag (variable): An [fmString](#) that specifies the value of the [Tag](#) property.

SitePosition (8 bytes): An [fmPosition](#) that specifies the value of the [Position](#) property.

ControlTipText (variable): An [fmString](#) that specifies the value of the [Tooltip](#) property.

RuntimeLicKey (variable): An [fmString](#) that specifies the value of the [RuntimeLicKey](#) property.

ControlSource (variable): An [fmString](#) that specifies the value of the [ControlSource](#) property.

RowSource (variable): An [fmString](#) that specifies the value of the [RowSource](#) property.

2.3 Common Text Properties Structure

2.3.1 TextProps

Specifies the values for text-related properties.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MinorVersion								MajorVersion								cbTextProps															
PropMask																															
DataBlock (variable)																															
...																															
ExtraDataBlock (variable)																															
...																															

MinorVersion (1 byte): An unsigned integer that specifies the minor version of the control. MUST be 0x00.

MajorVersion (1 byte): An unsigned integer that specifies the major version of the control. MUST be 0x02.

cbTextProps (2 bytes): An unsigned integer that specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1										
FontName (optional)																																									
FontEffects (optional)																																									
FontHeight (optional)																																									
FontCharSet (optional)										FontPitchAndFamily (optional)										ParagraphAlign (optional)										Padding1 (variable)											
...																																									
FontWeight (optional)																Padding2 (variable)																									
...																																									

FontName (4 bytes): A [CountOfBytesWithCompressionFlag](#) that specifies the size and compression of the [FontName](#) property.

FontEffects (4 bytes): An [fmFontEffects](#) that specifies the value of the [FontEffects](#) property.

FontHeight (4 bytes): A signed integer that specifies the value of the [FontHeight](#) property.

FontCharSet (1 byte): An unsigned integer that specifies the value of the [FontCharSet](#) property.

FontPitchAndFamily (1 byte): An [fmFontPitchAndFamily](#) that specifies the value of the [FontPitchAndFamily](#) property.

ParagraphAlign (1 byte): A [PARAFORMAT Alignment](#) that specifies the value of the [ParagraphAlign](#) property.

Padding1 (variable): Undefined and MUST be ignored. The size of this field is the least number of bytes needed to align the following property, as specified by [PaddingAndAlignment](#).

FontWeight (2 bytes): An unsigned integer that specifies the value of the [FontWeight](#) property.

Padding2 (variable): MUST be 0. The size of this field is the least number of bytes needed to make the total size, in bytes, of this TextPropsDataBlock divisible by 4.

2.3.4 TextPropsExtraDataBlock

Specifies the text properties of the control that are larger than 4 bytes and are not set to their file format defaults. If the value of a property's corresponding bit in the **PropMask** of the [TextProps](#) that contains this TextPropsExtraDataBlock is 0, then the property value MUST NOT be stored in the file.

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FontName (variable): An [fmString](#) that specifies the [FontName](#) property. The size and compression of the string is specified by the **DataBlock.FontName** of the [TextProps](#) that contains this TextPropsExtraDataBlock.

2.4 Property Types

Data types that are used by more than one control.

2.4.1 FormEmbeddedActiveXControl

Specifies a control based on the value of a **DataBlock.ClsidCacheIndex** of an [OleSiteConcreteControl](#) that is referenced by a [FormControl](#).

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ControlCached (variable)																															
...																															
ControlNonCached (variable)																															
...																															

ControlCached (variable): A [FormEmbeddedActiveXControlCached](#) that is specified by the [ClsidCacheIndex](#) property. If the value of the [ClsidCacheIndex](#) property is greater than or equal to 0x7FFF, this field MUST NOT be stored.

ControlNonCached (variable): A control that is specified by an index into the **FormSiteData.ClassTable** of the [FormControl](#) that references this FormEmbeddedActiveXControl. This control MUST be able to interact via OLE Automation, as specified in [\[MS-OAUT\]](#). If the value of the [ClsidCacheIndex](#) property is less than 0x8000, this field MUST NOT be stored.

2.4.2 FormEmbeddedActiveXControlCached

Specifies the type of embedded control for values of the [ClsidCacheIndex](#) property less than 0x7FFF. [Parent controls](#) are stored as specified in section 2.1.2.2.2. Controls that cannot be parents are stored as specified in section 2.1.2.2.

Value	Meaning
7	Form
12	Image
14	Frame
15	MorphData
16	SpinButton
17	CommandButton
18	TabStrip
21	Label
23	TextBox
24	ListBox

25	ComboBox
26	CheckBox
27	OptionButton
28	ToggleButton
47	ScrollBar
57	MultiPage

2.4.3 fmSize

A pair of signed integers that specify the size of a control.

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
Width																															
Height																															

Width (4 bytes): A signed integer that specifies the width, in [HIMETRIC](#) units, of the control.

Height (4 bytes): A signed integer that specifies the height, in HIMETRIC units, of the control.

2.4.4 fmPosition

A pair of signed integers that specify a position relative to a reference point.

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
Top																															
Left																															

Top (4 bytes): A signed integer that specifies, in HIMETRIC units, a distance below the reference point.

Left (4 bytes): A signed integer that specifies, in HIMETRIC units, a distance to the right of the reference point.

2.4.5 StdPicture

Specifies a picture as persisted to a stream.

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
Preamble																															
Size																															

Picture (variable)
...

Preamble (4 bytes): MUST be 0x0000746C.

Size (4 bytes): An unsigned integer that specifies the size, in bytes, of **Picture**.

Picture (variable): A sequence of bytes that specify a picture. The length of the sequence is **Size**. The bytes MUST specify a picture in one of these formats:

Bitmap [\[MS-WMF\] section 2.2.2.3](#)

GIF Image [\[GIF89a\]](#)

JPEG Image [\[JFIF\]](#)

Windows Metafile [\[MS-WMF\]](#)

Enhanced Metafile [\[MS-EMF\]](#)

Icon [\[MC-IcoWin32\]](#)

2.4.6 GuidAndPicture

A combination of a GUID, as specified in [\[MS-DTYP\]](#) section 2.3.2, and a [StdPicture](#) that specify the StreamData for both the [MouseIcon](#) and [Picture](#) properties.

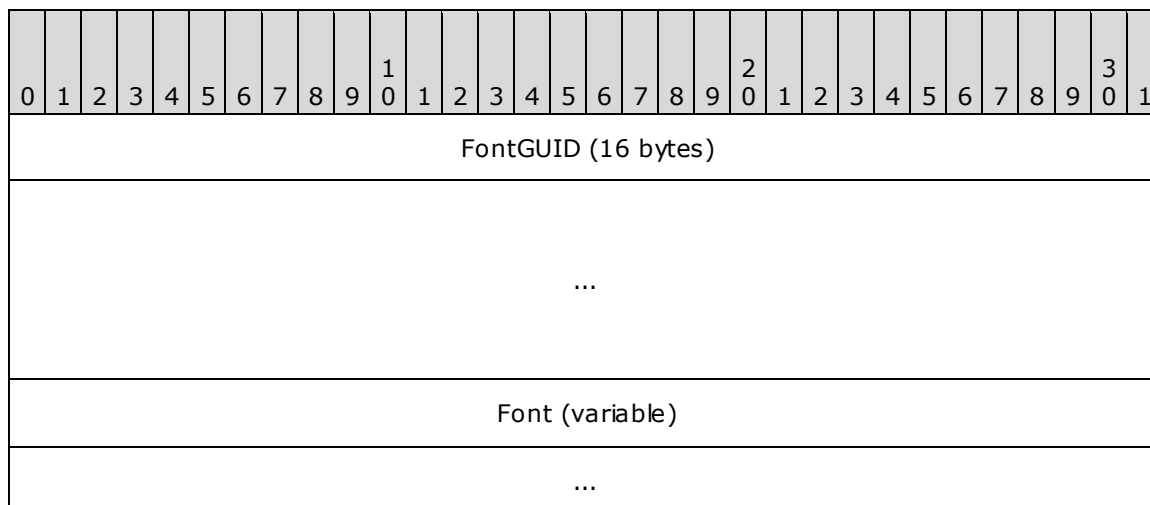
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
CLSID_StdPicture (16 bytes)																															
...																															
StdPicture (variable)																															
...																															

CLSID_StdPicture (16 bytes): A GUID, as specified in [\[MS-DTYP\]](#) section 2.3.2. MUST be {0BE35204-8F91-11CE-9DE3-00AA004BB851}.

StdPicture (variable): A [StdPicture](#) that specifies the picture data for either the [MouseIcon](#) or [Picture](#) property.

2.4.7 GuidAndFont

A combination of a GUID, as specified in [\[MS-DTYP\]](#) section 2.3.2, and a [FormFont](#) that specify the StreamData for the [Font](#) property.



FontGUID (16 bytes): A GUID that specifies the type of font that is stored in **Font**. MUST be the GUID of one of the types of [FormFont](#).

Font (variable): A [FormFont](#) that specifies a font.

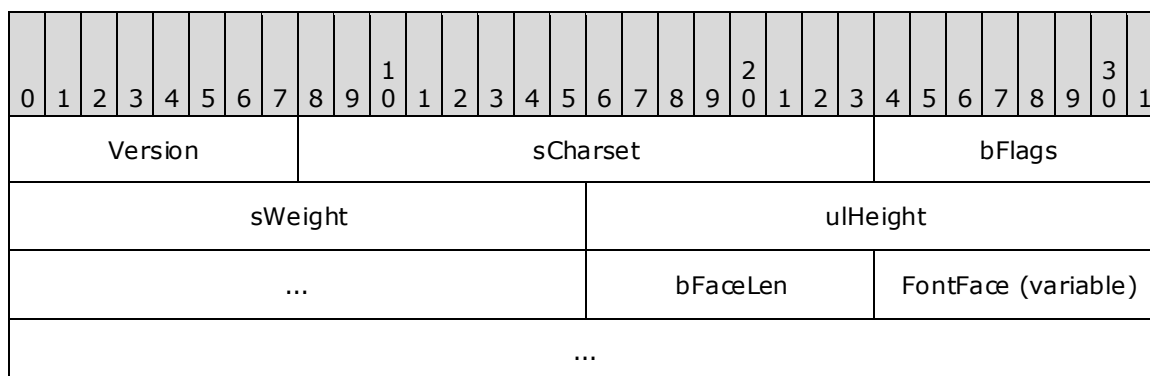
2.4.8 FormFont

Specifies which font type to load based on the **FontGUID** of the GuidAndFont that contains this structure.

Value	Meaning
CLSID_StdFont	{0BE35203-8F91-11CE-9DE3-00AA004BB851}. Specifies that the Font of the GuidAndFont that contains this FormFont is a StdFont .
CLSID_CFontNew	{AFC20920-DA4E-11CE-B94300AA006887B4}. Specifies that the Font of the GuidAndFont that contains this FormFont is a TextProps .

2.4.9 StdFont

The format of a standard font structure as persisted to a stream.



Version (1 byte): An unsigned integer that specifies the version of StdFont that is stored in the file. MUST be either 0 or 1.

sCharset (2 bytes): A signed integer that specifies the [character set](#) of the font.

bFlags (1 byte): A [FONTFLAGS](#) that specifies style characteristics of the font.

ulHeight (4 bytes): An unsigned integer that specifies the height, in ten-thousandths of a [point](#), of the font. MUST be greater than 0 and less than or equal to 655350000.

FontFace (variable): An [ASCII](#) string that specifies the name of the font.

A bitfield that specifies style characteristics of a font.

A - FONT_fBold (1 bit): Specifies whether the font style is bold. MUST be 0.

2.4.11 OLE_COLOR

RgbColorOrPaletteEntry (3 bytes): An [RgbColorOrPaletteEntry](#) that specifies either the red, green and blue values of a color or an index into a **color palette**, based on the value of **OneColorType**.

Name	Value	Meaning
Default	0x00	Specifies that the client application determines whether the RgbColorOrPaletteEntry is a PaletteEntry or an RgbColor.
PaletteEntry	0x01	Specifies that the GreenAndBlueOrPaletteIndex is an index into a client application color palette and that Red MUST be 0.
RgbColor	0x02	Specifies that GreenAndBlueOrPaletteIndex specifies the green and blue values of a color, where the low-order byte specifies blue and the high-order byte specifies green, and that Red specifies the red value of a color.
SystemPalette	0x80	Specifies that GreenAndBlueOrPaletteIndex is an index into the system color palette and that Red MUST be 0.

2.4.13 RgbColorOrPaletteEntry

Specifies either the red, green and blue values of a color or an index into a color palette, based on the value of an associated [OleColorType](#).

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
GreenAndBlueOrPaletteIndex																Red															

GreenAndBlueOrPaletteIndex (2 bytes): An unsigned integer that specifies either the green and blue values of a color or an index into a color palette. If the value of the associated [OleColorType](#) is PaletteEntry or SystemPalette, or if the value is Default and the client application determines that the color is a PaletteEntry, then this field is an index into the corresponding color palette. Otherwise, the low-order byte specifies the blue value of a color and the high-order byte specifies the green value of the color.

Red (1 byte): An unsigned integer that specifies the red value of a color. If the value of the associated [OleColorType](#) is PaletteEntry or SystemPalette, then this field MUST be 0.

2.4.14 Strings

Properties that are strings are persisted to a stream with two structures. All string values are Unicode strings, which can be stored compressed or uncompressed.

The first structure specifies the size of the string and whether it is compressed. If the string is stored in an [array](#), the structure MUST be a [CountOfCharsWithCompressionFlag](#); otherwise the structure MUST be a [CountOfBytesWithCompressionFlag](#).

When the high-order byte of every character in a string is 0x00, the string is compressible. Zero-length strings are not compressible. All string property values that are compressible MUST be stored as compressed strings. The compression algorithm removes all bytes that are 0x00 from the string. The size of a compressed string is the size after compression.

A zero-length string is specified by a [CountOfBytesWithCompressionFlag](#) with a value of 0 for both **cb** and **fCompressed** or a [CountOfCharsWithCompressionFlag](#) with a value of 0 for both **cch** and **fCompressed**.

The second structure is an [fmString](#), which stores the characters of the string, after compression if compressible.

Strings MUST NOT store null terminators and MUST NOT count null terminators in the **cb** of the [CountOfBytesWithCompressionFlag](#) or the **cch** of the [CountOfCharsWithCompressionFlag](#).

2.4.14.1 CountOfBytesWithCompressionFlag

Specifies the size of an [fmString](#) and whether the string is compressed.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
cb																															A

cb (31 bits): An unsigned integer that specifies the size of the string in bytes. The size of a compressed string is the size after compression.

A - fCompressed (1 bit): Specifies whether the string is compressed.

2.4.14.2 ArrayString

Specifies the size, format and contents of a [string](#) that is persisted to a stream as part of an [array](#). The [CountOfCharsWithCompressionFlag](#) is stored directly preceding the [fmString](#) rather than in a different part of the stream.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
CountAndCompression																															
UncompressedString (variable)																															
...																															
CompressedString (variable)																															
...																															
Padding (variable)																															
...																															

CountAndCompression (4 bytes): A [CountOfCharsWithCompressionFlag](#) that specifies the size and format of the string that follows it.

UncompressedString (variable): An [fmString](#) that is not compressed. If the **CountAndCompression.fCompressed** of this ArrayString is 1 or the **CountAndCompression.cch** of this ArrayString is 0, this fmString MUST NOT be stored.

CompressedString (variable): An [fmString](#) that is compressed. If the **CountAndCompression.fCompressed** of this ArrayString is 0 or the **CountAndCompression.cch** of this ArrayString is 0, this fmString MUST NOT be stored.

Padding (variable): Undefined and MUST be ignored. The size of this array is the least number of bytes needed to make the total size, in bytes, of this ArrayString divisible by 4.

2.4.14.3 CountOfCharsWithCompressionFlag

Specifies the size of an [fmString](#) in an array and whether or not the string is compressed.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
cch																															A

cch (31 bits): An unsigned integer that specifies the number of characters in the string.

A - fCompressed (1 bit): Specifies whether the string is compressed.

2.4.14.4 fmString

An array of characters that specifies the value of a Unicode string. The size of the string is specified by the **cb** of the [CountOfBytesWithCompressionFlag](#) or the **cch** of the [CountOfCharsWithCompressionFlag](#) associated with this string. Whether the characters are those of a compressed string is specified by the **fCompressed** of the [CountOfBytesWithCompressionFlag](#) or [CountOfCharsWithCompressionFlag](#) associated with this fmString.

2.5 Property Definitions

This section specifies the properties that can be persisted as part of storing a control, regardless of the type of file to which it is persisted. Each property applies to one or more control types and MUST NOT be persisted with controls to which they do not apply. The value of a property that is not stored is specified to be the file format default of that property. Property values that are the same as the file format default MUST NOT be stored.

In the context of persisting controls to a property bag, as specified in section 2.1.1.1, the name of each property is the same as the name of its section, excluding words or phrases in parentheses. The file format defaults are shown in the format used by persisting controls to a stream, as specified in section 2.1.1.2, but properties saved to a property bag are still persisted as specified in section 2.1.1.1.

2.5.1 Accelerator

A Unicode character that specifies the [accelerator key](#) for the control.

The file format default is 0x0000, no accelerator.

Applies to: [CheckBox](#) | [CommandButton](#) | [Label](#) | [OptionButton](#) | [TabStrip](#) | [ToggleButton](#)

2.5.2 AutoSize

A Boolean value that specifies whether the control will automatically resize to display its entire contents.

The file format default is FALSE.

This property applies only to the [Image](#) control. Other controls use the **AutoSize** field of the [VariousPropertyBits](#) property.

Applies to: [Image](#)

2.5.3 BackColor

An [OLE_COLOR](#) that specifies the background color of the control.

The file format default is specified as follows:

Control	File format default	Meaning
CheckBox ComboBox ListBox OptionButton TextBox ToggleButton	0x80000005	COLOR_WINDOW from the system palette .
CommandButton Form Image Label ScrollBar SpinButton	0x8000000F	COLOR_BTNFACE from the system palette.
TabStrip	0x8000000F	COLOR_3DFACE from the system palette, equivalent to COLOR_BTNFACE.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Form](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

2.5.4 BitFlags (OleSiteConcrete)

A [SITE_FLAG](#) that specifies Boolean properties of an embedded control on a form.

