

# [MS-OXODOC]: Document Object Protocol Specification

---

## Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting [iplg@microsoft.com](mailto:iplg@microsoft.com).
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

**Reservation of Rights.** All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

**Tools.** The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

**Preliminary Documentation.** This Open Specification provides documentation for past and current releases and/or for the pre-release (beta) version of this technology. This Open Specification is final

documentation for past or current releases as specifically noted in the document, as applicable; it is preliminary documentation for the pre-release (beta) versions. Microsoft will release final documentation in connection with the commercial release of the updated or new version of this technology. As the documentation may change between this preliminary version and the final version of this technology, there are risks in relying on preliminary documentation. To the extent that you incur additional development obligations or any other costs as a result of relying on this preliminary documentation, you do so at your own risk.

## Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1		Initial Availability.
06/27/2008	1.0		Initial Release.
08/06/2008	1.01		Revised and edited technical content.
09/03/2008	1.02		Updated references.
12/03/2008	1.03		Updated IP notice.
03/04/2009	1.04		Revised and edited technical content.
04/10/2009	2.0		Updated technical content and applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	4.0.0	Major	Updated and revised the technical content.
02/10/2010	4.1.0	Minor	Updated the technical content.
05/05/2010	4.1.1	Editorial	Revised and edited the technical content.
08/04/2010	4.2	Minor	Clarified the meaning of the technical content.
11/03/2010	4.3	Minor	Clarified the meaning of the technical content.
03/18/2011	4.3	No change	No changes to the meaning, language, and formatting of the technical content.
08/05/2011	4.3	No change	No changes to the meaning, language, or formatting of the technical content.
10/07/2011	4.4	Minor	Clarified the meaning of the technical content.
01/20/2012	5.0	Major	Significantly changed the technical content.
04/27/2012	6.0	Major	Significantly changed the technical content.

# Table of Contents

<b>1 Introduction</b>	<b>5</b>
1.1 Glossary	5
1.2 References	5
1.2.1 Normative References	5
1.2.2 Informative References	6
1.3 Overview	6
1.4 Relationship to Other Protocols	6
1.5 Prerequisites/Preconditions	6
1.6 Applicability Statement	6
1.7 Versioning and Capability Negotiation	6
1.8 Vendor-Extensible Fields	6
1.9 Standards Assignments	6
<b>2 Messages</b>	<b>7</b>
2.1 Transport	7
2.2 Message Syntax	7
2.2.1 Document-Specific Properties	7
2.2.1.1 PidNameTitle Property	7
2.2.1.2 PidNameSubject Property	7
2.2.1.3 PidNameAuthor Property	7
2.2.1.4 PidNameKeywords Property	7
2.2.1.5 PidNameComments Property	8
2.2.1.6 PidNameTemplate Property	8
2.2.1.7 PidNameLastAuthor Property	8
2.2.1.8 PidNameRevisionNumber Property	8
2.2.1.9 PidNameApplicationName Property	8
2.2.1.10 PidNameEditTime Property	8
2.2.1.11 PidNameLastPrinted Property	8
2.2.1.12 PidNameCreateDateTimeReadOnly Property	8
2.2.1.13 PidNameLastSaveDateTime Property	9
2.2.1.14 PidNamePageCount Property	9
2.2.1.15 PidNameWordCount Property	9
2.2.1.16 PidNameCharacterCount Property	9
2.2.1.17 PidNameSecurity Property	9
2.2.1.18 PidNameCategory Property	9
2.2.1.19 PidNamePresentationFormat Property	9
2.2.1.20 PidNameManager Property	9
2.2.1.21 PidNameCompany Property	10
2.2.1.22 PidNameByteCount Property	10
2.2.1.23 PidNameLineCount Property	10
2.2.1.24 PidNameParagraphCount Property	10
2.2.1.25 PidNameSlideCount Property	10
2.2.1.26 PidNameNoteCount Property	10
2.2.1.27 PidNameHiddenCount Property	10
2.2.1.28 PidNameMultimediaClipCount Property	10
2.2.1.29 PidNameDocumentParts Property	11
2.2.1.30 PidNameHeadingPairs Property	11
2.2.1.31 PidNameLinksDirty Property	11
2.2.1.32 PidNameScale Property	11
2.2.1.33 PidNameThumbnail Property	11