The file format default is 0x00000033, which is the following flags are set to TRUE: fTabStop, fVisible, fStreamed, and fAutoSize.

Applies to: [OleSiteConcrete](#)

2.5.4.1 SITE_FLAG

Specifies Boolean properties of an embedded control on a form. Unless otherwise specified, each bit applies to all control types. All bits that do not apply to a particular type of control MUST be 0 for that control.

										1										2											3	
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
A	B	C	D	E	F	G	H	I	J			K	Unused2		L	Unused3																

A - fTabStop (1 bit): Specifies whether the control can receive focus while the user is navigating controls using the TAB key.

B - fVisible (1 bit): Specifies whether the control is displayed.

C - fDefault (1 bit): Specifies whether the control is the default option on the form.

D - fCancel (1 bit): Specifies whether the control is the cancel option on the form.

- E - fInheritShowGrid (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **fShowGrid**.
- F - fShowGrid (1 bit):** Specifies whether to display a grid on the design surface of the form.
- G - fInheritSnapToGrid (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **fSnapToGrid**.
- H - fSnapToGrid (1 bit):** Specifies whether to keep controls on the form in positions that are on the grid.
- I - fInheritGridX (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **DataBlock.GridX**.
- J - fInheritGridY (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **DataBlock.GridY**.
- K - fInheritClickControl (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **DataBlock.ClickControlMode**.
- L - fInheritDbClickControl (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **DataBlock.DbClickControlMode**.
- M - fInheritShowInvisible (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **fShowInvisible**.
- N - fShowInvisible (1 bit):** Specifies whether to display controls that have been marked as not visible.
- O - fInheritShowTooltips (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **fShowTooltips**.
- P - fShowTooltips (1 bit):** Specifies whether to display tooltips for controls on the design surface.
- Q - fInheritLayoutImmediate (1 bit):** Specifies whether the form has the same value as the client application's design-time settings for **fLayoutImmediate**.
- R - fLayoutImmediate (1 bit):** Specifies whether to update the design surface after a property has changed.
- Unused (14 bits):** MUST be 0.

2.5.6 BooleanProperties

A [FormFlags](#) that specifies Boolean properties of a form.

The file format default is 0x00000004, FORM_FLAG_ENABLED set to TRUE.

Applies to: [Form](#)

2.5.6.1 FormFlags

A bitfield that specifies Boolean properties of a form.

0	1	2	3	4	5	6	7	8	9	0 ¹	1	2	3	4	5	6	7	8	9	0 ²	1	2	3	4	5	6	7	8	9	0 ³	1
A		B	Unused2											C	D	Unused3															

A - Unused1 (2 bits): MUST be 0.

B - FORM_FLAG_ENABLED (1 bit): Specifies whether the form is enabled.

Unused2 (11 bits): MUST be 0.

C - FORM_FLAG_DESINKPERSISTED (1 bit): Specifies whether [Design Extender properties](#) are persisted with this form.

D - FORM_FLAG_DONTSAVECLASSTABLE (1 bit): Specifies whether a form's [Class Table](#) is not persisted. A value of 0 specifies that the Class Table will be persisted if it isn't empty.

Unused3 (16 bits): MUST be 0.

2.5.7 BorderColor

An [OLE_COLOR](#) that specifies the color of the control's border.

The file format default is specified as follows:

Control	File format default	Meaning
ComboBox Image Label ListBox TextBox	0x80000006	COLOR_WINDOWFRAME from the system palette.
Form	0x80000012	COLOR_BTNTEXT from the system palette.

Applies to: [ComboBox](#) | [Form](#) | [Image](#) | [Label](#) | [ListBox](#) | [TextBox](#)

2.5.8 BorderStyle

An [fmBorderStyle](#) that specifies the type of border used by the control.

The file format default is specified as follows:

Control	File format default	Meaning
ComboBox Form Label ListBox TextBox	0x00	fmBorderStyleNone
Image	0x01	fmBorderStyleSingle

Applies to: [ComboBox](#) | [Form](#) | [Image](#) | [Label](#) | [ListBox](#) | [TextBox](#)

2.5.8.1 fmBorderStyle

The following table specifies the values of the **fmBorderStyle** enumeration and their meanings.

Name	Value	Meaning
fmBorderStyleNone	0x00	The control has no visible border line.
fmBorderStyleSingle	0x01	The control has a single-line border.

2.5.9 BoundColumn

An unsigned integer that specifies how the [Value](#) property is determined for a [ComboBox](#) or [ListBox](#) when the [MultiSelect](#) property's value is 0x00 (fmMultiSelectSingle). The possible values for this property are specified as follows:

BoundColumn	Specifies
0	That the value of the Value property is the row number of the selected row. Rows are numbered starting from 0.
1 or greater	The number of the column in the selected row whose data is the value of the Value property. Columns are numbered starting from 1.

When the [MultiSelect](#) property's value is not 0x00 (fmMultiSelectSingle), BoundColumn has no effect on the [Value](#) property.

The file format default is 0x0001.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.10 Caption

An [fmString](#) that specifies the descriptive text that appears on a control to identify or describe it.

The file format default is a zero-length string.

Applies to: [CheckBox](#) | [CommandButton](#) | [Form <2>](#) | [Label](#) | [OptionButton](#) | [TabStrip](#) | [ToggleButton](#)

2.5.11 cColumnInfo

An unsigned integer that specifies the last column with a non-default width. Columns are counted starting at 1. A value of 0 specifies that all columns have their default width.

The file format default is 0x0000.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.12 ClickControlMode

An [fmClickControlMode](#) that specifies control behavior on user click.

The file format default is 0x00, fmClickControlModeInsertionPoint.

Applies to: [DesignExtender](#)

2.5.12.1 fmClickControlMode

The following table specifies the values of the **fmClickControlMode** enumeration and their meanings.

Name	Value	Meaning
fmClickControlModeInherit	0xFE	Use the same value as the client application's design-

		time settings.
fmClickControlModeDefault	0xFF	Use the client application's default value.
fmClickControlModeInsertionPoint	0x00	Select the control under the cursor and set the insertion point under the cursor, both on the same click.
fmClickControlModeSelectThenInsert	0x01	If the control under the cursor is already selected, set the insertion point under the cursor; otherwise, select the control.

2.5.13 ClsidCacheIndex

An unsigned integer that specifies the type of a [FormEmbeddedActiveXControl](#) on a parent control. A value less than 0x7FFF specifies an index value for [FormEmbeddedActiveXControlCached](#). A value of 0x7FFF specifies that the index is invalid. A value greater than or equal to 0x8000 specifies an index into the **FormSiteData.ClassTable** of the [FormControl](#) in which the control is embedded, where information about the control is specified by the entry in **ClassTable** that corresponds to the value of this property minus 0x8000.

The file format default is 0x7FFF, an invalid index.

Applies to: [OleSiteConcrete](#)

2.5.14 ColumnCount

A signed integer that specifies the number of columns to display in a [ComboBox](#) or [ListBox](#). A value of -1 specifies that all columns are to be displayed. MUST be between -1 and 2147483647, inclusive.

The file format default is 0x0001.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.15 ControlSource

An [fmString](#) that specifies a [cell](#) in a [worksheet](#) that sets the [Value](#) property of a control when the control is loaded and to which the new value of the [Value](#) property is stored after it changes in the control.

The file format default is a zero-length string.

Applies to: [OleSiteConcrete](#)

2.5.16 Cycle

An [fmCycle](#) that specifies the behavior of the TAB key in the last control of a form.

The file format default is 0x00, fmCycleAllForms.

Applies to: [Form](#)

2.5.16.1 fmCycle

The following table specifies the values of the **fmCycle** enumeration and their meanings.

Name	Value	Meaning
fmCycleAllForms	0x00	The focus will next be set to the first control on the next form,

		returning to the first control of this form only after all controls on all other forms have been reached.
fmCycleCurrentForm	0x02	The focus will next be set to the first control on this form, ignoring other forms.

2.5.17 Delay

An unsigned integer that specifies the delay, in milliseconds, between successive scroll or value-change events when a user clicks and holds down a button on a [ScrollBar](#) or [SpinButton](#).

The file format default is 0x00000032, 50 milliseconds.

Applies to: [ScrollBar](#) | [SpinButton](#)

2.5.18 DbIClickControlMode

An [fmDbIClickControlMode](#) that specifies the behavior when the user double-clicks on a form or an item on the form.

The file format default is 0x00, fmDbIClickControlModeSelectText.

Applies to: [DesignExtender](#)

2.5.18.1 fmDbIClickControlMode

The following table specifies the values of the **fmDbIClickControlMode** enumeration and their meanings.

Name	Value	Meaning
fmDbIClickControlModeInherit	0xFE	Use the same value as the client application's design-time settings.
fmDbIClickControlModeSelectText	0x00	Select any text that is under the cursor.
fmDbIClickControlModeEditCode	0x01	Display and set focus to the code associated with the control that is under the cursor.
fmDbIClickControlModeEditProperties	0x02	Display the properties of the control that is under the cursor.

2.5.19 DisplayedSize

An [fmSize](#) that specifies the physical size, in HIMETRIC units, of a displayed form. There can be controls that exist on the form outside of this size. [<3>](#)

The file format default is a width of 4000, 113.4 points and a height of 3000, 85 points.

Applies to: [Form](#)

2.5.20 DisplayStyle

An [fmDisplayStyle](#) that specifies the type of control that a [MorphDataControl](#) is.

The file format default is 0x01, fmDisplayStyleText.

Applies to: [CheckBox](#) | [ComboBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

2.5.20.1 fmDisplayStyle

The following table specifies the values of the **fmDisplayStyle** enumeration and their meanings.

Name	Value	Meaning
fmDisplayStyleText	0x01	A TextBox control.
fmDisplayStyleList	0x02	A ListBox control.
fmDisplayStyleCombo	0x03	A ComboBox control where the TextBox part is directly editable. <4>
fmDisplayStyleCheckBox	0x04	A CheckBox control.
fmDisplayStyleOptionButton	0x05	An OptionButton control.
fmDisplayStyleToggle	0x06	A ToggleButton control.
fmDisplayStyleDropList	0x07	A ComboBox control where the TextBox part is not editable except by selecting a different value from the ListBox part. <5>

2.5.21 DrawBuffer

An unsigned integer that specifies the number of pixels in a buffer into which the form can be drawn. MUST be between 16000 and 1048576, inclusive.

Each [Form](#) MUST persist a value for this property.

Applies to: [Form](#)

2.5.22 DropButtonStyle

An **fmDropButtonStyle** that specifies the symbol displayed on the drop button in a [ComboBox](#). SHOULD be 0x01 (fmDropButtonStyleArrow) for [TextBox](#) controls [<6>](#).

The file format default is 0x01, fmDropButtonStyleArrow.

Applies to: [ComboBox](#) | [TextBox](#)

2.5.22.1 fmDropButtonStyle

The following table specifies the values of the **fmDropButtonStyle** enumeration and their meanings.

Name	Value	Meaning
fmDropButtonStylePlain	0x00	Displays a button with no symbol.
fmDropButtonStyleArrow	0x01	Displays a button with a down arrow.
fmDropButtonStyleEllipsis	0x02	Displays a button with an ellipsis (...).
fmDropButtonStyleReduce	0x03	Displays a button with a horizontal line like an underscore character.

2.5.23 Flags

A Boolean value that specifies whether the control is enabled.

The file format default is TRUE, control is enabled.

Applies to: [MultiPage](#)

2.5.24 Font

A [GuidAndFont](#) that specifies the font to use in a control.

The file format default is not to store a font.

Applies to: [Form](#)

2.5.25 FontCharSet

An unsigned integer that specifies the character set of the text displayed by the control that contains the [TextProps](#) to which this property applies.

The file format default is 0x01.

Applies to: [TextProps](#)

2.5.26 FontEffects

An [fmFontEffects](#) that specifies the visual attributes of the text displayed by the control that contains the [TextProps](#) to which this property applies.

The file format default is 0x00000000, no effects set.

Applies to: [TextProps](#)

2.5.26.1 fmFontEffects

Specifies the FontEffects property.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
A	B	C	D	UnusedBits1									E	UnusedBits2																F	G

A - fBold (1 bit): Specifies whether the Bold effect has been applied to the font.

B - fItalic (1 bit): Specifies whether the Italic effect has been applied to the font.

C - fUnderline (1 bit): Specifies whether the Underline effect has been applied to the font.

D - fStrikeout (1 bit): Specifies whether the Strikeout effect has been applied to the font.

UnusedBits1 (9 bits): MUST be 0.

E - fDisabled (1 bit): Specifies whether the Disabled effect has been applied to the font.

UnusedBits2 (16 bits): MUST be 0.

F - fAutoColor (1 bit): Specifies whether the AutoColor effect has been applied to the font.

G - UnusedBits3 (1 bit): MUST be 0.

2.5.27 FontHeight

An unsigned integer that specifies the height, in [twips](#), of the text displayed by the control that contains the [TextProps](#) to which this property applies. MUST be less than or equal to 4294967.

The file format default is 160, an 8 pt. font.

Applies to: [TextProps](#)

2.5.28 FontName

An [fmString](#) that specifies the font of the text displayed by the control that contains the [TextProps](#) to which this property applies.

The file format default is "MS Sans Serif".

Applies to: [TextProps](#)

2.5.29 FontPitchAndFamily

An [fmFontPitchAndFamily](#) that specifies the [character pitch](#) and the [font family](#) of the text displayed by the control that contains the [TextProps](#) to which this property applies.

The file format default is 0x00, DEFAULT_PITCH, FF_DONTCARE.

Applies to: [TextProps](#)

2.5.29.1 fmFontPitchAndFamily

An unsigned integer specifying character pitch and font family. The four low-order bits specify the character pitch of a font and the four high-order bits specify the font family.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Pitch				Family																											

Pitch (4 bits): Specifies the character pitch of a font. MUST be a value specified in [fmFontPitch](#).

Family (4 bits): Specifies the font family of a font. MUST be a value specified in [fmFontFamily](#).

2.5.29.2 fmFontPitch

The following table specifies the values of the **fmFontPitch** enumeration and their meanings.

Name	Value	Meaning
DEFAULT_PITCH	0x0	Doesn't specify a character pitch. Behavior is determined by the client application using this field.
FIXED_PITCH	0x1	All characters have the same width.
VARIABLE_PITCH	0x2	Characters have varying widths.

2.5.29.3 fmFontFamily

The following table specifies the values of the **fmFontFamily** enumeration and their meanings.

Name	Value	Meaning
FF_DONTCARE	0x0	Specifies that the default font is used.
FF_ROMAN	0x1	Specifies that fonts with variable stroke width (proportional) and with

		serifs are used.
FF_SWISS	0x2	Specifies that fonts with variable stroke width (proportional) and without serifs are used.
FF_MODERN	0x3	Specifies that fonts with constant stroke width (monospace), with or without serifs are used.
FF_SCRIPT	0x4	Specifies that fonts designed to look like handwriting are used.
FF_DECORATIVE	0x5	Specifies that novelty fonts are used.

2.5.30 FontWeight

An unsigned integer that specifies the font weight of the text displayed by the control that contains the [TextProps](#) to which this property applies. The value MUST be between 0 and 1000, inclusive. A value of 0 specifies that the weight is to be determined by the application. A value from 1 to 1000 specifies a specific weight, where 1 specifies the lightest type and 1000 specifies the darkest type.

The file format default is 400.

Applies to: [TextProps](#)

2.5.31 ForeColor

An [OLE_COLOR](#) that specifies the foreground color of the control.

The file format default is specified as follows:

Control	File format default	Meaning
CheckBox ComboBox ListBox OptionButton TextBox ToggleButton	0x80000008	COLOR_WINDOWTEXT from the system palette
CommandButton Form Label ScrollBar SpinButton TabStrip	0x80000012	COLOR_BTNTEXT from the system palette

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Form](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

2.5.32 GridX

A signed integer that specifies the horizontal distance, in HIMETRIC units, between points on the design surface grid. A value of 0 specifies that no grid is displayed. If the value of GridX for a control is 0, then GridY MUST also be 0 for that control.

The file format default is 0x00000000.

Applies to: [DesignExtender](#)

2.5.33 GridY

A signed integer that specifies the vertical distance, in HIMETRIC units, between points on the design surface grid. A value of 0 specifies that no grid is displayed. If the value of GridY for a control is 0, then GridX MUST also be 0 for that control.

The file format default is 0x00000000.

Applies to: [DesignExtender](#)

2.5.34 GroupCount

An unsigned integer that specifies the number of control groups on a form.

The file format default is 0.

Applies to: [Form](#)

2.5.35 GroupID

An unsigned integer that specifies the control group of a control. A value of 0 specifies that the control is not in a control group. A value greater than 0 specifies the unique identifier of the control group to which the control belongs. All controls that have the same value for this property are in the same control group.

The file format default is 0x0000.

Applies to: [OleSiteConcrete](#)

2.5.36 GroupName

An [fmString](#) that specifies a group of mutually exclusive controls.

The file format default is a zero-length string.

Applies to: [CheckBox](#) | [OptionButton](#)

2.5.37 HelpContextID

A signed integer that specifies a context that can be used to direct Help to a specific category or article for an embedded control on a form.

The file format default is 0x00000000.

Applies to: [OleSiteConcrete](#)

2.5.38 ID

A signed integer that specifies a unique identifier for an embedded control on a form.

The file format default is 0x00000000.

Applies to: [MultiPage](#) | [OleSiteConcrete](#)

2.5.39 LargeChange

A signed integer that specifies the amount by which the [Position](#) property changes when the user clicks between the scroll box and scroll arrow.

The file format default is 0x00000001.

Applies to: [ScrollBar](#)

2.5.40 ListIndex

A signed integer that specifies the index of the selected tab, where 0 is the first tab. The value MUST be less than the number of items in the control.

The file format default is 0xFFFFFFFF, -1, which specifies that no tab is selected.

Applies to: [TabStrip](#)

2.5.41 ListRows

An unsigned integer that specifies the maximum number of rows to display in the list.

The file format default is 0x0008.

Applies to: [ComboBox](#)

2.5.42 ListStyle

An [fmListStyle](#) that specifies the visual appearance of the list in a [ListBox](#) or [ComboBox](#).