2.2.1.34	PidLidPendingStateForTeamMailboxDocument Property.....	11
2.2.2	Additional Property Constraints .....	12
2.2.2.1	PidTagMessageClass Property.....	12
2.2.2.2	PidTagDisplayName Property.....	12
2.2.2.3	Attachment to the Message Object.....	12
<b>3</b>	<b>Protocol Details.....</b>	<b>13</b>
3.1	Client Details.....	13
3.1.1	Abstract Data Model .....	13
3.1.2	Timers .....	13
3.1.3	Initialization .....	13
3.1.4	Higher-Layer Triggered Events.....	13
3.1.4.1	Creating a Document Object .....	13
3.1.4.2	Opening a Document Object .....	14
3.1.4.3	Deleting a Document Object .....	14
3.1.5	Message Processing Events and Sequencing Rules.....	14
3.1.6	Timer Events .....	14
3.1.7	Other Local Events .....	14
3.2	Server Details .....	14
3.2.1	Abstract Data Model .....	14
3.2.2	Timers .....	15
3.2.3	Initialization .....	15
3.2.4	Higher-Layer Triggered Events.....	15
3.2.5	Message Processing Events and Sequencing Rules.....	15
3.2.6	Timer Events .....	15
3.2.7	Other Local Events .....	15
<b>4</b>	<b>Protocol Examples.....</b>	<b>16</b>
4.1	PidTagMessageClass Property Values for Different File Types.....	16
4.2	Creating a Document Object .....	16
4.2.1	Creating the Document Object .....	16
4.2.2	Creating the Attachment .....	16
4.2.3	Setting Properties on the Document Object .....	17
4.2.4	Saving the Document Object .....	17
<b>5</b>	<b>Security.....</b>	<b>18</b>
5.1	Security Considerations for Implementers.....	18
5.2	Index of Security Parameters .....	18
<b>6</b>	<b>Appendix A: Product Behavior.....</b>	<b>19</b>
<b>7</b>	<b>Change Tracking.....</b>	<b>20</b>
<b>8</b>	<b>Index .....</b>	<b>23</b>

# 1 Introduction

The Document Object Protocol enables representation of an ordinary file, such as a document generated by a word-processing application, in a mail folder for later retrieval. This protocol extends the Message and Attachment Object Protocol, which is described in [\[MS-OXCMSG\]](#).

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

## 1.1 Glossary

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

**handle**

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

**Attachment object**  
**Document object**  
**mailbox**  
**Message object**  
**public folder**  
**remote operation (ROP)**  
**Uniform Resource Locator (URL)**

The following terms are specific to this document:

**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

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

### 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](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-OXCDATA] Microsoft Corporation, "[Data Structures](#)".

[MS-OXCFOLD] Microsoft Corporation, "[Folder Object Protocol Specification](#)".

[MS-OXCMSG] Microsoft Corporation, "[Message and Attachment Object Protocol Specification](#)".

[MS-OXCPRPT] Microsoft Corporation, "[Property and Stream Object Protocol Specification](#)".

[MS-OXPROPS] Microsoft Corporation, "[Exchange Server Protocols Master Property List](#)".

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

### 1.2.2 Informative References

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

[MS-OXCROPS] Microsoft Corporation, "[Remote Operations \(ROP\) List and Encoding Protocol Specification](#)".

[MS-OXGLOS] Microsoft Corporation, "[Exchange Server Protocols Master Glossary](#)".

### 1.3 Overview

The Document Object Protocol allows a user to store an ordinary file, such as a document generated by a word-processing application, in a mail folder. For example, a user might store a few files in mail folders so that the files can be accessed on any computer that provides access to the user's e-mail. To represent the stored file, this protocol defines a **Document object**. The stored file is embedded within the Document object; the embedded file is referred to as an attachment.

The Document Object Protocol extends the Message and Attachment Object Protocol, described in [\[MS-OXCMSG\]](#), by defining new properties for a **Message object** and by adding constraints to existing properties of Message object.

### 1.4 Relationship to Other Protocols

The Document Object Protocol relies on the same protocols as the Message and Attachment Object Protocol, which the Document Object Protocol extends. For more information about the Message and Attachment Object Protocol, see [\[MS-OXCMSG\]](#).

### 1.5 Prerequisites/Preconditions

The Document Object Protocol has the same prerequisites and preconditions as the Message and Attachment Object Protocol, as specified in [\[MS-OXCMSG\]](#).

### 1.6 Applicability Statement

The client can use this protocol to store ordinary files in a user's mail folders and to expose the files that are stored in the mail folders.

### 1.7 Versioning and Capability Negotiation

None.

### 1.8 Vendor-Extensible Fields

This protocol provides no extensibility beyond what is already specified in [\[MS-OXCMSG\]](#).

### 1.9 Standards Assignments

None.

## 2 Messages

### 2.1 Transport

The Document Object Protocol uses the same underlying transport as that used by the Message and Attachment Object Protocol, as specified in [\[MS-OXCMSG\]](#).

### 2.2 Message Syntax

A Document object can be created and modified by both clients and servers. Except where noted, this section defines constraints under which both clients and servers operate.

Clients operate on a Document object by using the Message and Attachment Object Protocol, as specified in [\[MS-OXCMSG\]](#), and by using the Property and Stream Object Protocol, as specified in [\[MS-OXCPRPT\]](#). The manner in which a server operates on a Document object is implementation-dependent, but the results of any such operations MUST be exposed to clients in a manner that is consistent with the Document Object Protocol.

Unless otherwise stated in sections [2.2.1](#) and [2.2.2](#), a Document object MUST adhere to all property constraints specified in both [\[MS-OXPROPS\]](#) and [\[MS-OXCMSG\]](#).

#### 2.2.1 Document-Specific Properties

A Document object encapsulates the behavior of the attached file. As such, properties on the file can be promoted as properties on the Message object. Document object-specific properties that can be set on the Message object are specified in section [2.2.1.1](#) through section [2.2.1.33](#).

##### 2.2.1.1 PidNameTitle Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameTitle** property ([\[MS-OXPROPS\]](#) section 2.546) specifies the title of the file attached to the Document object.

##### 2.2.1.2 PidNameSubject Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameSubject** property ([\[MS-OXPROPS\]](#) section 2.540) specifies the subject of the file attached to the Document object.

##### 2.2.1.3 PidNameAuthor Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameAuthor** property ([\[MS-OXPROPS\]](#) section 2.374) specifies the original author of the file attached to the Document object.

##### 2.2.1.4 PidNameKeywords Property

Type: **PtypMultipleString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameKeywords** property ([\[MS-OXCMSG\]](#) section 2.2.1.17) specifies the categories of the file attached to the Document object.

### 2.2.1.5 PidNameComments Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameComments** property ([\[MS-OXPROPS\]](#) section 2.409) specifies the comments of the file attached to the Document object.

### 2.2.1.6 PidNameTemplate Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameTemplate** property ([\[MS-OXPROPS\]](#) section 2.542) specifies the template of the file attached to the Document object.

### 2.2.1.7 PidNameLastAuthor Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameLastAuthor** property ([\[MS-OXPROPS\]](#) section 2.496) specifies the most recent author of the file attached to the Document object.

### 2.2.1.8 PidNameRevisionNumber Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameRevisionNumber** property ([\[MS-OXPROPS\]](#) section 2.533) specifies the revision number of the file attached to the Document object.