The file format default is 0x00, fmListStylePlain.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.42.1 fmListStyle

The following table specifies the values of the **fmListStyle** enumeration and their meanings.

Name	Value	Meaning
fmListStylePlain	0x00	Displays a list in which the background of an item is highlighted when it is selected.
fmListStyleOption	0x01	Displays a list in which an option button (when the MultiSelect property is fmMultiSelectSingle) or a checkbox (when the MultiSelect property is fmMultiSelectMulti or fmMultiSelectExtended) next to each entry displays the selection state of that item.

2.5.43 ListWidth

An unsigned integer that specifies the width, in HIMETRIC units, of the [ListBox](#) part of a [ComboBox](#) control. The value SHOULD be 0 for [ListBox](#) controls. A value of 0 specifies that the [ListBox](#) part is the same width as the [TextBox](#) part. [<7>](#)

The file format default is 0x00, matches [TextBox](#) part.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.44 LogicalSize

An [fmSize](#) that specifies the full scrollable size, in HIMETRIC units, of a form, including all controls. A value of 0 in either width or height specifies that the scrollable size is equivalent to the value of the corresponding portion of [DisplayedSize](#).

The file format default is a width of 4000, 113.4 points and a height of 3000, 85 points.

Applies to: [Form](#)

2.5.45 MatchEntry

An [fmMatchEntry](#) that specifies how a [ListBox](#) or [ComboBox](#) searches its list as the user types.

The file format default is 0x02, fmMatchEntryNone.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.45.1 fmMatchEntry

The following table specifies the values of the **fmMatchEntry** enumeration and their meanings.

Name	Value	Meaning
fmMatchEntryFirstLetter	0x00	The control searches for the next entry that starts with the character entered. Repeatedly typing the same letter cycles through all entries beginning with that letter.
fmMatchEntryComplete	0x01	As each character is typed, the control searches for an entry matching all characters entered.
fmMatchEntryNone	0x02	The list will not be searched when characters are typed.

2.5.46 Max

A signed integer that specifies the maximum acceptable value for the [Position](#) property of a [ScrollBar](#) or [SpinButton](#).

The file format default is specified as follows:

Control	File format default
ScrollBar	0x00007FFF (32767)
SpinButton	0x00000064 (100)

Applies to: [ScrollBar](#) | [SpinButton](#)

2.5.47 MaxLength

An unsigned integer that specifies the maximum number of characters a user can enter in a [TextBox](#) or [ComboBox](#). A value of 0 specifies no limit.

The file format default is 0x00000000, no limit.

Applies to: [ComboBox](#) | [TextBox](#)

2.5.48 Min

A signed integer that specifies the minimum acceptable value for the [Position](#) property of a [ScrollBar](#) or [SpinButton](#).

The file format default is 0x00000000.

Applies to: [ScrollBar](#) | [SpinButton](#)

2.5.49 MouseIcon

A [GuidAndPicture](#) that specifies a custom icon to display as the mouse pointer for the control, which is used when the value of the [MousePointer](#) property is 99, fmMousePointerCustom.

The file format default is no custom icon.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Form](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

2.5.50 MousePointer

An unsigned integer that specifies the type of icon displayed as the mouse pointer for the control. SHOULD be a value from the [fmMousePointer](#) enumeration. [<8>](#)

The file format default is 0x00, fmMousePointerDefault.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Form](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

2.5.50.1 fmMousePointer

The following table specifies the values of the **fmMousePointer** enumeration and their meanings.

Name	Value	Meaning
fmMousePointerDefault	0x00	Standard pointer.
fmMousePointerArrow	0x01	Arrow.
fmMousePointerCross	0x02	Cross-hair pointer.
fmMousePointerIBeam	0x03	I-beam.
fmMousePointerSizeNESW	0x06	Double arrow pointing northeast and southwest.
fmMousePointerSizeNS	0x07	Double arrow pointing north and south.
fmMousePointerSizeNWSE	0x08	Double arrow pointing northwest and southeast.
fmMousePointerSizeWE	0x09	Double arrow pointing west and east.
fmMousePointerUpArrow	0x0A	Up arrow.
fmMousePointerHourGlass	0x0B	Hourglass.
fmMousePointerNoDrop	0x0C	“Not” symbol (circle with a diagonal line) on top of the object being dragged.
fmMousePointerAppStarting	0x0D	Arrow with an hourglass.
fmMousePointerHelp	0x0E	Arrow with a question mark.
fmMousePointerSizeAll	0x0F	“Size-all” cursor (arrows pointing north, south, east, and west).
fmMousePointerCustom	0x63	Uses the icon specified by the MouseIcon property.

2.5.51 MultiRow

A Boolean value that specifies whether the tabs of a control can be displayed in more than one row.

The file format default is FALSE, display tabs in one row.

Applies to: [TabStrip](#)

2.5.52 MultiSelect

An [fmMultiSelect](#) that specifies whether the control permits multiple selections. SHOULD be 0x00 (fmMultiSelectSingle) for [CheckBox](#), [OptionButton](#), and [ToggleButton](#) controls. [<9>](#)

The file format default is 0x00, fmMultiSelectSingle.

Applies to: [CheckBox](#) | [ListBox](#) | [OptionButton](#) | [ToggleButton](#)

2.5.52.1 fmMultiSelect

The following table specifies the values of the **fmMultiSelect** enumeration and their meanings.

Name	Value	Meaning
fmMultiSelectSingle	0x00	Only one item can be selected.
fmMultiSelectMulti	0x01	Pressing the SPACEBAR or clicking selects or deselects an item in the list.
fmMultiSelectExtended	0x02	Pressing SHIFT and clicking the mouse, or pressing SHIFT and one of the arrow keys, extends the selection from the previously selected item to the current item. Pressing CTRL and clicking the mouse selects or deselects an item.

2.5.53 Name

An [fmString](#) that specifies the name of a control.

The file format default is a zero-length string.

Applies to: [OleSiteConcrete](#) | [TabStrip](#)

2.5.54 NewVersion

A Boolean value that specifies whether the control is persisted with a [TextProps](#).

[TabStrip](#) controls MUST specify a value of TRUE for this property.

Applies to: [TabStrip](#)

2.5.55 NextAvailableID

An unsigned integer that specifies the largest [ID](#) that has been used by an embedded control on a form. The value of this property can be used by the client application to determine the next valid [ID](#) for a new control.

The file format default is 0x00000000.

Applies to: [Form](#)

2.5.56 NextEnabled

An unsigned integer that specifies whether a control is enabled, that is, whether it can receive the focus and respond to user-generated events. The value of this property MUST be equal to the value of [PrevEnabled](#).

The file format default is 0x00000001, the control is enabled.

Applies to: [ScrollBar](#) | [SpinButton](#).

2.5.57 ObjectStreamSize

An unsigned integer that specifies the size, in bytes, of an embedded control that is persisted to the [Object stream](#) of a [Form](#).

The file format default is 0x00000000.

Applies to: [OleSiteConcrete](#)

2.5.58 Orientation

An [fmOrientation](#) that specifies whether the [SpinButton](#) or [ScrollBar](#) is oriented vertically or horizontally.

The file format default is 0xFFFFFFFF, fmOrientationAuto.

Applies to: [ScrollBar](#) | [SpinButton](#)

2.5.58.1 fmOrientation

The following table specifies the values of the **fmOrientation** enumeration and their meanings.

Name	Value	Meaning
fmOrientationAuto	0xFFFFFFFF	Control is rendered horizontally when the control's width is greater than its height. Control is rendered vertically otherwise.
fmOrientationVertical	0x00000000	Control is rendered vertically.
fmOrientationHorizontal	0x00000001	Control is rendered horizontally.

2.5.59 PageCount

A signed integer that specifies the number of [Pages](#) in a control. A value less than 0 specifies an invalid number of [Pages](#).

The [MultiPage](#) control to which this property applies MUST persist a value for it.

Applies to: [MultiPage](#)

2.5.60 ParagraphAlign

A [PARAFORMAT Alignment](#) that specifies the horizontal justification of the text used by the control.

The file format default is 0x01, PFA_LEFT.

Applies to: [TextProps](#)

2.5.60.1 PARAFORMAT_Alignment

The following table specifies the values of the **PARAFORMAT_Alignment** enumeration and their meanings.

Name	Value	Meaning
PFA_LEFT	0x01	The text used by the control is aligned to the left side of the area it is given.
PFA_RIGHT	0x02	The text used by the control is aligned to the right side of the area it is given.
PFA_CENTER	0x03	The text used by the control is aligned to the center of the area it is given.

2.5.61 PasswordChar

A Unicode character that specifies a character to be displayed in place of the characters entered in a [TextBox](#). The null character specifies that the control displays the characters that the user types.

The file format default is 0x0000, display the characters the user types.

Applies to: [TextBox](#)

2.5.62 Picture

A [GuidAndPicture](#) that specifies the picture to display on a control.

The file format default is no picture.

Applies to: [CheckBox](#) | [CommandButton](#) | [Form](#) | [Image](#) | [Label](#) | [OptionButton](#) | [ToggleButton](#)

2.5.63 PictureAlignment

An [fmPictureAlignment](#) that specifies the alignment of the picture inside the [Form](#) or [Image](#).

The file format default is 0x02, fmPictureAlignmentCenter.

Applies to: [Form](#) | [Image](#)

2.5.63.1 fmPictureAlignment

The following table specifies the values of the **fmPictureAlignment** enumeration and their meanings.

Name	Value	Meaning
fmPictureAlignmentTopLeft	0x00	The top left corner.
fmPictureAlignmentTopRight	0x01	The top right corner.
fmPictureAlignmentCenter	0x02	The center.
fmPictureAlignmentBottomLeft	0x03	The bottom left corner.
fmPictureAlignmentBottomRight	0x04	The bottom right corner.

2.5.64 PicturePosition

An [fmPicturePosition](#) that specifies the location of the control's picture relative to its caption.

The file format default is 0x00070001, fmPicturePositionAboveCenter.

Applies to: [CheckBox](#) | [CommandButton](#) | [Label](#) | [OptionButton](#) | [ToggleButton](#)

2.5.64.1 fmPicturePosition

The following table specifies the values of the **fmPicturePosition** enumeration and their meanings.

Name	Value	Meaning
fmPicturePositionLeftTop	0x00020000	The picture appears to the left of the caption. The caption is aligned with the top of the picture.
fmPicturePositionLeftCenter	0x00050003	The picture appears to the left of the caption. The caption is centered relative to the picture.
fmPicturePositionLeftBottom	0x00080006	The picture appears to the left of the caption. The caption is aligned with the bottom of the picture.
fmPicturePositionRightTop	0x00000002	The picture appears to the right of the caption. The caption is aligned with the top of the picture.
fmPicturePositionRightCenter	0x00030005	The picture appears to the right of the caption. The caption is centered relative to the picture.
fmPicturePositionRightBottom	0x00060008	The picture appears to the right of the caption. The caption is aligned with the bottom of the picture.
fmPicturePositionAboveLeft	0x00060000	The picture appears above the caption. The caption is aligned with the left edge of the picture.
fmPicturePositionAboveCenter	0x00070001	The picture appears above the caption. The caption is centered below the picture.
fmPicturePositionAboveRight	0x00080002	The picture appears above the caption. The caption is aligned with the right edge of the picture.
fmPicturePositionBelowLeft	0x00000006	The picture appears below the caption. The caption is aligned with the left edge of the picture.
fmPicturePositionBelowCenter	0x00010007	The picture appears below the caption. The caption is centered above the picture.
fmPicturePositionBelowRight	0x00020008	The picture appears below the caption. The caption is aligned with the right edge of the picture.
fmPicturePositionCenter	0x00040004	The picture appears in the center of the control. The caption is centered horizontally and vertically on top of the picture.

2.5.65 PictureSizeMode

An [fmPictureSizeMode](#) that specifies how to display the picture.

The file format default is 0x00, fmPictureSizeModeClip.

Applies to: [Form](#) | [Image](#)

2.5.65.1 fmPictureSizeMode

The following table specifies the values of the **fmPictureSizeMode** enumeration and their meanings.

Name	Value	Meaning
fmPictureSizeModeClip	0x00	Crops any part of the picture that is larger than the control's boundaries.
fmPictureSizeModeStretch	0x01	Stretches the picture to fill the control's area. This setting distorts the picture in either the horizontal or vertical direction.
fmPictureSizeModeZoom	0x03	Enlarges the picture, but does not distort the picture in either

		the horizontal or vertical direction.
--	--	---------------------------------------

2.5.66 PictureTiling

A Boolean value that specifies whether the picture is tiled across the background.

The file format default is FALSE.

Applies to: [Form](#) | [Image](#)

2.5.67 Position (ScrollBar and SpinButton)

A signed integer that specifies the value of a [ScrollBar](#) or [SpinButton](#) control. **<10>** MUST be greater than or equal to the smaller of [Min](#) and [Max](#), and MUST be less than or equal to the greater of [Min](#) and [Max](#).

The file format default is 0x00000000.

Applies to: [ScrollBar](#) | [SpinButton](#)

2.5.68 Position (OleSiteConcrete)

An [fmPosition](#) that specifies the location of the top left corner of an embedded control on a form, relative to the top left corner of the form's [LogicalSize](#).

The file format default is (0, 0), which specifies that the top left corner of the embedded control is at the top left corner of the form.

Applies to: [OleSiteConcrete](#)

2.5.69 PrevEnabled

An unsigned integer that specifies whether a control is enabled, that is, whether it can receive the focus and respond to user-generated events. A value of 0 specifies that the control is not enabled. A value of 1 specifies that the control is enabled. If the control persists a value for the [VariousPropertyBits](#) property, and the value of **VariousPropertiesBitfield.Enabled** is 0, then the value of the PrevEnabled property MUST be 0.

The file format default is 0x00000001, the control is enabled.

Applies to: [ScrollBar](#) | [SpinButton](#).

2.5.70 ProportionalThumb

A signed integer that specifies the size of the scroll box. MUST be either 0xFFFF or 0x0000. A value of 0xFFFF specifies that the scroll box is proportional in size to the scrolling region. A value of 0x0000 specifies that the size of the scroll box is fixed.

The file format default is 0xFFFF, scroll box proportionally sized.

Applies to: [ScrollBar](#)

2.5.71 RowSource

An [fmString](#) that specifies the source for the list of values in a [ComboBox](#) or [ListBox](#) that is embedded in a form. This property MUST NOT be set for other controls. The format of the string is a [range](#) of cells in a worksheet.

The file format default is a zero-length string.

Applies to: [OleSiteConcrete](#)

2.5.72 RuntimeLicKey

An [fmString](#) that specifies the [license key](#) of a control.

The file format default is a zero-length string.

Applies to: [OleSiteConcrete](#)

2.5.73 ScrollBars (UserForm)

A [FormScrollBarFlags](#) that specifies whether a form has vertical or horizontal scroll bars and when to display them.

The file format default is 0x0000000C, fScrollBarsKeepHorizontal and fScrollBarsKeepVertical.

Applies to: [Form](#)

2.5.73.1 FormScrollBarFlags

A bitfield that specifies the location of a form's scroll bars.

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

A - fScrollBarsHorizontal (1 bit): Specifies whether the horizontal scroll bar is displayed.

B - fScrollBarsVertical (1 bit): Specifies whether the vertical scroll bar is displayed.

C - fScrollBarsKeepHorizontal (1 bit): Specifies whether to display the horizontal scroll bar at all times, even when all controls are visible without scrolling.

D - fScrollBarsKeepVertical (1 bit): Specifies whether to display the vertical scroll bar at all times, even when all controls are visible without scrolling.

E - fScrollBarsKeepLeft (1 bit): Specifies whether to display the vertical scroll bar on the left side of the form.

F - Unused (3 bits): MUST be 0.

2.5.74 ScrollBars (MorphData)

An [fmScrollBars](#) that specifies whether the control has vertical scroll bars, horizontal scroll bars, both, or neither. MUST be 0x03 (fmScrollBarsBoth) for [ListBox](#) controls.

The file format default is 0x00, fmScrollBarsNone.

Applies to: [ListBox](#) | [TextBox](#)

2.5.74.1 fmScrollBars

The following table specifies the values of the **fmScrollBars** enumeration and their meanings.

Name	Value	Meaning
fmScrollBarsNone	0x00	Displays no scroll bars.
fmScrollBarsHorizontal	0x01	Displays a horizontal scroll bar.
fmScrollBarsVertical	0x02	Displays a vertical scroll bar.
fmScrollBarsBoth	0x03	Displays both a horizontal and a vertical scroll bar.

2.5.75 ScrollPosition

An [fmPosition](#) that specifies, in HIMETRIC units, the coordinates of the first point in the form's [LogicalSize](#) that is visible.

The file format default is a position of (0, 0), which specifies that the form has not been scrolled.

Applies to: [Form](#)

2.5.76 ShapeCookie

An unsigned integer that specifies the number of times the dynamic type information of a form has changed. The value of this property can be used to determine whether a form being loaded still matches the dynamic type information against which it was compiled.

The file format default is 0x00000000.

Applies to: [Form](#)

2.5.77 ShowDropButtonWhen

An [fmShowDropButtonWhen](#) that specifies when to show the drop button for a [ComboBox](#).

The file format default is 0x00, fmShowDropButtonWhenNever.

Applies to: [ComboBox](#) | [TextBox](#)

2.5.77.1 fmShowDropButtonWhen

The following table specifies the values of the **fmShowDropButtonWhen** enumeration and their meanings.

Name	Value	Meaning
fmShowDropButtonWhenNever	0x00	Never show the drop button.
fmShowDropButtonWhenFocus	0x01	Show the drop button when the control has the focus.
fmShowDropButtonWhenAlways	0x02	Always show the drop button.

2.5.78 Size

An [fmSize](#) that specifies width and height, in HIMETRIC units, of the control.

Each control to which this property applies MUST persist a value for it.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

2.5.79 SmallChange

A signed integer that specifies the amount by which the [Position](#) property changes when the user clicks either scroll arrow in a [ScrollBar](#) or [SpinButton](#).

The file format default is 0x00000001.

Applies to: [ScrollBar](#) | [SpinButton](#)

2.5.80 SpecialEffect

An [fmSpecialEffect](#) that specifies the visual appearance of the control. MUST be 0x02 for [ToggleButton](#) controls.

The file format default is specified as follows:

Control	File format default	Meaning
CheckBox ComboBox ListBox OptionButton TextBox ToggleButton	0x02	fmSpecialEffectSunken
Form Label Image	0x00	fmSpecialEffectFlat

Applies to: [CheckBox](#) | [ComboBox](#) | [Form](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

2.5.80.1 fmSpecialEffect

The following table specifies the values of the **fmSpecialEffect** enumeration and their meanings. In this enumeration, "form" refers to the surface on which the control appears.

Name	Value	Meaning
fmSpecialEffectFlat	0x00	Control appears flat.
fmSpecialEffectRaised	0x01	Control appears to be raised up from the form.
fmSpecialEffectSunken	0x02	Control appears to be carved into the form.
fmSpecialEffectEtched	0x03	Control's border appears to be carved into the form.
fmSpecialEffectBump	0x06	Control's border appears to be raised up from the form.

2.5.81 TabData

An unsigned integer that specifies the number of tabs in a control for which a [TabStripTabFlag](#) is stored. MUST be less than or equal to the number of tabs in the control.

The file format default is 0x00000000.

Applies to: [TabStrip](#)

2.5.82 TabFixedHeight

An unsigned integer that specifies the height, in HIMETRIC units, of each tab in a TabStrip. The value applies to all tabs and MUST be less than or equal to 254000. [<11>](#)

The file format default is 0x00000000, which specifies that the client application determines the height.

Applies to: [TabStrip](#)

2.5.83 TabFixedWidth

An unsigned integer that specifies the width, in HIMETRIC units, of each tab in a TabStrip. The value applies to all tabs and MUST be less than or equal to 254000. [<12>](#)

The file format default is 0x00000000, which specifies that the client application determines the width.

Applies to: [TabStrip](#)

2.5.84 TabIndex

A signed integer that specifies the index of an embedded control in a form's tab order. Values less than 0 specify an invalid index in the tab order.

The file format default is 0xFFFF, or -1, an invalid index.

Applies to: [OleSiteConcrete](#)

2.5.85 TabOrientation

An [fmTabOrientation](#) that specifies the position of a control's tabs relative to the control.

The file format default is 0x00000000, fmTabOrientationTop.

Applies to: [TabStrip](#)

2.5.85.1 fmTabOrientation

The following table specifies the values of the **fmTabOrientation** enumeration and their meanings.

Name	Value	Meaning
fmTabOrientationTop	0x00000000	The tabs are above the control.
fmTabOrientationBottom	0x00000001	The tabs are below the control.
fmTabOrientationLeft	0x00000002	The tabs are to the left of the control.
fmTabOrientationRight	0x00000003	The tabs are to the right of the control.

2.5.86 TabsAllocated

An unsigned integer that specifies the number of tabs that have been inserted since the control was created.

The file format default is 0x00000000.

Applies to: [TabStrip](#)

2.5.87 TabStyle

An [fmTabStyle](#) that specifies the display style of a control's tabs.

The file format default is 0x00000000, fmTabStyleTabs.

Applies to: [TabStrip](#)

2.5.87.1 fmTabStyle

The following table specifies the values of the **fmTabStyle** enumeration and their meanings.

Name	Value	Meaning
fmTabStyleTabs	0x00000000	Tabs
fmTabStyleButtons	0x00000001	Toggle buttons
fmTabStyleNone	0x00000002	Not displayed

2.5.88 Tag

An [fmString](#) that is associated with a control and that contains data entered by the user. SHOULD be ignored. <13>

The file format default is a zero-length string.

Applies to: [OleSiteConcrete](#) | [TabStrip](#)

2.5.89 TakeFocusOnClick

A Boolean value that specifies whether the control takes the focus when clicked.

The file format default is TRUE.

Applies to: [CommandButton](#)

2.5.90 TextColumn

A signed integer that specifies the column in a [ComboBox](#) or [ListBox](#) to display to the user. The possible values for this property are specified as follows:

TextColumn	Specifies
-1	That the first column that has a Width greater than 0 is displayed to the user.
0	That row numbers are displayed to the user.
1 or greater	The number of the column whose data is displayed to the user.

The file format default is 0xFFFF, show first column with width greater than zero.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.91 Tooltip

An [fmString](#) that specifies the tooltip for the control.

The file format default is a zero-length string.

Applies to: [OleSiteConcrete](#) | [TabStrip](#)

2.5.92 Tooltips

A Boolean value that specifies whether to display the tooltips of a [TabStrip](#) control.

The file format default is TRUE.

Applies to: [TabStrip](#)

2.5.93 TransitionEffect

An [fmTransitionEffect](#) that specifies the effect displayed when the user switches between pages in a control.

The file format default is 0x00000000, fmTransitionEffectNone.

Applies to: [Page](#)

2.5.93.1 fmTransitionEffect

The following table specifies the values of the **fmTransitionEffect** enumeration and their meanings.

Name	Value	Meaning
fmTransitionEffectNone	0x00000000	No transition effect.
fmTransitionEffectCoverUp	0x00000001	Cover up transition effect.
fmTransitionEffectCoverRightUp	0x00000002	Cover right up transition effect.
fmTransitionEffectCoverRight	0x00000003	Cover right transition effect.
fmTransitionEffectCoverRightDown	0x00000004	Cover right down transition effect.
fmTransitionEffectCoverDown	0x00000005	Cover down transition effect.
fmTransitionEffectCoverLeftDown	0x00000006	Cover left down transition effect.
fmTransitionEffectCoverLeft	0x00000007	Cover left transition effect.
fmTransitionEffectCoverLeftUp	0x00000008	Cover left up transition effect.
fmTransitionEffectPushUp	0x00000009	Push up transition effect.
fmTransitionEffectPushRight	0x0000000A	Push right transition effect.
fmTransitionEffectPushDown	0x0000000B	Push down transition effect.
fmTransitionEffectPushLeft	0x0000000C	Push left transition effect.

2.5.94 TransitionPeriod

An unsigned integer that specifies the amount of time, in milliseconds, that the current page remains visible before switching to the new page the user requested. MUST be between 0 and 10000, inclusive.

The file format default is 0x00000000.

Applies to: [Page](#)

2.5.95 Value

An [fmString](#) that specifies the state or content of a given control, as follows:

Control	Specifies
CheckBox OptionButton ToggleButton	Whether the item is selected. "1" specifies that the control is selected. "0" specifies that the control is cleared. Any other string specifies that the control is neither selected nor cleared.
ComboBox ListBox	The value in the BoundColumn of the currently selected row when MultiSelect is 0x00 (fmMultiSelectSingle). MUST be a zero-length string for other values of MultiSelect , or when there is no selected row, or when BoundColumn is greater than the number of columns.
TextBox	The text in the control.

The file format default is a zero-length string.

Applies to [<14>](#): [CheckBox](#) | [ComboBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

2.5.96 VariousPropertyBits

A [VariousPropertiesBitfield](#) that specifies the values of multiple properties on a control. Many of the fields in this structure apply to some types of controls but not all types. All fields that do not apply to a particular type of control MUST be 0 for that control.

The file format default is specified as follows:

Controls	File format default	Properties set to 1 in file format default
CheckBox ComboBox ListBox OptionButton TextBox ToggleButton	0x2C80081B	Reserved1, Enabled, BackStyle, Reserved2, IntegralHeight, WordWrap, SelectionMargin, AutoWordSelect, HideSelection
CommandButton Image TabStrip ScrollBar SpinButton	0x0000001B	Reserved1, Enabled, BackStyle, Reserved2
Label	0x0080001B	Reserved1, Enabled, BackStyle, Reserved2, WordWrap

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

2.5.96.1 VariousPropertiesBitfield

Specifies the VariousPropertyBits property.

										1										2													3		
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
A	B	C	D	E	UnusedBits1					F	G	H	I	J	IMEMode					K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

A - Reserved1 (1 bit): MUST be 1 and MUST be ignored.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

B - Enabled (1 bit): Specifies whether the control can receive the focus and respond to user-generated events.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

C - Locked (1 bit): Specifies whether data in the control is locked for editing.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

D - BackStyle (1 bit): Specifies the background style for this control. A value of 1 specifies that the control is opaque, and a value of 0 specifies that the control is transparent. MUST be 1 for the following controls: [ListBox](#), [TabStrip](#), [ScrollBar](#), [SpinButton](#)

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

E - Reserved2 (1 bit): MUST be 1 and MUST be ignored.

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

UnusedBits1 (5 bits): MUST be 0.

F - ColumnHeads (1 bit): Specifies whether column headings are displayed.

Applies to: [ComboBox](#) | [ListBox](#)

G - IntegralHeight (1 bit): For [ListBox](#) and [TextBox](#) controls, specifies whether the control will only show complete lines of text without showing any partial lines. MUST be 1 for the following controls: [CheckBox](#), [OptionButton](#), [ToggleButton](#).

Applies to: [CheckBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

H - MatchRequired (1 bit): Specifies whether a value entered into the [TextBox](#) part of a [ComboBox](#) is required to match an entry in the [ListBox](#) part of the control.

Applies to: [ComboBox](#)

I - Alignment (1 bit): Specifies the position of the [Caption](#) relative to the control. A value of 1 specifies that the [Caption](#) is to the left of the control, and a value of 0 specifies that the [Caption](#) is to the right of the control. <15>

Applies to: [CheckBox](#) | [OptionButton](#)

J - Editable (1 bit): Specifies whether the user can type into the control. MUST be 1 for [TextBox](#) controls. MUST be 1 for [ComboBox](#) controls in which the [DisplayStyle](#) property is 0x03

(fmDisplayStyleCombo). SHOULD be 0 for [ComboBox](#) controls in which the [DisplayStyle](#) property is 0x07 (fmDisplayStyleDropList), but MAY be 1, and MUST be ignored. [<16>](#)

Applies to: [ComboBox](#) | [TextBox](#)

IMEMode (4 bits): An [fmIMEMode](#) that specifies the default run-time mode of the [Input Method Editor \(IME\)](#) for the control as it receives focus.

Applies to [<17>](#): [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Image](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [ScrollBar](#) | [SpinButton](#) | [TabStrip](#) | [TextBox](#) | [ToggleButton](#)

K - DragBehavior (1 bit): Specifies whether dragging and dropping is enabled for the control.

Applies to: [ComboBox](#) | [TextBox](#)

L - EnterKeyBehavior (1 bit): Specifies the behavior of the ENTER key. A value of 1 specifies that pressing ENTER will create a new line. A value of 0 specifies that pressing ENTER will move the focus to the next object in the tab order.

Applies to: [TextBox](#)

M - EnterFieldBehavior (1 bit): Specifies selection behavior when entering the control. A value of 1 specifies that the selection remains unchanged from last time the control was active. A value of 0 specifies that all the text in the control will be selected when entering the control.

Applies to: [ComboBox](#) | [TextBox](#)

N - TabKeyBehavior (1 bit): Specifies whether tab characters are allowed in the text of the control. A value of 1 specifies that pressing the TAB key will insert a tab character into the text of the control. A value of 0 specifies that pressing the TAB key will move the focus to the next object in the tab order.

Applies to: [TextBox](#)

O - WordWrap (1 bit): Specifies whether the contents of the control automatically wrap at the end of a line. MUST be 1 for the following controls: [ComboBox](#), [ListBox](#) .

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Label](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

P - UnusedBits2 (1 bit): MUST be 0.

Q - BordersSuppress (1 bit): SHOULD be 0. [<18>](#)

Applies to: [CheckBox](#) | [ComboBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

R - SelectionMargin (1 bit): Specifies whether the user can select a line of text by clicking in the region to the left of the text. MUST be 1 for the following controls: [CheckBox](#), [ListBox](#), [OptionButton](#), [ToggleButton](#).

Applies to: [CheckBox](#) | [ComboBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

S - AutoWordSelect (1 bit): Specifies the basic unit used to extend a selection. A value of 1 specifies that the basic unit is a single character. A value of 0 specifies that the basic unit is a whole word. MUST be 1 for the following controls: [CheckBox](#), [ListBox](#), [OptionButton](#), [ToggleButton](#).

Applies to: [CheckBox](#) | [ComboBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

T - AutoSize (1 bit): Specifies whether the control will automatically resize to display its entire contents.

This bit does not apply to the [Image](#) control and therefore MUST be 0 for it. Instead, the [Image](#) control uses a separate [AutoSize](#) property that it stores in its [PropMask](#).

Applies to: [CheckBox](#) | [ComboBox](#) | [CommandButton](#) | [Label](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

U - HideSelection (1 bit): Specifies whether selected text in the control appears highlighted when the control does not have focus. MUST be 1 for the following controls: [CheckBox](#), [ListBox](#), [OptionButton](#), [ToggleButton](#).

Applies to: [CheckBox](#) | [ComboBox](#) | [ListBox](#) | [OptionButton](#) | [TextBox](#) | [ToggleButton](#)

V - AutoTab (1 bit): Specifies whether the focus will automatically move to the next control when the user enters the maximum number of characters specified by the [MaxLength](#) property.

Applies to: [ComboBox](#) | [TextBox](#)

W - MultiLine (1 bit): Specifies whether the control can display more than one line of text.

Applies to: [TextBox](#)

2.5.96.2 fmIMEMode

The following table specifies the values of the **fmIMEMode** enumeration and their meanings.

Name	Value	Meaning
fmIMEModeNoControl	0x0	Does not control IME .
fmIMEModeOn	0x1	IME on.
fmIMEModeOff	0x2	IME off. English mode.
fmIMEModeDisable	0x3	IME off. User can't turn on IME by keyboard.
fmIMEModeHiragana	0x4	IME on with Full-width hiragana mode.
fmIMEModeKatakana	0x5	IME on with Full-width katakana mode.
fmIMEModeKatakanaHalf	0x6	IME on with Half-width katakana mode.
fmIMEModeAlphaFull	0x7	IME on with Full-width Alphanumeric mode.
fmIMEModeAlpha	0x8	IME on with Half-width Alphanumeric mode.
fmIMEModeHangulFull	0x9	IME on with Full-width hangul mode.
fmIMEModeHangul	0xA	IME on with Half-width hangul mode.
fmIMEModeHanziFull	0xB	IME on with Full-width hanzi mode.
fmIMEModeHanzi	0xC	IME on with Half-width hanzi mode.

2.5.97 Width

A signed integer that specifies the width of a column, in HIMETRIC units, in a [ComboBox](#) or [ListBox](#). A value of -1 specifies that the client application determines the width.

The file format default is 0xFFFFFFFF, -1.

Applies to: [ComboBox](#) | [ListBox](#)

2.5.98 Zoom

A signed integer that specifies the magnification of embedded controls, in percentage points of the parent control's size. MUST be greater than or equal to 10 (10% of actual size) and less than or equal to 400 (four times or 400% of actual size).

The file format default is 100, or actual size.

Applies to: [Form](#)

2.6 Algorithms

2.6.1 ClassTable Rowset Algorithm

This section specifies the algorithms used to determine which method or property of a type information supports a way of fetching rows of data sequentially, getting the data from those rows, and managing rows of data.

The following are used in the algorithms specified in section 2.6.1.1 and section 2.6.1.2:

- ITypeInfo::GetTypeAttr is specified in [\[MS-OAUT\] section 3.7.4.1](#).
- TYPEATTR is specified in [\[MS-OAUT\] section 2.2.44](#).
- TYPEFLAG_FDUAL and the TYPEFLAGS type are specified in [\[MS-OAUT\] section 2.2.16](#).
- ITypeInfo::GetFuncDesc is specified in [\[MS-OAUT\] section 3.7.4.3](#).
- FUNCDESC is specified in [\[MS-OAUT\] section 2.2.42](#).
- INVOKE_PROPERTYPUT, INVOKE_PROPERTYGET and the INVOKEKIND type are specified in [\[MS-OAUT\] section 2.2.14](#).
- TYPEDESC is specified in [\[MS-OAUT\] section 2.2.37](#).
- VT_PTR and other VARIANT type constants are specified in [\[MS-OAUT\] section 2.2.7](#).
- HREFTYPE is specified in [\[MS-OAUT\] section 2.2.36](#).
- ITypeInfo::GetRefTypeInfo is specified in [\[MS-OAUT\] section 3.7.4.10](#).
- ITypeInfo is specified in [\[MS-OAUT\] section 3.7.4](#).
- ITypeInfo::GetVarDesc is specified in [\[MS-OAUT\] section 3.7.4.4](#).
- VARDESC is specified in [\[MS-OAUT\] section 2.2.43](#).

2.6.1.1 DispidRowset Algorithm

The result of the following algorithm can determine the property value of the **DispidRowset** field of a [ClassInfoDataBlock](#).

```
CALL the GetTypeAttr method of this type information returning TYPEATTR ta
IF ta.wTypeFlags & TYPEFLAG_FDUAL THEN
  FOR each function in this type information
    CALL the GetFuncDesc method of this type information with the index of this
    function, returning FUNCDESC fd
  IF fd.lprgelemdescParam is NOT EQUAL TO 0
    AND fd.invkind is EQUAL TO INVOKE_PROPERTYPUT THEN
      SET TYPEDESC td to fd.lprgelemdescParam.tdesc
      IF td.vt is EQUAL TO VT_PTR THEN
        SET td to td.lptdesc
      END IF
      IF td.vt is EQUAL TO VT_USERDEFINED
        SET HREFTYPE hr to td.hreftype
        CALL the GetRefTypeInfo of this type information with hr, returning
```

```

        ITypeInfo ti2
        CALL the GetTypeAttr method of ti2, returning TYPEATTR ta2
        IF ta2.guid is EQUAL TO {0C733A52-2A1C-11CE-ADE5-00AA0044773D} THEN
            RETURN fd.memid
        END IF
    END IF
END IF
END FOR
ELSE
    FOR each data property in this type information
        CALL the GetVarDesc method of this type information with the index of this
        property, returning VARDESC vd
        SET td to vd.elemdescVar.tdesc
        IF td.vt is EQUAL TO VT_PTR THEN
            SET td to td.lptdesc
        END IF
        IF td.vt is EQUAL TO VT_USERDEFINED
            SET HREFTYPE hr to td.hreftype
            CALL the GetRefTypeInfo of this type information with hr, returning
            ITypeInfo ti2
            CALL the GetTypeAttr method of ti2, returning TYPEATTR ta2
            IF ta2.guid is EQUAL TO {0C733A52-2A1C-11CE-ADE5-00AA0044773D} THEN
                RETURN vd.memid
            END IF
        END FOR
    END IF
END IF

```

2.6.1.2 SetRowset Algorithm

The result of the following algorithm can determine the property value of the **SetRowset** field of a [ClassInfoDataBlock](#).

```

CALL the GetTypeAttr method of this type information returning TYPEATTR ta
IF ta.wTypeFlags & TYPEFLAG_FDUAL THEN
    FOR each function in this type information
        CALL the GetFuncDesc method of this type information with the index of this
        function, returning FUNCDESC fd
        IF fd.lprgelemdescParam is NOT EQUAL TO 0
            AND fd.invkind is EQUAL TO INVOKE_PROPERTYPUT THEN
                SET TYPEDESC td to fd.lprgelemdescParam.tdesc
                IF td.vt is EQUAL TO VT_PTR THEN
                    SET td to td.lptdesc
                END IF
                IF td.vt is EQUAL TO VT_USERDEFINED
                    SET HREFTYPE hr to td.hreftype
                    CALL the GetRefTypeInfo of this type information with hr, returning
                    ITypeInfo ti2
                    CALL the GetTypeAttr method of ti2, returning TYPEATTR ta2
                    IF ta2.guid is EQUAL TO {0C733A52-2A1C-11CE-ADE5-00AA0044773D} THEN
                        RETURN fd.oVft
                    END IF
                END IF
            END IF
        END FOR
    END IF
END IF

```

3 Structure Examples

3.1 String Compression Example

The following example shows when and how a string can be compressed:

The Unicode string "ABC" has the byte sequence

0x41 0x00 0x42 0x00 0x43 0x00.