### 2.2.1.9 PidNameApplicationName Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameApplicationName** property ([\[MS-OXPROPS\]](#) section 2.369) specifies the application that can be used to open the file attached to the Document object.

### 2.2.1.10 PidNameEditTime Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameEditTime** property ([\[MS-OXPROPS\]](#) section 2.452) specifies the time that the file was last edited.

### 2.2.1.11 PidNameLastPrinted Property

Type: **PtypTime** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameLastPrinted** property ([\[MS-OXPROPS\]](#) section 2.497) specifies the time that the file was last printed.

### 2.2.1.12 PidNameCreateDateTimeReadOnly Property

Type: **PtypTime** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameCreateDateTimeReadOnly** property ([\[MS-OXPROPS\]](#) section 2.437) specifies the time that the file was created.



### 2.2.1.13 PidNameLastSaveDateTime Property

Type: **PtypTime** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameLastSaveDateTime** property ([\[MS-OXPROPS\]](#) section 2.498) specifies the time that the file was last saved.

### 2.2.1.14 PidNamePageCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNamePageCount** property ([\[MS-OXPROPS\]](#) section 2.518) specifies the number of pages in the file attached to the Document object.

### 2.2.1.15 PidNameWordCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameWordCount** property ([\[MS-OXPROPS\]](#) section 2.548) specifies the number of words in the file attached to the Document object.

### 2.2.1.16 PidNameCharacterCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameCharacterCount** property ([\[MS-OXPROPS\]](#) section 2.408) specifies the number of characters in the file attached to the Document object.

### 2.2.1.17 PidNameSecurity Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameSecurity** property ([\[MS-OXPROPS\]](#) section 2.536) specifies the security level of the file attached to the Document object.

### 2.2.1.18 PidNameCategory Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameCategory** property ([\[MS-OXPROPS\]](#) section 2.406) specifies the category of the file attached to the Document object.

### 2.2.1.19 PidNamePresentationFormat Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNamePresentationFormat** property ([\[MS-OXPROPS\]](#) section 2.523) specifies the presentation format of the file attached to the Document object.

### 2.2.1.20 PidNameManager Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameManager** property ([\[MS-OXPROPS\]](#) section 2.504) specifies the manager of the file attached to the Document object.

### 2.2.1.21 PidNameCompany Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameCompany** property ([\[MS-OXPROPS\]](#) section 2.410) specifies the company for which the file was created.

### 2.2.1.22 PidNameByteCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameByteCount** property ([\[MS-OXPROPS\]](#) section 2.377) specifies the size, in bytes, of the file attached to the Document object.

### 2.2.1.23 PidNameLineCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameLineCount** property ([\[MS-OXPROPS\]](#) section 2.499) specifies the number of lines in the file attached to the Document object.

### 2.2.1.24 PidNameParagraphCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameParagraphCount** property ([\[MS-OXPROPS\]](#) section 2.519) specifies the number of paragraphs in the file attached to the Document object.

### 2.2.1.25 PidNameSlideCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameSlideCount** property ([\[MS-OXPROPS\]](#) section 2.539) specifies the number of slides in the file attached to the Document object.

### 2.2.1.26 PidNameNoteCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameNoteCount** property ([\[MS-OXPROPS\]](#) section 2.510) specifies the number of notes in the file attached to the Document object.

### 2.2.1.27 PidNameHiddenCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameHiddenCount** property ([\[MS-OXPROPS\]](#) section 2.476) specifies the hidden value of the file attached to the Document object.

### 2.2.1.28 PidNameMultimediaClipCount Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameMultimediaClipCount** property ([\[MS-OXPROPS\]](#) section 2.507) specifies the number of multimedia clips in the file attached to the Document object.

### 2.2.1.29 PidNameDocumentParts Property

Type: **PtypMultipleString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameDocumentParts** property ([\[MS-OXPROPS\]](#) section 2.451) specifies the title of each part of the file attached to the Document object.