This string is compressible, because the high-order byte of each character is 0. When compressed, the byte sequence will be stored as

0x41 0x42 0x43,

with a count of bytes of 3. On the other hand, the Unicode string "地球" (Japanese for "Earth") has a byte sequence of

0x57 0x30 0x03 0x74.

This string is not compressible, so the count of bytes is 4 and the string will be stored as described previously.

3.2 CommandButton Example

The following example shows a [CommandButtonControl](#) structure. The CommandButton is embedded in a UserForm and has the following properties set:

- The [Caption](#) property is set to "CommandButton1".
- The [Height](#) and [Width](#) properties are set to 36 points and 126 points, respectively.
- The [MousePointer](#) property is set to [fmMousePointerCustom](#).
- The [MouseIcon](#) property is set to a picture. [<19>](#)

Though this example uses the [CommandButtonControl](#), the persistence of the data structures for this control can also be applied to other control types.

Figure 24 shows the top-level representation of the [CommandButtonControl](#) structure.

Offset	Size	Structure	Value
00000000	036A	CommandButtonControl	
00000000	0001	BYTE - MinorVersion	0x00
00000001	0001	BYTE - MajorVersion	0x02
00000002	0002	USHORT - cbCommandButton	0x0024
00000004	0004	A CommandButtonPropMask - PropMask	
00000008	0008	B CommandButtonDataBlock - Data Block	
00000010	0018	C CommandButtonExtraDataBlock - Extra Data Block	
00000028	0316	D CommandButtonStreamData - Stream Data	
0000033E	002C	TextProps - TextProps	

Figure 24: CommandButtonControl structure

The following are detailed examples of **PropMask**, **DataBlock**, **ExtraDataBlock** and **StreamData**. An example of the **TextProps** structure has been omitted because it closely resembles this example.

MinorVersion: 0x00 specifies the minor version of the control.

MajorVersion: 0x02 specifies the major version of the control.

cbCommandButton: 0x0024 specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

Figure 25 shows which properties of the [CommandButtonControl](#) are set to a value that doesn't match the file format default. If a bit has a value of 1, then the corresponding property value in the [CommandButtonDataBlock](#) is not the file format default and is stored in the file. If a bit has a value of 0, then the corresponding property value is the file format default and is not stored in the file. As previously described, the [Caption](#), [Size](#) (Height and Width), [MousePointer](#), and [MouseIcon](#) properties are set to a value different from the file format default, and only these bits have a value of 1.

Offset	Size	Structure	Value
00000004	0004	A CommandButtonPropMask - PropMask	
00000004	1 bit	BOOL - fForeColor	0
00000004	1 bit	BOOL - fBackColor	0
00000004	1 bit	BOOL - fVariousPropertyBits	0
00000004	1 bit	BOOL - fCaption	1
00000004	1 bit	BOOL - fPicturePosition	0
00000004	1 bit	BOOL - fSize	1
00000004	1 bit	BOOL - fMousePointer	1
00000004	1 bit	BOOL - fPicture	0
00000004	1 bit	BOOL - fAccelerator	0
00000004	1 bit	BOOL - fTakeFocusOnClick	0
00000004	1 bit	BOOL - fMouseIcon	1
00000004	21 bits	BOOL - UnusedBits	0

Figure 25: CommandButtonPropMask structure

fForeColor: 0 specifies that the value of the [ForeColor](#) property is the file format default and is not stored in the file.

fBackColor: 0 specifies that the value of the [BackColor](#) property is the file format default and is not stored in the file.

fVariousPropertyBits: 0 specifies that the value of the [VariousPropertyBits](#) property is the file format default and is not stored in the file.

fCaption: 1 specifies that the [Caption](#) property is set to a value that is not the file format default and is stored in the [CommandButtonDataBlock](#) and [CommandButtonExtraDataBlock](#).

fPicturePosition: 0 specifies that the value of the [PicturePosition](#) property is the file format default and is not stored in the file.

fSize: 1 specifies that the [Size](#) property is set to a value that is not the file format default and is stored in the [CommandButtonExtraDataBlock](#).

fMousePointer: 1 specifies that the [MousePointer](#) property is set to a value that is not the file format default and is stored in the [CommandButtonDataBlock](#).

fAccelerator: 0 specifies that the value of the [Accelerator](#) property is the file format default and is not stored in the file.

fTakeFocusOnClick: 0 specifies that the value of the [TakeFocusOnClick](#) property is the file format default and is not stored in the file.

fMouseIcon: 1 specifies that the [MouseIcon](#) property is set to a value that is not the file format default and is stored in the [CommandButtonStreamData](#).

Figure 26 shows the [CommandButtonDataBlock](#). The **DataBlock** stores property values that are 4 bytes or smaller and are not the file format default. In this example, [MousePointer](#) is the only property whose value is stored in the **DataBlock**. For the [Caption](#) property, the length and compression flag of the [Caption](#) string are stored in the **DataBlock**, but the [Caption](#) string itself is stored in the [CommandButtonExtraDataBlock](#).

Offset	Size	Structure	Value
00000008	0008	B CommandButtonDataBlock - DataBlock	
00000008	0004	CountOfBytesWithCompressionFlag - Caption	
00000008	31 bits	ULONG - cb	0x0000000E
00000008	1 bit	BOOL - fCompressed	1
0000000C	0001	fmMousePointer - MousePointer	0x63
0000000D	0001	Align - Padding1	0x00
0000000E	0002	SHORT - MouseIcon	0xFFFF
00000010	0000	Align - Padding2	

Figure 26: CommandButtonDataBlock structure

Caption.cb: 0x0000000E specifies that the size after compression of the [Caption](#) string in the [CommandButtonExtraDataBlock](#) is 14 bytes.

Caption.fCompressed: 1 specifies that the [Caption](#) string in the [CommandButtonExtraDataBlock](#) is compressed.

MousePointer: 0x63 specifies that the [MousePointer](#) has the value [fmMousePointerCustom](#) and the icon will be specified in the [MouseIcon](#) property.

Padding1: 1 byte of unused data needed for the value of the [MousePointer](#) property to align to an offset divisible by 2 from the beginning of the [CommandButtonControl](#).

MouseIcon: 0xFFFF specifies that the [MouseIcon](#) property is set.

Padding2: Because the size of the [CommandButtonDataBlock](#) is divisible by 4, there is no need to write out any padding at the end of the [CommandButtonDataBlock](#).

Figure 27 shows the [CommandButtonExtraDataBlock](#). For this example, the [Caption](#) and [Size](#) properties are the only properties stored in the [CommandButtonExtraDataBlock](#).

Offset	Size	Structure	Value
00000010	0018	C CommandButtonExtraDataBlock - Extra Data Block	
00000010	000E	Caption - Caption	CommandButton1
0000001E	0002	Array of bytes - Padding	0x0000
00000020	0008	Size - Size	
00000020	0004	LONG - Width	0x0000115D
00000024	0004	LONG - Height	0x000004F6

Figure 27: CommandButtonExtraDataBlock structure

Caption: "CommandButton1" specifies the compressed string for the [Caption](#) property.

Padding: 2 bytes of unused data needed for the size of the compressed string to be divisible by 4.

Size.Width: 0x0000115D specifies that the width of the [CommandButtonControl](#) is 4445 HIMETRIC units, or 126 points.

Size.Height: 0x000004F6 specifies that the height of the [CommandButtonControl](#) is 1270 HIMETRIC units, or 36 points.

Figure 28 shows the [CommandButtonStreamData](#). The **StreamData** is used to store picture properties of the [CommandButtonControl](#). For this example, [MouseIcon](#) is the only picture property persisted.

Offset	Size	Structure	Value
00000028	0316	D CommandButtonStreamData - StreamData	
00000028	0316	MouseIcon - MouseIcon	
00000028	0010	GUID - CLSID_StdPicture	04 52 E3 0B 91 8F CE 11 ...
00000038	0004	ULONG - Preamble	0x0000746C
0000003C	0004	ULONG - Size	0x000002FE
00000040	02FE	Array of bytes - Picture	00 00 02 00 01 00 20 20 ...

Figure 28: CommandButtonStreamData structure

MouseIcon.CLSID_StdPicture: 04 52 E3 0B 91 8F CE 11 9D E3 00 AA 00 4B B8 51 specifies the CLSID of the [StdPicture](#) object in little-endian format. The CLSID in standard GUID [\[MS-DTYP\]](#) format is {0BE35204-8F91-11CE-9DE3-00AA004BB851}.

MouseIcon.Preamble: 0x0000746C specifies a constant value for the [StdPicture](#) object.

MouseIcon.Size: 0x000002FE specifies the size, in bytes, of **Picture**.

MouseIcon.Picture: 00 00 02 00 01 00 20 20 ... specifies the embedded icon to be used for the [MouseIcon](#) property. The complete value of this property has been omitted for brevity. For this example, the contents of this property are the same as the contents of the up_l.cur file.

3.3 MultiPage Control Example

The following example shows the structure of the ["x" stream](#) inside the [MultiPage Control](#). An example of the ["f" stream](#) and the ["o" stream](#) has been omitted because it closely resembles the [UserForm example](#).

The [MultiPage Control](#) in this example has two [Pages](#). The first [Page](#) has the following properties:

- The [TransitionEffect](#) property is set to [fmTransitionEffectCoverUp](#).
- The [TransitionPeriod](#) property is set to 10 milliseconds.

Figure 29 shows the top-level representation of the ["x" stream](#) in the [MultiPage Control](#).

Offset	Size	Structure
00000000	0038	Stream - MultiPageControlExtendedStream
00000000	0020	PageProperties array - PageProperties
00000000	0008	PageProperties - PageProperties1
00000008	0010	A PageProperties - PageProperties2
00000018	0008	PageProperties - PageProperties3
00000020	0018	B MultiPageProperties - MultiPageControl

Figure 29: MultiPage control "x" stream

The following are detailed examples of [PageProperties](#) and [MultiPageProperties](#).

PageProperties: An array of [PageProperties](#). The first [PageProperties](#) in this array is not used and is ignored. The second and third [PageProperties](#) in the array persist the properties of the first and second [Pages](#) in the control, respectively.

Figure 30 shows the structure of the second [PageProperties](#) in the **PageProperties** array. It persists the [TransitionEffect](#) and [TransitionPeriod](#) properties of the first [Page](#) inside the control.

Offset	Size	Structure	Value
00000008	0010	A PageProperties - PageProperties	
00000008	0001	BYTE - MinorVersion	0x00
00000009	0001	BYTE - MajorVersion	0x02
0000000A	0002	USHORT - cbPage	0x000C
0000000C	0004	C PagePropMask - PropMask	
00000010	0008	D PageDataBlock - DataBlock	

Figure 30: PageProperties structure

MinorVersion: 0x00 specifies the minor version of the control.

MajorVersion: 0x02 specifies the major version of the control.

cbPage: 0x000C specifies the sum of the sizes, in bytes, of **PropMask** and **DataBlock**.

Figure 31 shows which properties of the [PageProperties](#) are set to a value that doesn't match the file format default. If a bit has a value of 1, then the corresponding property value in the [PageDataBlock](#) is

not the file format default and is stored in the file. If a bit has a value of 0, then the corresponding property value is the file format default and is not stored in the file. As previously described, the [TransitionEffect](#) and [TransitionPeriod](#) properties are set to a value different from the file format default, and only these bits have a value of 1.

Offset	Size	Structure	Value
0000000C	0004	C PagePropMask - PropMask	
0000000C	1 bit	BOOL - Unused1	0
0000000C	1 bit	BOOL - fTransitionEffect	1
0000000C	1 bit	BOOL - fTransitionPeriod	1
0000000C	29 bits	BOOL - UnusedBits	0

Figure 31: PagePropMask structure

fTransitionEffect: 1 specifies that the [TransitionEffect](#) property is set to a value that is not the file format default and is stored in the [PageDataBlock](#).

fTransitionPeriod: 1 specifies that the [TransitionPeriod](#) property is set to a value that is not the file format default and is stored in the [PageDataBlock](#).

Figure 32 shows the [PageDataBlock](#). The **DataBlock** stores property values that are 4 bytes or smaller and are not the file format default. In this example, the [TransitionEffect](#) and the [TransitionPeriod](#) are both stored in the **DataBlock** because each has a size of 4 bytes.

Offset	Size	Structure	Value
00000010	0008	D PageDataBlock - DataBlock	
00000010	0004	fmTransitionEffect - TransitionEffect	0x00000001
00000014	0004	ULONG - TransitionPeriod	0x0000000A

Figure 32: PageDataBlock structure

TransitionEffect: 0x00000001 specifies that the value of the [TransitionEffect](#) property is [fmTransitionEffectCoverUp](#).

TransitionPeriod: 0x0000000A specifies that the value of the [TransitionPeriod](#) property is 10 milliseconds.

Figure 33 shows the [MultiPageProperties](#) structure, which persists the [PageCount](#), [ID](#), [Flags](#) and [PageIDs](#) properties of the control.

Offset	Size	Structure	Value
00000020	0018	B MultiPageProperties - MultiPageControl	
00000020	0001	BYTE - MinorVersion	0x00
00000021	0001	BYTE - MajorVersion	0x02
00000022	0002	USHORT - cbMultiPageControlProperties	0x000C
00000024	0004	E MultiPagePropertiesPropMask - PropMask	
00000028	0008	F MultiPagePropertiesDataBlock - DataBlock	
00000030	0008	G PageIDs - PageIDs	

Figure 33: MultiPageProperties structure

MinorVersion: 0x00 specifies the minor version of the control.

MajorVersion: 0x02 specifies the major version of the control.

cbMultiPageControlProperties: 0x000C specifies the sum of the sizes, in bytes, of **PropMask** and **DataBlock**.

Figure 34 shows which properties of the [MultiPageProperties](#) are set to a value that doesn't match the file format default. If a bit has a value of 1, then the corresponding property value in the [MultiPagePropertiesDataBlock](#) is not the file format default and is stored in the file. If a bit has a value of 0, then the corresponding property value is the file format default and is not stored in the file. As previously described, the [PageCount](#) and [ID](#) properties are set to a value different from the file format default, and only these bits have a value of 1.

Offset	Size	Structure	Value
00000024	0004	E MultiPagePropertiesPropMask - PropMask	
00000024	1 bit	BOOL - Unused1	0
00000024	1 bit	BOOL - fPageCount	1
00000024	1 bit	BOOL - fID	1
00000024	1 bit	BOOL - fFlags	0
00000024	28 bits	BOOL - UnusedBits	0

Figure 34: MultiPagePropertiesPropMask structure

fPageCount: 1 specifies that the value of the [PageCount](#) property is stored in the [MultiPagePropertiesDataBlock](#).

fID: 1 specifies that the value of the [ID](#) property is stored in the [MultiPagePropertiesDataBlock](#).

fFlags: 0 specifies that the value of the [Flags](#) property is the file format default.

Figure 35 shows the [MultiPagePropertiesDataBlock](#). The **DataBlock** stores property values that are 4 bytes or smaller and are not the file format default. In this example, the [PageCount](#) and the [ID](#) are both stored in the **DataBlock**.

Offset	Size	Structure	Value
00000028	0008	F MultiPagePropertiesDataBlock - Data Block	
00000028	0004	DWORD - PageCount	0x00000002
0000002C	0004	DWORD - ID	0x00000002

Figure 35: MultiPagePropertiesDataBlock structure

PageCount: 0x00000002 specifies that the value of the [PageCount](#) property is 2.

ID: 0x00000002 specifies that the value of the [ID](#) property for this control is 2.

Figure 36 shows the [PageIDs](#) array. The figure shows the value of the [ID](#) property for each of the two [Pages](#) inside the [MultiPage Control](#) in this example.

Offset	Size	Structure	Value
00000030	0008	G PageIDs - PageIDs	
00000030	0004	LONG - ID1	0x00000003
00000034	0004	LONG - ID2	0x00000004

Figure 36: PageIDs array

ID1: 0x00000003 specifies that the value of the [ID](#) property of the first [Page](#) in this control is 3.

ID2: 0x00000004 specifies that the value of the [ID](#) property of the second [Page](#) in this control is 4.

3.4 UserForm Example

The following example shows a [FormControl](#) with an embedded RefEdit Control. The RefEdit Control is an ActiveX control which displays a range value that references cells in a [datasheet](#).

The [FormControl](#) has the following properties set:

- The [Font](#) is set to Verdana.
- The [LogicalSize](#) Height and Width properties are set to 1000 and 2000 points, respectively.
- The [DisplayedSize](#) Height and Width properties are set to 132 and 166.5 points, respectively.
- The [NextAvailableID](#) is set to 1.
- The [ShapeCookie](#) is set to 1.
- The [DrawBuffer](#) is set to 32000 pixels.
- The [CountOfSites](#) is set to 1.
- The [DepthTypeCount](#) is set to 0.
- The [ID](#) of the embedded control is set to 1.
- The [Name](#) of the embedded control is set to "RefEdit1".
- The [TabIndex](#) of the embedded control is set to 0.
- The [ClsidCachedIndex](#) is set to 0x8000.
- The [SitePosition](#) Top and Left properties of the embedded control are set to 60 and 48 points, respectively.

The top-level structure of the embedded RefEdit control in the ["o"](#) stream is illustrated in Figure 48. The [CommandButton Example](#) illustrates the persistence of an embedded control.

The top-level representation of a [FormControl](#) structure contains the following streams: “f”, “o”, “compObj”, and “vbFrame”. The latter two streams are not persisted as part of [FormControl](#) and are not detailed in this example.

Figure 37 shows the top-level representation of the [Form stream](#) in a [FormControl](#) structure. It displays the [FormPropMask](#), [FormDataBlock](#), [FormExtraDataBlock](#), [FormStreamData](#), and [FormSiteData](#) for this [FormControl](#).

Offset	Size	Structure	Value
00000000	00BC	Stream - FormStream	
00000000	00BC	FormControl - Form	
00000000	0001	BYTE - MinorVersion	0x00
00000001	0001	BYTE - MajorVersion	0x04
00000002	0002	USHORT - cbForm	0x0024
00000004	0004	A FormPropMask - PropMask	
00000008	0010	B FormDataBlock - DataBlock	
00000018	0010	C FormExtraDataBlock - ExtraDataBlock	
00000028	0022	D FormStreamData - StreamData	
0000004A	0072	E FormSiteData - SiteData	

Figure 37: FormStream structure

The following are detailed examples of the **PropMask**, **DataBlock**, **ExtraDataBlock**, **StreamData** and **SiteData**.

Form.MinorVersion: 0x00 specifies the minor version of the control.

Form.MajorVersion: 0x04 specifies the major version of the control.

Form.cbForm: 0x0024 specifies that the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock** of this [FormControl](#) is 36.

Figure 38 shows which properties of the [FormControl](#) are set to a value that doesn't match the file format default. If a bit has a value of 1, then the value of the corresponding property in the [FormDataBlock](#) or [FormExtraDataBlock](#) is not the file format default and is stored in the file. If a bit has a value of 0, then the value of the corresponding property is the file format default and is not stored in the file. The [NextAvailableID](#), [DisplayedSize](#), [LogicalSize](#), [Font](#), [ShapeCookie](#), and [DrawBuffer](#) properties are set to a value different from the file format default, and only these bits have a value of 1.

Offset	Size	Structure	Value
00000004	0004	A FormPropMask - PropMask	
00000004	1 bit	BOOL - Unused1	0
00000004	1 bit	BOOL - fBackColor	0
00000004	1 bit	BOOL - fForeColor	0
00000004	1 bit	BOOL - fNextAvailableID	1
00000004	2 bits	BOOL - Unused2	0
00000004	1 bit	BOOL - fBooleanProperties	0
00000004	1 bit	BOOL - fBorderStyle	0
00000004	1 bit	BOOL - fMousePointer	0
00000004	1 bit	BOOL - fScrollBars	0
00000004	1 bit	BOOL - fDisplayedSize	1
00000004	1 bit	BOOL - fLogicalSize	1
00000004	1 bit	BOOL - fScrollPosition	0
00000004	1 bit	BOOL - fGroupCnt	0
00000004	1 bit	BOOL - Reserved	0
00000004	1 bit	BOOL - fMouseIcon	0
00000004	1 bit	BOOL - fCycle	0
00000004	1 bit	BOOL - fSpecialEffect	0
00000004	1 bit	BOOL - fBorderColor	0
00000004	1 bit	BOOL - fCaption	0
00000004	1 bit	BOOL - fFont	1
00000004	1 bit	BOOL - fPicture	0
00000004	1 bit	BOOL - fZoom	0
00000004	1 bit	BOOL - fPictureAlignment	0
00000004	1 bit	BOOL - fPictureTiling	0
00000004	1 bit	BOOL - fPictureSizeMode	0
00000004	1 bit	BOOL - fShapeCookie	1
00000004	1 bit	BOOL - fDrawBuffer	1
00000004	4 bits	BOOL - Unused3	0

Figure 38: FormPropMask structure

Fields with a value of 0 specify that their corresponding property is not stored; they have been omitted from the following description.

fNextAvailableID: 1 specifies that the [NextAvailableID](#) property is set to a value that is not the file format default and is stored in the [FormDataBlock](#).

fDisplayedSize: 1 specifies that the [DisplayedSize](#) property is set to a value that is not the file format default and is stored in the [FormExtraDataBlock](#).

fLogicalSize: 1 specifies that the [LogicalSize](#) property is set to a value that is not the file format default and is stored in the [FormExtraDataBlock](#).

fFont: 1 specifies that the [Font](#) Property is set to a value that is not the file format default and is stored in the [FormDataBlock](#) and [FormStreamData](#).

fShapeCookie: 1 specifies that the [ShapeCookie](#) property is set to a value that is not the file format default and is stored in the [FormDataBlock](#).

fDrawBuffer: 1 specifies that the [DrawBuffer](#) property is set to a value that is not the file format default and is stored in the [FormDataBlock](#).

Figure 39 shows the [FormDataBlock](#). The **DataBlock** stores property values that are 4 bytes or smaller and are not the file format defaults. In this example, [NextAvailableID](#), [Font](#), [ShapeCookie](#), and [DrawBuffer](#) are the only properties stored in the **DataBlock**.

Offset	Size	Structure	Value
00000008	0010	B FormDataBlock - DataBlock	
00000008	0004	FormNextAvailableId - NextAvailableID	0x00000001
0000000C	0002	SHORT - Font	0xFFFF
0000000E	0002	Align - Padding	0x0000
00000010	0004	FormShapeCookie - ShapeCookie	0x00000001
00000014	0004	FormDrawBuffer - DrawBuffer	0x00007D00

Figure 39: FormDataBlock structure

NextAvailableID: 0x00000001 specifies that the largest [ID](#) that has been used by an embedded control on the form is 1, so the next available valid [ID](#) is 2.

Font: 0xFFFF specifies that the [Font](#) property is stored in the [FormStreamData](#).

ShapeCookie: 0x00000001 specifies that the dynamic type information of a form has changed once.

DrawBuffer: 0x00007D00 specifies that the number of pixels in a buffer into which the form can be drawn is 32000.

Figure 40 shows the [FormExtraDataBlock](#). For this example, the [DisplayedSize](#) and [LogicalSize](#) properties are the only properties stored in the [FormExtraDataBlock](#).

Offset	Size	Structure	Value
00000018	0010	C FormExtraDataBlock - Extra DataBlock	
00000018	0008	fmSize - DisplayedSize	
00000018	0004	LONG - Width	0x000016F2
0000001C	0004	LONG - Height	0x00001231
00000020	0008	fmSize - LogicalSize	
00000020	0004	LONG - Width	0x0001139C
00000024	0004	LONG - Height	0x000089CE

Figure 40: FormExtraDataBlock structure

DisplayedSize.Width: 0x000016F2 specifies that the physical width of the [FormControl](#) is 5874 HIMETRIC units, or 166.5 points.

DisplayedSize.Height: 0x00001231 specifies that the physical height of the [FormControl](#) is 4657 HIMETRIC units, or 132 points.

LogicalSize.Width: 0x0001139C specifies that the scrollable width of the [FormControl](#) is 70556 HIMETRIC units, or 2000 points.

LogicalSize.Height: 0x000089CE specifies that the scrollable height of the [FormControl](#) is 35278 HIMETRIC units, or 1000 points.

Figure 41 shows the [FormStreamData](#). The **StreamData** is used to store the [Font](#) property of the [FormControl](#).

Offset	Size	Structure	Value
00000028	0022	D FormStreamData - StreamData	
00000028	0010	GUID - FontGUID	03 52 E3 0B 91 8F CE 11 ...
00000038	0012	FormFont - StdFont	
00000038	0001	BYTE - Version	0x01
00000039	0002	SHORT - sCharset	0x0000
0000003B	0001	FONTFLAGS - bFlags	0x00
0000003C	0002	SHORT - sWeight	0x0190
0000003E	0004	ULONG - ulHeight	0x00014244
00000042	0001	BYTE - bFaceLen	0x07
00000043	0007	Array of bytes - FontFace	Verdana

Figure 41: FormStreamData structure

FontGUID: 03 52 E3 0B 91 8F CE 11 9D E3 00 AA 00 4B B8 51 specifies, in little-endian format, that the CLSID of the [FormFont](#) is a [StdFont](#). The CLSID in standard GUID [\[MS-DTYP\]](#) format is {0BE35203-8F91-11CE-9DE3-00AA004BB851}.

StdFont.Version: 0x01 specifies the version of [StdFont](#) that is stored in the file.

StdFont.sCharset: 0x0000 specifies the character set of the [Font](#).

StdFont.bFlags: 0x00 specifies that the [Font](#) style is not bolded, not italicized, not underlined, and not strikethrough.

StdFont.sWeight: 0x0190 specifies that the weight of the [Font](#) is 400.

StdFont.ulHeight: 0x00014244 specifies that the height of the [Font](#) is 8.25 points.

StdFont.bFaceLen: 0x07 specifies the length, in bytes, of **FontFace**.

StdFont.FontFace: "Verdana" specifies the name of the [Font](#) in ASCII characters.

Figure 42 shows the [FormSiteData](#), which is used to store the properties of embedded controls in a [UserForm](#). This structure contains the **SITE TYPE** of embedded controls and an array of [OleSiteConcreteControls](#) that describe these controls.

Offset	Size	Structure	Value
0000004A	0072	E FormSiteData - SiteData	
0000004A	0002	SHORT - CountOfSiteClassInfo	0x0001
0000004C	003C	F ClassTable - ClassTable	
00000088	0004	ULONG - CountOfSites	0x00000001
0000008C	0004	ULONG - CountOfBytes	0x0000002C
00000090	0002	SiteDepthsAndTypes array - SiteDepthsAndTypes	
00000090	0002	FormObjectDepthTypeCount - DepthTypeCount	
00000090	0001	BYTE - Depth	0x00
00000091	7 bits	BYTE - TypeOrCount	0x01
00000091	1 bit	BOOL - fCount	0
00000092	0002	Array of bytes - ArrayPadding	9D 9D
00000094	0028	Sites array - Sites	
00000094	0028	G OleSiteConcreteControl - Site	

Figure 42: FormSiteData structure

CountOfSiteClassInfo: 0x0001 specifies that there is one element in **ClassTable**. This field is stored because the value of **DataBlock.BooleanProperties.FORM_FLAG_DONTSAVECLASSTABLE** in the [FormControl](#) that contains this [FormSiteData](#) is the file format default, 0.

CountOfSites: 0x00000001 specifies that there is one element in **Sites**.

CountOfBytes: 0x0000002C specifies that the sum of the sizes, in bytes, of **SiteDepthsAndTypes**, **ArrayPadding**, and **Sites** of this [FormSiteData](#) is 44.

SiteDepthsAndTypes.DepthTypeCount.Depth: 0x00 specifies that no controls exist in the hierarchy between the embedded control and the parent control.

SiteDepthsAndTypes.DepthTypeCount.TypeOrCount: 0x01 specifies that the **SITE TYPE** of the embedded control is ST_Ole.

SiteDepthsAndTypes.DepthTypeCount.fCount: 0 specifies that **TypeOrCount** is not a count of consecutive embedded controls.

ArrayPadding: 9D 9D are unused bytes that make the total size of **SiteDepthsAndTypes** divisible by 4.

Sites.Site: Properties of the embedded control in the [UserForm](#) as persisted to a stream.

Figure 43 shows the structure representation of the [SiteClassInfo](#) in a [FormControl](#). It displays the [PropMask](#), [DataBlock](#) and [ExtraDataBlock](#) for this [SiteClassInfo](#). The **ClsID**, **DispEvent**, **DefaultProg**, and **DispIdBind** members are set to a value different from the file format default, and only these bits have a value of 1.

Offset	Size	Structure	Value
0000004C	003C	F ClassTable - ClassTable	
0000004C	003C	SiteClassInfo - ClassInfo	
0000004C	0002	USHORT - Version	0x0000
0000004E	0002	USHORT - cbClassTable	0x0038
00000050	0004	ClassInfoPropMask - PropMask	
00000050	1 bit	BOOL - fClsID	1
00000050	1 bit	BOOL - fDispEvent	1
00000050	1 bit	BOOL - Unused1	0
00000050	1 bit	BOOL - fDefaultProg	1
00000050	1 bit	BOOL - fClassFlags	0
00000050	1 bit	BOOL - fCountOfMethods	0
00000050	1 bit	BOOL - fDispIDBind	1
00000050	1 bit	BOOL - fGetBindIndex	0
00000050	1 bit	BOOL - fPutBindIndex	0
00000050	1 bit	BOOL - fBindType	0
00000050	1 bit	BOOL - fGetValueIndex	0
00000050	1 bit	BOOL - fPutValueIndex	0
00000050	1 bit	BOOL - fValueType	0
00000050	1 bit	BOOL - fDispIDRowset	0
00000050	1 bit	BOOL - fSetRowset	0
00000050	17 bits	BOOL - Unused2	0
00000054	0004	ClassInfoDataBlock - DataBlock	
00000054	0004	LONG - DispIDBind	0x00000000
00000058	0030	ClassInfoExtraDataBlock - ExtraDataBlock	
00000058	0010	GUID - CIsID	12 45 02 00 00 00 00 00 ...
00000068	0010	GUID - DispEvent	12 1D D2 8B 42 EC CE 11 ...
00000078	0010	GUID - DefaultProg	18 45 02 00 00 00 00 00 ...

Figure 43: ClassTable structure

PropMask bits with a value of 0 specify that no value is stored in their corresponding field in the [ClassInfoDataBlock](#) or [ClassInfoExtraDataBlock](#); they have been omitted from the following description.

ClassInfo.Version: 0x0000 specifies the version of this [SiteClassInfo](#).

ClassInfo.cbClassTable: 0x0038 specifies that the sum of the sizes, in bytes, of **ClassInfoPropMask**, **ClassInfoDataBlock** and **ClassInfoExtraDataBlock** in this ClassTable is 56.

ClassInfo.PropMask.fClsID: 1 specifies that the **CIsID** field is set to a value that is not the file format default and is stored in the [ClassInfoExtraDataBlock](#) of the [SiteClassInfo](#).

ClassInfo.PropMask.fDispEvent: 1 specifies that the **DispEvent** field is set to a value that is not the file format default and is stored in the [ClassInfoExtraDataBlock](#) of [SiteClassInfo](#).

ClassInfo.PropMask.fDefaultProg: 1 specifies that the **DefaultProg** field is set to a value that is not the file format default and is stored in the [ClassInfoExtraDataBlock](#) of the [SiteClassInfo](#).

ClassInfo.PropMask.fDispIDBind: 1 specifies that the **DispIDBind** field is set to a value that is not the file format default and is stored in the [ClassInfoDataBlock](#) of the [SiteClassInfo](#).

ClassInfo.DataBlock.DispidBind: 0x00000000 specifies the DispID of the default bindable property, as specified in [\[MS-OAUT\] section 2.2.49.5.2](#).

ClassInfo.ExtraDataBlock.ClsID: 12 45 02 00 00 00 00 00 C0 00 00 00 00 00 00 46 specifies the CLSID of the RefEdit control in little-endian format. The GUID [\[MS-DTYP\]](#) in standard format is {00024512-0000-0000-C000-000000000046}.

ClassInfo.ExtraDataBlock.DispEvent: 12 1D D2 8B 42 EC CE 11 9E 0D 00 AA 00 60 02 F3 specifies the GUID, in little-endian format, of the source interface as specified in [\[MS-OAUT\] section 2.2.49.8](#). The GUID [\[MS-DTYP\]](#) in standard format is {8BD21D12-EC42-11CE-9E0D-00AA006002F3}.

ClassInfo.ExtraDataBlock.DefaultProg: 18 45 02 00 00 00 00 00 C0 00 00 00 00 00 00 46 specifies the GUID, in little-endian format, of the default interface as specified in [\[MS-OAUT\] section 2.2.49.8](#). The GUID [\[MS-DTYP\]](#) in standard format is {00024518-0000-0000-C000-000000000046}.

Figure 44 shows the top-level representation of the [OleSiteConcreteControl](#) in a [FormControl](#) structure. It displays the **PropMask**, **DataBlock** and **ExtraDataBlock** for this [OleSiteConcreteControl](#).

Offset	Size	Structure	Value
00000094	0028	G OleSiteConcreteControl - Site	
00000094	0002	USHORT - Version	0x0000
00000096	0002	USHORT - cbSite	0x0024
00000098	0004	H SitePropMask - PropMask	
0000009C	0010	I SiteDataBlock - DataBlock	
000000AC	0010	J SiteExtraDataBlock - ExtraDataBlock	

Figure 44: OleSiteConcreteControl structure

PropMask fields with a value of 0 specify that no property is stored and have been omitted from the following description.

Version: 0x0000 specifies the version of the [OleSiteConcreteControl](#).

cbSite: 0x0024 specifies that the sum of the sizes, in bytes, of **SitePropMask**, **SiteDataBlock** and **SiteExtraDataBlock** in this [OleSiteConcreteControl](#) is 36.

Figure 45 shows which properties of the [OleSiteConcreteControl](#) are set to a value that doesn't match the file format default. If a bit has a value of 1, then the value of the corresponding property in the [SiteDataBlock](#) or [SiteExtraDataBlock](#) is not the file format default and is stored in the file. If a bit has a value of 0, then the value of the corresponding property is the file format default and is not stored in

the file. The [Name](#), [ID](#), [ObjectStreamSize](#), [TabIndex](#), [ClsidCacheIndex](#), and [Position](#) properties are set to a value different from the file format default, and only these bits have a value of 1.