### 2.2.1.30 PidNameHeadingPairs Property

Type: **PtypBinary** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameHeadingPairs** property ([\[MS-OXPROPS\]](#) section 2.475) specifies which group of headings is indented in the file attached to the Document object.

### 2.2.1.31 PidNameLinksDirty Property

Type: **PtypBoolean** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameLinksDirty** property ([\[MS-OXPROPS\]](#) section 2.501) indicates whether the links are up-to-date in the file attached to the Document object. The value TRUE indicates that the links are up-to-date; FALSE indicates otherwise.

### 2.2.1.32 PidNameScale Property

Type: **PtypBoolean** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameScale** property ([\[MS-OXPROPS\]](#) section 2.535) indicates whether the image attached to the Document object is to be scaled or is to be cropped. The value TRUE indicates thumbnail scaling; FALSE indicates cropping.

### 2.2.1.33 PidNameThumbnail Property

Type: **PtypBinary** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidNameThumbnail** property ([\[MS-OXPROPS\]](#) section 2.545) specifies the data representing the thumbnail image of the file attached to the Document object.

### 2.2.1.34 PidLidPendingStateForTeamMailboxDocument Property

**Note** All of the information in this section is subject to change because it applies to a preliminary implementation of the protocol or structure.

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidLidPendingStateForTeamMailboxDocument** property ([\[MS-OXPROPS\]](#) section 2.201) specifies the synchronization state of the Document object that is in the Document Libraries folder of the team [mailbox.<1>](#)

The valid values for this property are shown in the following table.

Value	Meaning
0	The document has been uploaded to a shared location.
1	The document has been added to the Document Libraries folder and is waiting to be uploaded to a shared location.

Value	Meaning
2	The document has been moved to the Document Libraries folder from another folder and is waiting to be uploaded to a shared location.

## 2.2.2 Additional Property Constraints

Additional property constraints beyond what is specified in [\[MS-OXCMSG\]](#) are specified in section [2.2.2.1](#) through section [2.2.2.3](#).

### 2.2.2.1 PidTagMessageClass Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidTagMessageClass** property ([\[MS-OXCMSG\]](#) section 2.2.1.3) specifies the type of the Message object. For a message to be treated as a Document object by a client, the value of this property MUST be "IPM.document.<FileType>", where the "<FileType>" substring indicates the type of the attached file. The value of the substring that follows "IPM.document." is implementation-dependent.

### 2.2.2.2 PidTagDisplayName Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidTagDisplayName** property ([\[MS-OXCFOOLD\]](#) section 2.2.2.2.4) specifies the name of the attachment. A Document object SHOULD have this property set.

### 2.2.2.3 Attachment to the Message Object

A Document object MUST have at least one attachment and SHOULD NOT have more than one. For details about how attachments are stored within a message, see [\[MS-OXCMSG\]](#).

## 3 Protocol Details

### 3.1 Client Details

The client creates and manipulates a Document object and otherwise operates within the client role as specified in [\[MS-OXCMSG\]](#).

#### 3.1.1 Abstract Data Model

**Note** *Some of the information in this section is subject to change because it applies to a preliminary implementation of the protocol or structure. For information about specific differences between versions, see the behavior notes that are provided in the Product Behavior appendix.*

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

This protocol uses the abstract data model that is specified in [\[MS-OXCMSG\]](#) section 3.1.1 with the following adaptations:

- The Document object is an extension of the Message object.
- A Document object is created in the folder chosen by the user.
- A Document object is placed in the Document Libraries folder of the team mailbox to have the attached file of the Document object uploaded to a shared location.

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

None.