Offset	Size	Structure	Value
00000098	0004	H SitePropMask - PropMask	
00000098	1 bit	BOOL - fName	1
00000098	1 bit	BOOL - fTag	0
00000098	1 bit	BOOL - fID	1
00000098	1 bit	BOOL - fHelpContextID	0
00000098	1 bit	BOOL - fBitFlags	0
00000098	1 bit	BOOL - fObjectStreamSize	1
00000098	1 bit	BOOL - fTabIndex	1
00000098	1 bit	BOOL - fClsidCacheIndex	1
00000098	1 bit	BOOL - fPosition	1
00000098	1 bit	BOOL - fGroupID	0
00000098	1 bit	BOOL - Unused1	0
00000098	1 bit	BOOL - fControlTipText	0
00000098	1 bit	BOOL - fRuntimeLicKey	0
00000098	1 bit	BOOL - fControlSource	0
00000098	1 bit	BOOL - fRowSource	0
00000098	17 bits	BOOL - Unused2	0

Figure 45: SitePropMask structure

PropMask fields with a value of 0 specify that no property is stored and have been omitted from the following description.

fName: 1 specifies that the [Name](#) property is set to a value that is not the file format default and is stored in the [SiteDataBlock](#) and [SiteExtraDataBlock](#) of the [OleSiteConcreteControl](#).

fID: 1 specifies that the [ID](#) property is set to a value that is not the file format default and is stored in the [SiteDataBlock](#) of the [OleSiteConcreteControl](#).

fObjectStreamSize: 1 specifies that the [ObjectStreamSize](#) property is set to a value that is not the file format default and is stored in the [SiteDataBlock](#) of the [OleSiteConcreteControl](#).

fTabIndex: 1 specifies that the [TabIndex](#) property is set to a value that is not the file format default and is stored in the [SiteDataBlock](#) of the [OleSiteConcreteControl](#).

fClsidCacheIndex: 1 specifies that the [ClsidCacheIndex](#) property is set to a value that is not the file format default and is stored in the [SiteDataBlock](#) of the [OleSiteConcreteControl](#).

fPosition: 1 specifies that the [Position](#) property is set to a value that is not the file format default and is stored in the [SiteExtraDataBlock](#) of the [OleSiteConcreteControl](#).

Figure 46 shows the [SiteDataBlock](#). The **DataBlock** stores property values that are 4 bytes or smaller and are not the file format defaults. In this example, [ID](#), [ObjectStreamSize](#), [TabIndex](#), and

[ClsidCacheIndex](#) are the only properties whose values are stored in the **DataBlock**. For the [Name](#) property, the length and compression flag of the [Name](#) string are stored in the **DataBlock**, but the [Name](#) string itself is stored in the [SiteExtraDataBlock](#).

Offset	Size	Structure	Value
0000009C	0010	I SiteDataBlock - Data Block	
0000009C	0004	CountOfBytesWithCompressionFlag - Name Data	
0000009C	31 bits	ULONG - cb	0x00000008
0000009C	1 bit	BOOL - fCompressed	1
000000A0	0004	SiteID - ID	0x00000001
000000A4	0004	SiteObjectStreamSize - ObjectStreamSize	0x00000038
000000A8	0002	SiteTabIndex - TabIndex	0x0000
000000AA	0002	SiteClsidCacheIndex - ClsidCacheIndex	0x8000

Figure 46: SiteDataBlock structure

NameData.cb: 0x00000008 specifies that the size of the [Name](#) string in the [SiteExtraDataBlock](#) is 8 bytes after compression.

NameData.fCompressed: 1 specifies that the [Name](#) string in the [SiteExtraDataBlock](#) is compressed.

ID: 0x00000001 specifies a unique identifier for the embedded control on the form.

ObjectStreamSize: 0x00000038 specifies that the size of the embedded control that is persisted to the [Object stream](#) of the [UserForm](#) is 56 bytes.

TabIndex: 0x0000 specifies the index of the embedded control in the form's tab order.

ClsidCacheIndex: 0x8000 specifies that information about the control is specified by the first entry in the **FormSiteData.ClassTable** of the [FormControl](#) in which the control is embedded.

Figure 47 shows the [SiteExtraDataBlock](#). For this example, the [Name](#) and [Position](#) properties are the only properties stored in the [SiteExtraDataBlock](#).

Offset	Size	Structure	Value
000000AC	0010	J SiteExtraDataBlock - Extra Data Block	
000000AC	0008	SiteNameExtraData - Name	
000000AC	0008	Array of bytes - CompressedString	RefEdit1
000000B4	0008	SitePosition - Position	
000000B4	0008	fmPosition - SitePosition	
000000B4	0004	LONG - Top	0x00000845
000000B8	0004	LONG - Left	0x0000069D

Figure 47: SiteExtraDataBlock structure

Name.CompressedString: "RefEdit1" specifies the compressed string for the [Name](#) property.

Position.SitePosition.Top: 0x00000845 specifies that the distance of the top of the control from the top of the form is 2117 HIMETRIC units, or 60 points.

Position.SitePosition.Left: 0x0000069D specifies that the distance of the left side of the control from the left side of the form is 1693 HIMETRIC units, or 48 points.

Figure 48 shows the top-level representation of the [Object stream](#) in a [FormControl](#). This stream persists the RefEdit control properties. The [CommandButton Example](#) illustrates the persistence of an embedded control.

Offset	Size	Structure	Value
00000000	0038	Stream - ObjectStream	
00000000	0038	MorphDataControl - RefEdit	
00000000	0001	BYTE - MinorVersion	0x00
00000001	0001	BYTE - MajorVersion	0x02
00000002	0002	USHORT - cbMorphData	0x0018
00000004	0008	MorphDataPropMask - PropMask	
0000000C	0008	MorphDataDataBlock - Data Block	
00000014	0008	MorphDataExtraDataBlock - Extra Data Block	
0000001C	0000	MorphDataStreamData - StreamData	
0000001C	001C	TextProps - TextProps	

Figure 48: ObjectStream structure

3.5 TabStrip Example

The following example shows a [TabStripControl](#) structure. The TabStrip is embedded in a [UserForm](#) and has the following properties set:

- It has three tabs, which have the [Names](#) "Tab1", "Tab2" and "Tab3", respectively.
- The [Captions](#) are set to "Tab1", "Tab2" and "Tab3" for the first, second and third tabs, respectively.
- The [Accelerators](#) are set to "1", "2" and "3" for the first, second and third tabs, respectively.
- The [Tooltip](#) strings are set to "Select Tab1", "Select Tab2" and "Select Tab3" for the first, second and third tabs, respectively.
- The first tab is selected, or the [ListIndex](#) property is set to 0.
- The [Height](#) and [Width](#) properties are set to 114 points and 168 points, respectively.

Figure 49 shows the top-level representation of a [TabStripControl](#) structure.

Offset	Size	Structure	Value
00000000	00DC	TabStripControl	
00000000	0001	BYTE - MinorVersion	0x00
00000001	0001	BYTE - MajorVersion	0x02
00000002	0002	USHORT - cbTabStrip	0x00B0
00000004	0004	A TabStripPropMask - PropMask	
00000008	0020	B TabStripDataBlock - DataBlock	
00000028	008C	C TabStripExtraDataBlock - ExtraDataBlock	
000000B4	0000	TabStripStreamData - StreamData	
000000B4	001C	TextProps - TextProps	
000000D0	000C	D TabStripTabFlagData - TabStripTabFlags	

Figure 49: TabStripControl structure

The following are detailed examples of the **PropMask**, **DataBlock**, **ExtraDataBlock** and **TabStripTabFlags**. An example of the **TextProps** has been omitted because its structure closely resembles the [CommandButtonControl](#) example.

MinorVersion: 0x00 specifies the minor version of the control.

MajorVersion: 0x02 specifies the major version of the control.

cbTabStrip: 0x00B0 specifies the sum of the sizes, in bytes, of **PropMask**, **DataBlock**, and **ExtraDataBlock**.

Figure 50 shows which properties of the [TabStripControl](#) are set to a value that doesn't match the file format default. If a bit has a value of 1, then the corresponding property in the [TabStripDataBlock](#) is not the file format default and is stored in the file. If a bit has a value of 0, then the corresponding property is the file format default and is not stored in the file.

Offset	Size	Structure	Value
00000004	0004	A TabStripPropMask - PropMask	
00000004	1 bit	BOOL - fListIndex	1
00000004	1 bit	BOOL - fBackColor	0
00000004	1 bit	BOOL - fForeColor	0
00000004	1 bit	BOOL - Unused1	0
00000004	1 bit	BOOL - fSize	1
00000004	1 bit	BOOL - fItems	1
00000004	1 bit	BOOL - fMousePointer	0
00000004	1 bit	BOOL - Unused2	0
00000004	1 bit	BOOL - fTabOrientation	0
00000004	1 bit	BOOL - fTabStyle	0
00000004	1 bit	BOOL - fMultiRow	0
00000004	1 bit	BOOL - fTabFixedWidth	0
00000004	1 bit	BOOL - fTabFixedHeight	0
00000004	1 bit	BOOL - fTooltips	0
00000004	1 bit	BOOL - Unused3	0
00000004	1 bit	BOOL - fTipStrings	1
00000004	1 bit	BOOL - Unused4	0
00000004	1 bit	BOOL - fNames	1
00000004	1 bit	BOOL - fVariousPropertyBits	0
00000004	1 bit	BOOL - fNewVersion	1
00000004	1 bit	BOOL - fTabsAllocated	1
00000004	1 bit	BOOL - fTags	1
00000004	1 bit	BOOL - fTabData	1
00000004	1 bit	BOOL - fAccelerator	1
00000004	1 bit	BOOL - fMouseIcon	0
00000004	7 bits	BOOL - UnusedBits	0

Figure 50: TabStripPropMask structure

fListIndex: 1 specifies that the [ListIndex](#) property is set to a value that is not the file format default and is stored in the [TabStripDataBlock](#).

fBackColor: 0 specifies that the value of the [BackColor](#) property is the file format default and is not stored in the file.

fForeColor: 0 specifies that the value of the [ForeColor](#) property is the file format default and is not stored in the file.

fSize: 1 specifies that the [Size](#) property is set to a value that is not the file format default and is stored in the [TabStripExtraDataBlock](#).

fItems: 1 specifies that **ExtraDataBlock.Items** and **DataBlock.ItemsSize** both have values and are stored in the [TabStripExtraDataBlock](#) and [TabStripDataBlock](#), respectively.

fMousePointer: 0 specifies that the value of the [MousePointer](#) property is the file format default and is not stored in the file.

fTabOrientation: 0 specifies that the value of the [TabOrientation](#) property is the file format default and is not stored in the file.

fTabStyle: 0 specifies that the value of the [TabStyle](#) property is the file format default and is not stored in the file.

fMultiRow: 0 specifies that the value of the [MultiRow](#) property is the file format default and is not stored in the file.

fTabFixedWidth: 0 specifies that the value of the [TabFixedWidth](#) property is the file format default and is not stored in the file.

fTabFixedHeight: 0 specifies that the value of the [TabFixedHeight](#) property is the file format default and is not stored in the file.

fTooltips: 0 specifies that the value of the [Tooltips](#) property is the file format default and is not stored in the file.

fTipStrings: 1 specifies that **ExtraDataBlock.TipStrings** and **DataBlock.TipStringsSize** both have values and are stored in the [TabStripExtraDataBlock](#) and [TabStripDataBlock](#), respectively.

fNames: 1 specifies that **ExtraDataBlock.TabNames** and **DataBlock.NamesSize** both have values and are stored in the [TabStripExtraDataBlock](#) and [TabStripDataBlock](#), respectively.

fVariousPropertyBits: 0 specifies that the value of the [VariousPropertyBits](#) property is the file format default and is not stored in the file.

fNewVersion: 1 specifies that the [NewVersion](#) property is set to a value that is not the file format default.

fTabsAllocated: 1 specifies that the [TabsAllocated](#) property is set to a value that is not the file format default and is stored in the [TabStripDataBlock](#).

fTags: 1 specifies that **ExtraDataBlock.Tags** and **DataBlock.TagsSize** both have values and are stored in the [TabStripExtraDataBlock](#) and [TabStripDataBlock](#), respectively.

fTabData: 1 specifies that the [TabData](#) property is set to a value that is not the file format default and is stored in the [TabStripDataBlock](#).

fAccelerator: 1 specifies that **ExtraDataBlock.Accelerators** and **DataBlock.AcceleratorsSize** both have values and are stored in the [TabStripExtraDataBlock](#) and [TabStripDataBlock](#), respectively.

fMouseIcon: 0 specifies that the value of the [MouseIcon](#) property is the file format default and is not stored in the file.

Figure 51 shows the [TabStripDataBlock](#). The **DataBlock** stores property values that are 4 bytes or smaller and are not the file format defaults. In this example, [ListIndex](#), [TabsAllocated](#) and [TabData](#) are stored in the **DataBlock** because they have a size of 4 bytes or less. For the **Items**, **TipStrings**, **Names**, **Tags** and **Accelerators** arrays, the size of the arrays is stored in the **DataBlock**. The arrays themselves are larger than 4 bytes and are stored in the [TabStripExtraDataBlock](#).

Offset	Size	Structure	Value
00000008	0020	B TabStripDataBlock - DataBlock	
00000008	0004	LONG - ListIndex	0x00000000
0000000C	0004	ULONG - ItemsSize	0x00000018
00000010	0004	ULONG - TipStringsSize	0x00000030
00000014	0004	ULONG - NamesSize	0x00000018
00000018	0004	LONG - TabsAllocated	0x00000003
0000001C	0004	ULONG - TagsSize	0x0000000C
00000020	0004	LONG - TabData	0x00000003
00000024	0004	ULONG - AcceleratorsSize	0x00000018

Figure 51: TabStripDataBlock structure

ListIndex: 0x00000000 specifies that the value of the [ListIndex](#) property is 0, or that the first tab is selected.

ItemsSize: 0x00000018 specifies that the size of the **Items** array in the [TabStripExtraDataBlock](#) is 24 bytes.

TipStringsSize: 0x00000030 specifies that the size of the **TipStrings** array in the [TabStripExtraDataBlock](#) is 48 bytes.

NamesSize: 0x00000018 specifies that the size of the **Names** array in the [TabStripExtraDataBlock](#) is 24 bytes.

TabsAllocated: 0x00000003 specifies that the value of the [TabsAllocated](#) property is 3, or that three tabs have been inserted since the control was created.

TagsSize: 0x0000000C specifies that the size of the **Tags** array in the [TabStripExtraDataBlock](#) is 12 bytes.

TabData: 0x00000003 specifies that the value of the [TabData](#) property is 3, or that a [TabStripTabFlagData](#) is stored for three tabs in this [TabStripControl](#).

AcceleratorsSize: 0x00000018 specifies that the size of the **Accelerators** array in the [TabStripExtraDataBlock](#) is 24 bytes.

Figure 52 shows the [TabStripExtraDataBlock](#). For this example, the [Size](#), [Items](#), [TipStrings](#), [Names](#), [Tags](#) and [Accelerators](#) properties are stored in the [TabStripExtraDataBlock](#).

Offset	Size	Structure	Value
00000028	008C	C TabStripExtraDataBlock - Extra Data Block	
00000028	0008	fmSize - Size	
00000028	0004	LONG - Width	0x00001727
0000002C	0004	LONG - Height	0x00000FB5
00000030	0018	Items - Items	
00000030	0008	ArrayString - Item	
00000030	0004	CountOfCharsWithCompressionFlag - CountAndCompression	
00000030	31 bits	ULONG - cch	0x00000004
00000030	1 bit	BOOL - fCompressed	1
00000034	0004	Array of bytes - CompressedString	Tab1
00000038	0008	ArrayString - Item	
00000040	0008	ArrayString - Item	
00000048	0030	TipStrings - TipStrings	
00000048	0010	ArrayString - Tooltip	
00000048	0004	CountOfCharsWithCompressionFlag - CountAndCompression	
00000048	31 bits	ULONG - cch	0x0000000B
00000048	1 bit	BOOL - fCompressed	1
0000004C	000B	Array of bytes - CompressedString	Select Tab1
00000057	0001	Array of bytes - Padding	BD
00000058	0010	ArrayString - Tooltip	
00000068	0010	ArrayString - Tooltip	
00000078	0018	TabNames - TabNames	
00000078	0008	ArrayString - Name	
00000078	0004	CountOfCharsWithCompressionFlag - CountAndCompression	
00000078	31 bits	ULONG - cch	0x00000004
00000078	1 bit	BOOL - fCompressed	1
0000007C	0004	Array of bytes - CompressedString	Tab1
00000080	0008	ArrayString - Name	
00000088	0008	ArrayString - Name	
00000090	000C	Tags - Tags	
00000090	0004	ArrayString - Tag	
00000090	0004	CountOfCharsWithCompressionFlag - CountAndCompression	
00000090	31 bits	ULONG - cch	0x00000000
00000090	1 bit	BOOL - fCompressed	0
00000094	0000	Array of WCHAR - UncompressedString	
00000094	0004	ArrayString - Tag	
00000098	0004	ArrayString - Tag	

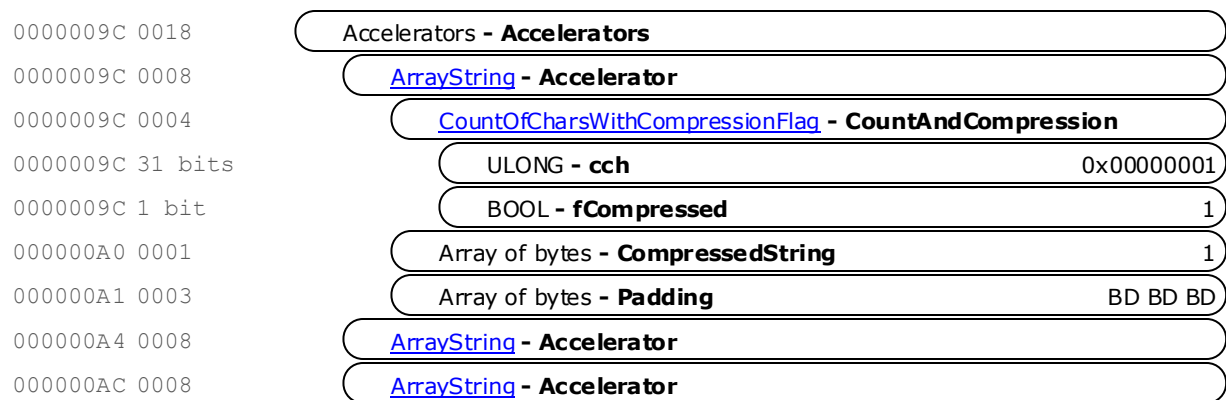


Figure 52: TabStripExtraDataBlock structure

Details about **Padding** have been omitted from this example. For details about **Padding** refer to the [CommandButton Example](#). Details about [CountOfCharsWithCompressionFlag](#) are only provided once for **Items** and omitted from the rest of the properties.

Size.Width: 0x00001727 specifies that the width of the [TabStripControl](#) is 5927 HIMETRIC units, or 168 points.

Size.Height: 0x00000FB5 specifies that the Height of the [TabStripControl](#) is 4021 HIMETRIC units, or 114 points.

Items: Specifies the array of [Caption](#) values for the tabs.

Items.Item: Specifies the [Caption](#) property for the first tab.

Items.Item.CountAndCompression.cch: 0x00000004 specifies that the count of characters for the string is 4.

Items.Item.CountAndCompression.fCompressed: 1 specifies that the string is compressed.

Items.Item.CompressedString: "Tab1" specifies the value of the [Caption](#) property for the first tab.

TipStrings: Specifies the array of [Tooltip](#) values for the tabs.

TipStrings.Tooltip: Specifies the [Tooltip](#) property for the first tab.

TipStrings.Tooltip.CompressedString: "Select Tab1" specifies the value of the [Tooltip](#) property for the first tab.

TabNames: Specifies the array of [Name](#) values for the tabs.

TabNames.Name: Specifies the [Name](#) property for the first tab.

TabNames.Name.CompressedString: "Tab1" specifies the value of the [Name](#) property for the first tab.

Tags: Specifies the array of [Tag](#) values for the tabs.

Tags.Tag: Specifies the [Tag](#) property for the first tab.

Tags.Tag.UncompressedString: Specifies that the [Tag](#) property of the first tab is empty.

Accelerators: Specifies the array of [Accelerator](#) values for the tabs.

Accelerators.Accelerator: Specifies the [Accelerator](#) property for the first tab.

Accelerators.Accelerator.CompressedString: "1" specifies the value of the [Accelerator](#) property for the first tab.

Figure 53 shows the [TabStripTabFlagData](#). The [TabStripTabFlagData](#) contains an array of [TabStripTabFlag](#). The number of elements in the array is the value of the **DataBlock.TabData** property. Each [TabStripTabFlag](#) specifies whether the tab is visible and whether it is enabled.

Offset	Size	Structure	Value
000000D0	000C	D TabStripTabFlagData - TabStripTabFlags	
000000D0	000C	TabStripTabFlags - TabStripTabFlags	
000000D0	0004	TabStripTabFlag - _dwFlag	
000000D0	1 bit	BOOL - fTabVisible	1
000000D0	1 bit	BOOL - fTabEnabled	1
000000D0	30 bits	BOOL - Unused	0
000000D0	0004	TabStripTabFlag - _dwFlag	
000000D0	0004	TabStripTabFlag - _dwFlag	

Figure 53: TabStripTabFlagData structure

TabStripTabFlags: Specifies the array of [TabStripTabFlag](#) for the three tabs.

TabStripTabFlags._dwFlag: Specifies the [TabStripTabFlag](#) of the first tab.

TabStripTabFlags._dwFlag.fTabVisible: 1 specifies that the first tab is visible.

TabStripTabFlags._dwFlag.fTabEnabled: 1 specifies that the first tab is enabled.

3.6 Property Bag Format Example

The following is an example of persistence to a property bag, as specified in section 2.1.1.1. In this example, a [TabStrip](#) control is persisted as an embedded control within an Office Open XML document Office, as described in [\[ECMA-376\]](#) part 1, section 8.4.

The Office Open XML document relationship, as described in [\[ECMA-376\]](#) part 1, section 9.2, and the package parts, as described in [\[ECMA-376\]](#) part 1, section 8.1, that are shown in the example are not needed by and not specified by Office Forms. However, Office Forms does determine the format of the property name and the type of the property value. [\[ECMA-376\]](#) part 1, section 15.2.8, describes embedded controls in an Office Open XML document.

The persistence of the data structures for this [TabStrip](#) control can be applied to other control types.

The following text illustrates a [TabStrip](#) persisted as an embedded control within an Office Open XML document. It has the following properties set:

- It has three tabs.
- The [Captions](#) are set to "Tab1", "Tab2" and "Tab3" for the first, second and third tabs, respectively.
- The [Accelerators](#) are set to "1", "2" and "3" for the first, second and third tabs, respectively.
- The [Tooltip](#) strings are set to "Select Tab1", "Select Tab2" and "Select Tab3" for the first, second and third tabs, respectively.

- The [Tag](#) of each tab is an empty string.
- The [TabsAllocated](#) value is set to 3.
- A [TabStripTabFlag](#) is set for each of the three tabs.
- A [TabStripTabFlagData](#) of visible and enabled is set for each tab.
- The first tab is selected, or the [ListIndex](#) property is set to 0.
- The [BackColor](#) is set to 0x80000005.
- The [ForeColor](#) is set to 0x80000008.
- The [Size](#) is set to a **Width** of 441.75 points and a **Height** of 208.5 points.
- The [MouseIcon](#) property is set to a picture [<20>](#).
- The [NewVersion](#) is set to TRUE.
- The [FontName](#) is set to Calibri.
- The [FontHeight](#) is set to 11.25.
- The [FontCharSet](#) is set to 0.
- The [FontPitchAndFamily](#) is set to a [fmFontPitch](#) meaning that the characters have varying widths, and a [fmFontFamily](#) meaning that the font has variable stroke width (proportional) and doesn't use serifs.

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<ax:ocx ax:classid="{EAE50EB0-4A62-11CE-BED6-00AA00611080}"
ax:persistence="persistPropertyBag"
xmlns:ax="http://schemas.microsoft.com/office/2006/activeX"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships">
  <ax:ocxPr ax:name="ListIndex" ax:value="0"/>
  <ax:ocxPr ax:name="BackColor" ax:value="2147483653"/>
  <ax:ocxPr ax:name="ForeColor" ax:value="2147483656"/>
  <ax:ocxPr ax:name="Size" ax:value="15584;7355"/>
  <ax:ocxPr ax:name="Items" ax:value="Tab1;Tab2;Tab3;"/>
  <ax:ocxPr ax:name="MousePointer" ax:value="99"/>
  <ax:ocxPr ax:name="TipStrings" ax:value="Select Tab 1;Select Tab 2;Select Tab
3;"/>
  <ax:ocxPr ax:name="Names" ax:value="Tab1;Tab2;Tab3;"/>
  <ax:ocxPr ax:name="NewVersion" ax:value="-1"/>
  <ax:ocxPr ax:name="TabsAllocated" ax:value="3"/>
  <ax:ocxPr ax:name="Tags" ax:value=";;"/>
  <ax:ocxPr ax:name="TabData" ax:value="3"/>
  <ax:ocxPr ax:name="Accelerator" ax:value="1;2;3;"/>
  <ax:ocxPr ax:name="MouseIcon">
    <ax:picture r:id="rId1"/>
  </ax:ocxPr>
  <ax:ocxPr ax:name="FontName" ax:value="Calibri"/>
  <ax:ocxPr ax:name="FontHeight" ax:value="225"/>
  <ax:ocxPr ax:name="FontCharSet" ax:value="0"/>
  <ax:ocxPr ax:name="FontPitchAndFamily" ax:value="34"/>
  <ax:ocxPr ax:name="TabState" ax:value="3;3;3"/>
</ax:ocx>
```

3.6.1 TabStrip and TextProps Properties

ListIndex: 0 specifies that the [ListIndex](#) is 0, or that the current tab of the [TabStrip](#) is the first tab.

BackColor: 2147483653 specifies that the [BackColor](#) is 0x80000005, or that the **OleColorType** of the [OLE COLOR](#) is SystemPalette and the entry in the system palette is 5.

ForeColor: 2147483656 specifies that the [ForeColor](#) is 0x80000008, or that the **OleColorType** of the [OLE COLOR](#) is SystemPalette and the entry in the system palette is 8.

Size: "15584;7355" specifies a [point](#) that represents the [Size](#) of the control.

15584 specifies that the **Width** of the [TabStrip](#) is 15584 HIMETRIC units, or 441.75 points.

7355 specifies that the **Height** of the [TabStrip](#) is 7355 HIMETRIC units, or 208.5 points.

Items: "Tab1;Tab2;Tab3;" specifies the [list](#) of [Caption](#) values for the tabs. "Tab1" appears on the first tab, "Tab2" appears on the second tab, and "Tab3" appears on the third tab.

MousePointer: 99 specifies that a custom [MousePointer](#) is specified by **MouseIcon**.

TipStrings: "Select Tab 1;Select Tab 2;Select Tab3;" specifies the [list](#) of [Tooltip](#) values for the tabs. "Select Tab 1" is the [Tooltip](#) for the first tab, "Select Tab 2" is the [Tooltip](#) for the second tab, and "Select Tab 3" is the [Tooltip](#) for the third tab.

Names: "Tab1;Tab2;Tab3;" specifies the [list](#) of [Name](#) values for the tabs. "Tab1" is the [Name](#) of the first tab, "Tab2" is the [Name](#) of the second tab, and "Tab3" is the [Name](#) of the third tab.

NewVersion: -1 specifies that TRUE is the [Boolean](#) value for [NewVersion](#).

TabsAllocated: 3 specifies that the [TabsAllocated](#) value is 3, or that three tabs have been inserted since the control was created.

Tags: ";;;" specifies that the value of the [Tag](#) property for each tab is an empty string.

TabData: 3 specifies that the [TabData](#) is 3, or that a [TabStripTabFlag](#) is stored for each of the three tabs of the [TabStrip](#).

Accelerator: "1;2;3;" specifies the [list](#) of Unicode character [Accelerator](#) values for the tabs. "1" specifies the accelerator key for the first tab, "2" specifies the accelerator key for the second tab, and "3" specifies the accelerator key for the third tab.

MouseIcon: The following XML is specific to this example; the location and format of the stored binary value are defined by the client application requesting that the control be persisted. [\[ECMA-376\]](#) part 1, section 15.2.8, describes embedded controls in an Office Open XML document.

```
<Relationships
  xmlns="http://schemas.openxmlformats.org/package/2006/relationships">
  <Relationship Id="rId1"
    Type="http://schemas.microsoft.com/office/2006/relationships/activeXControlBinary"
    Target="activeX1.bin"/>
</Relationships>
```

rId1 specifies that rId1 maps to the location of the [picture](#) for the custom [MouseIcon](#). rId1 and the XML content of the part referenced by rId1 specifies that activeX1.bin holds the binary data of the image.

FontName: Calibri specifies that the [FontName](#) used by the [TabStrip](#) is Calibri.

FontHeight: 225 specifies that the [FontHeight](#) of the [TabStrip](#) is 225 twips, or 11.25 points.

FontCharSet: 0 specifies that the [FontCharSet](#) is 0, or that the character set used by the [TabStrip](#) is 0, or ANSI_CHARSET / codepage 1252.

FontPitchAndFamily: 34 specifies that the [FontPitchAndFamily](#) in binary format is 00100010. The [fmFontPitch](#) is 0010, or 2, meaning the characters have varying widths, and the [fmFontFamily](#) is 0010, or 2, meaning that the font has variable stroke width (proportional) and doesn't use serifs.

TabState: "3;3;3" specifies the [list](#) of [TabStripTabFlagData](#) for the tabs. 3 specifies that each tab is both visible and enabled.

The following [TabStrip](#) properties are not listed. The values are the file format defaults for [TabStrip](#).

TabOrientation: The default [TabOrientation](#) specifies that the tabs display above the rest of the control.

TabStyle: The default [TabStyle](#) specifies a tab style instead of a toggle button or not displayed style.

MultiRow: The default [MultiRow](#) specifies that the tabs display in one row.

TabFixedWidth: The default [TabFixedWidth](#) specifies that the client application determines the width.

TabFixedHeight: The default [TabFixedHeight](#) specifies that the client application determines the height.

VariousPropertyBits: For a [TabStrip](#), the default [VariousPropertyBits](#) specifies 27, or that Reserved1, Enabled, BackStyle, and Reserved2 are true.

The following properties of [TextProps](#) are not listed. The values are the file format defaults.

FontEffects: The default [FontEffects](#) specifies 0, or no effects.

ParagraphAlign: The default [ParagraphAlign](#) specifies 1, or the text used by the control is aligned to the left side of the area it is given.

FontWeight: The default [FontWeight](#) specifies 400.

4 Security Considerations

None.

5 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products and technologies:

- Microsoft® Office Word 2007 Service Pack 1
- Microsoft® Office Word 2003
- Microsoft® Word 2002
- Microsoft® Word 2000
- Microsoft® Word 97
- Microsoft® Office Excel® 2007 Service Pack 1
- Microsoft® Office Excel® 2003
- Microsoft® Excel® 2002
- Microsoft® Excel® 2000
- Microsoft® Excel® 97
- Microsoft® Office PowerPoint® 2007 Service Pack 1
- Microsoft® Office PowerPoint® 2003
- Microsoft® PowerPoint® 2002
- Microsoft® PowerPoint® 2000
- Microsoft® PowerPoint® 97

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies the aforementioned Microsoft products' behavior is in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies these Microsoft products do not follow the prescription.

[<1> Section 1.5](#): This persistence format provides interoperability with applications that create or read documents conforming to this structure, including Word 97, Word 2000, Word 2002, Office Word 2003, Excel 97, Excel 2000, Excel 2002, Office Excel 2003, PowerPoint 97, PowerPoint 2000, PowerPoint 2002, and Office PowerPoint 2003. This persistence format can also be used for interoperability with Microsoft® Office Word 2007, Microsoft® Office Excel® 2007, or Microsoft® Office PowerPoint® 2007 when compatibility with the above listed products is a primary concern.

[<2> Section 2.5.10](#): Office Forms can store a caption in [FormControl](#), but [UserForm](#) controls viewed in VBA 5.0 do not use it. Instead, VBA 5.0 stores the caption of a [UserForm](#) control in the VBFrame stream, as specified in [\[MS-OVBA\] VBFrame Stream: Designer Information](#).

[<3> Section 2.5.19](#): Office Forms shows the user the full physical size for all controls, but the stored value of DisplayedSize in a Form does not include the window borders and is therefore smaller than the size shown to the user.

[<4> Section 2.5.20.1](#): Office Forms ComboBox controls with Style="0 - fmStyleDropDownCombo" have a DisplayStyle of fmDisplayStyleCombo.

[<5> Section 2.5.20.1](#): Office Forms ComboBox controls with Style="2 - fmStyleDropDownList" have a DisplayStyle of fmDisplayStyleDropDownList.

<6> [Section 2.5.22](#): The object model for Office Forms has a hidden property on the [TextBox](#) control called "DropButtonStyle". It has no effect on the control, except that its value is part of the file format.

<7> [Section 2.5.43](#): The object model for Office Forms has a hidden property on the [ListBox](#) control called "ListWidth". It has no effect on the control, except that its value is part of the file format.

<8> [Section 2.5.50](#): Values greater than 0 and less than 256 that are set through the Office Forms Object Model will be persisted. Office Forms treats values that are not in the [fmMousePointer](#) enumeration as the file format default.

<9> [Section 2.5.52](#): The object model for Office Forms has a hidden property on the [CheckBox](#), [OptionButton](#), and [ToggleButton](#) controls called "MultiSelect". It has no effect on these controls, except that its value is part of the file format.

<10> [Section 2.5.67](#): Office Forms uses the term "Value" when referring to the [Position](#) property in [ScrollBar](#) and [SpinButton](#) controls. The numeric [Position](#) property has been documented as separate from [Value](#) to distinguish it from controls for which the [Value](#) property is a string.

<11> [Section 2.5.82](#): Office Forms treats values less than 142, that is, less than 4 points, in the same way as a value of 0.

<12> [Section 2.5.83](#): Office Forms treats values less than 142, that is, less than 4 points, in the same way as a value of 0.

<13> [Section 2.5.88](#): Office Forms preserves the value of this property, but its value and usage are controlled by the user.

<14> [Section 2.5.95](#): Office Forms uses the term "Value" when referring to the [Position](#) property in [ScrollBar](#) and [SpinButton](#) controls. The numeric [Position](#) property has been documented as separate from [Value](#) to distinguish it from controls for which the [Value](#) property is a string. Office Forms also uses "Value" in [TabStrip](#) controls to refer to the [ListIndex](#) property, which has been documented separately for the same reason.

<15> [Section 2.5.96.1](#): Office Forms displays the two values for the Alignment property as "0 - fmAlignmentLeft" and "1 - fmAlignmentRight". However, the file format specifies that **VariousPropertyBits.Alignment** is 1 for "0 - fmAlignmentLeft" and 0 for "1 - fmAlignmentRight".

<16> [Section 2.5.96.1](#): The Editable property of an Office Forms ComboBox control is always set to 1 when it is persisted with the DisplayStyle property set to fmDisplayStyleCombo. The Editable property is not set to 0 when the control is persisted with the DisplayStyle property set to fmDisplayStyleDropDownList. Instead, it retains the same value for the Editable property as the value it had the last time it was persisted. Applications make requests to Office Forms controls to persist themselves at times other than when the user chooses to save a document, so the Editable property can be set to 1 even if the developer changes the Style property of a new ComboBox to "2 - fmStyleDropDownList" before choosing to save.

<17> [Section 2.5.96.1](#): Only the [ComboBox](#), [ListBox](#), and [TextBox](#) controls in Office Forms allow a user to directly manipulate the IMEMode property. However, other controls adjust the value of this property in response to WM_IME_NOTIFY messages.

<18> [Section 2.5.96.1](#): The object model for Office Forms has a hidden Boolean property on all [MorphDataControl](#)-based controls called "BordersSuppress". It has no effect on the control, except that its value is part of the file format.

<19> [Section 3.2](#): The picture is up_l.cur, a cursor that can be found in the Cursors directory of the system directory on a Windows Vista system.

<20> [Section 3.6](#): The picture is arrow_rm.cur, a cursor that can be found in the Cursors directory of the system directory on a Windows Vista system.

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