#### 3.1.4 Higher-Layer Triggered Events

##### 3.1.4.1 Creating a Document Object

**Note** *Some of the information in this section is subject to change because it applies to a preliminary implementation of the protocol or structure. For information about specific differences between versions, see the behavior notes that are provided in the Product Behavior appendix.*

The client creates a Document object as a Message object with an attachment when the user drags a file from any file folder into either a mail folder of the user's mailbox or the Document Libraries folder of the team mailbox. [<2>](#) The file is attached to the Document object. For details about the attachment to a Document object, see section [2.2.2.3](#). For details about the **remote operations (ROPs)** involved in creating a Message object and an **Attachment object**, see [\[MS-OXCMSG\]](#).

The client SHOULD set the **PidTagMessageClass** ([\[MS-OXCMSG\]](#) section 2.2.1.3) and **PidTagDisplayName** ([\[MS-OXCMSG\]](#) section 2.2.2.2.4) properties as specified in section [2.2.2.1](#) and section [2.2.2.2](#). If the Document object is created in the the Document Libraries folder of the

team mailbox, the client MUST set the **PidLidPendingStateForTeamMailboxDocument** property (section [2.2.1.34](#)) to either 1 or 2.

### 3.1.4.2 Opening a Document Object

When a user opens a message, the client opens the Message object as specified in [\[MS-OXCMSG\]](#) section 3.1.4.1. The client determines the message type by examining the **PidTagMessageClass** property ([\[MS-OXCMSG\]](#) section 2.2.1.3), as specified in section [2.2.2.1](#).

If the value of **PidTagMessageClass** does not begin with "IPM.document.", the message is not a Document object, and the client handles the message in a way that is appropriate for that particular type of Message object. If the value of the **PidTagMessageClass** property does begin with "IPM.document.", the message is a Document object, and the client retrieves the attachment as specified in [\[MS-OXCMSG\]](#) section 3.1.4.11. If there are zero attachments, the client displays an error. If there is more than one attachment, the client can either display an error or pick one of the attachments. For details about attachments to a Document object, see section [2.2.2.3](#). When a Document object is opened, the client can open the message's underlying attachment directly, thereby behaving in the most optimal fashion from a user's perspective.

### 3.1.4.3 Deleting a Document Object

When a user deletes a Document object from a mail folder, the client deletes the Document object in the same way that it deletes any Message object, as specified in [\[MS-OXCFOLD\]](#).

## 3.1.5 Message Processing Events and Sequencing Rules

None.

### 3.1.6 Timer Events

None.

### 3.1.7 Other Local Events

None.

## 3.2 Server Details

The server processes a client's requests regarding a Document object and otherwise operates within the server role as specified in [\[MS-OXCMSG\]](#).

### 3.2.1 Abstract Data Model

**Note** *Some of the information in this section is subject to change because it applies to a preliminary implementation of the protocol or structure. For information about specific differences between versions, see the behavior notes that are provided in the Product Behavior appendix.*

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

This protocol uses the abstract data model that is specified in [\[MS-OXCMSG\]](#) section 3.2.1 with the following adaptations:

- The Document object is an extension of the Message object.
- A Document object is created in the folder chosen by the user.
- A Document object is placed in the Document Libraries folder of the team mailbox to have the attached file of the Document object uploaded to a shared location.

### 3.2.2 Timers

None.

### 3.2.3 Initialization

None.

### 3.2.4 Higher-Layer Triggered Events

**Note** All of the information in this section is subject to change because it applies to a preliminary implementation of the protocol or structure.

When a Document object is created in the Document Libraries folder of the team mailbox, as specified in section [3.1.4.1](#), the server uploads the object's attached file to a shared location and sets properties as follows. <3> The attached file is no longer stored on the server after the server uploads the attached file to the shared location.

- **PidTagAttachMethod** property ([\[MS-OXCMSG\]](#) section 2.2.2.9): Set to **afByReference** (0x00000002).
- **PidTagAttachLongPathname** property ([\[MS-OXCMSG\]](#) section 2.2.2.13): Set to the **URL** of the shared location to which the document is uploaded.
- **PidLidPendingStateForTeamMailboxDocument** property (section [2.2.1.34](#)): Set to 0 (zero).

### 3.2.5 Message Processing Events and Sequencing Rules

The server responds to client requests as specified in [\[MS-OXCMSG\]](#) section 3.2.5.

### 3.2.6 Timer Events

None.

### 3.2.7 Other Local Events

None.

## 4 Protocol Examples

### 4.1 PidTagMessageClass Property Values for Different File Types

The following table shows how the **PidTagMessageClass** property might be set for different file types.

File extension	PidTagMessageClass property value
.doc	IPM.document.Word.document.8
.docx	IPM.document.Word.document.12
.xls	IPM.document.Excel.Sheet.8
.xlsx	IPM.document.Excel.Sheet.12
.ppt	IPM.document.PowerPoint.Show.8
.pptx	IPM.document.PowerPoint.Show.12
.txt	IPM.document.txtfile

### 4.2 Creating a Document Object

Joe drags a file named testDocObj.txt from his desktop into one of his mail folders. Descriptions of what a client might do to accomplish Joe's intentions and the responses that a server might return are provided in section [4.2.1](#) through section [4.2.4](#).

#### 4.2.1 Creating the Document Object

To create a Document object, the client uses the **RopCreateMessage** ROP ([\[MS-OXCROPS\]](#) section 2.2.6.2).

The server returns a success code and a **handle** to a Message object.

#### 4.2.2 Creating the Attachment

The client creates the Attachment object by using the **RopCreateAttachment** ROP ([\[MS-OXCROPS\]](#) section 2.2.6.13). Then, the client writes out the contents of the file into the attachment by using the **RopOpenStream** ROP ([\[MS-OXCROPS\]](#) section 2.2.9.1) and the **RopSetStreamSize** ROP ([\[MS-OXCROPS\]](#) section 2.2.9.6), followed by the **RopWriteStream** ROP ([\[MS-OXCROPS\]](#) section 2.2.9.3).

The client then sets various properties on the attachment by using the **RopSetProperties** ROP ([\[MS-OXCROPS\]](#) section 2.2.8.6). Some of the properties that would be set on the attachment are shown in the following table. The data types are described in [\[MS-OXCDATA\]](#) section 2.11.1.

Property	Property ID	Data type	Value
<b>PidTagAttachLongFilename</b> ( <a href="#">[MS-OXCMSG]</a> section 2.2.2.10)	0x3707	0x001F (PtypString)	"testDocObj.txt"
<b>PidTagAttachExtension</b> ( <a href="#">[MS-OXCMSG]</a> section 2.2.2.12)	0x3703	0x001F	".txt"



Property	Property ID	Data type	Value
<b>PidTagCreationTime</b> ( <a href="#">[MS-OXCMSG]</a> section 2.2.2.3)	0x3007	0x0040 ( <b>PtypTime</b> )	2008/02/15 19:57:52.557

Now the client saves the attachment by using the **RopSaveChangesAttachment** ROP ([\[MS-OXCROPS\]](#) section 2.2.6.15).

### 4.2.3 Setting Properties on the Document Object

The protocol client transmits the data to the protocol server by using the **RopSetProperties** ROP ([\[MS-OXCROPS\]](#) section 2.2.8.6). Some of the relevant properties that need to be set for a Document object are shown in the following table. The data types are described in [\[MS-OXCDATA\]](#) section 2.11.1.

Property	Property ID	Data type	Value
<b>PidTagDisplayName</b> ( <a href="#">[MS-OXCFOLD]</a> section 2.2.2.2.2.4)	0x3001	0x001F ( <b>PtypString</b> )	"testDocObj.txt"
<b>PidTagMessageClass</b> ( <a href="#">[MS-OXCMSG]</a> section 2.2.1.3)	0x001A	0x001F	"IPM.document.txtfile"

### 4.2.4 Saving the Document Object

The protocol client commits the properties on the protocol server by using the **RopSaveChangesMessage** ROP ([\[MS-OXCROPS\]](#) section 2.2.6.3) and then releases the object by using the **RopRelease** ROP ([\[MS-OXCROPS\]](#) section 2.2.15.3). The values of some properties will change during the execution of the **RopSaveChangesMessage** ROP, but none of the properties specified in this protocol will change.

## 5 Security

### 5.1 Security Considerations for Implementers

The file that the Document object stores as an attachment can be any file on the hard drive. When a user opens a Document object, one behavior is to open the attached file directly. This file could do harmful things when opened. While this is less of an issue for a user's personal mail folders, it becomes much more of an issue for **public folders**. It is up to the client to choose what kind of behavior to follow when a user opens a Document object.

### 5.2 Index of Security Parameters

Security parameter	Section
PidNameSecurity property	Section <a href="#">2.2.1.17</a>

## 6 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Microsoft® Exchange Server 2003
- Microsoft® Exchange Server 2007
- Microsoft® Exchange Server 2010
- Microsoft® Exchange Server 15 Technical Preview
- Microsoft® Office Outlook® 2003
- Microsoft® Office Outlook® 2007
- Microsoft® Outlook® 2010
- Microsoft® Outlook® 15 Technical Preview

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

<1> [Section 2.2.1.34](#): Exchange 2003, Exchange 2007, Exchange 2010, Office Outlook 2003, Office Outlook 2007, and Outlook 2010 do not support the **PidLidPendingStateForTeamMailboxDocument** property (section [2.2.1.34](#)) and the team mailbox.

<2> [Section 3.1.4.1](#): Office Outlook 2003, Office Outlook 2007, and Outlook 2010 do not support the the team mailbox.

<3> [Section 3.2.4](#): Exchange 2003, Exchange 2007, and Exchange 2010 do not support the the team mailbox and the **PidLidPendingStateForTeamMailboxDocument** property (section [2.2.1.34](#)).

## 7 Change Tracking

This section identifies changes that were made to the [MS-OXODOC] protocol document between the January 2012 and April 2012 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

Major and minor changes can be described further using the following change types:

- New content added.
- Content updated.
- Content removed.
- New product behavior note added.
- Product behavior note updated.
- Product behavior note removed.
- New protocol syntax added.
- Protocol syntax updated.
- Protocol syntax removed.
- New content added due to protocol revision.
- Content updated due to protocol revision.
- Content removed due to protocol revision.
- New protocol syntax added due to protocol revision.

- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.
- Content removed for template compliance.
- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated**.

Some important terms used in the change type descriptions are defined as follows:

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.
- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

The changes made to this document are listed in the following table. For more information, please contact [protocol@microsoft.com](mailto:protocol@microsoft.com).

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
<a href="#">2.2.1.34 PidLidPendingStateForTeamMailboxDocument Property</a>	Removed Exchange 15 Technical Preview from the behavior note concerning the PidLidPendingStateForTeamMailboxDocument property.	N	Product behavior note updated.
<a href="#">3.1.1 Abstract Data Model</a>	Specified that the attached file is uploaded to a shared location.	N	Content updated.
<a href="#">3.1.4.1 Creating a Document Object</a>	Added details about the team mailbox and setting the PidLidPendingStateForTeamMailboxDocument property.	N	Content updated.
<a href="#">3.1.4.1 Creating a Document Object</a>	Added product behavior note concerning client support of the team mailbox.	N	New product behavior note added.
<a href="#">3.2.1 Abstract Data Model</a>	Added detail about Document Libraries folder of the team mailbox.	N	Content updated.
<a href="#">3.2.4 Higher-Layer Triggered Events</a>	Added detail about server behavior when a Document object is created in the Document Libraries folder of the team mailbox.	Y	Content updated.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
<a href="#">3.2.4 Higher-Layer Triggered Events</a>	Added product behavior note concerning server support for the team mailbox and the PidLidPendingStateForTeamMailboxDocument property.	Y	New product behavior note added.

Preliminary

## 8 Index

### A

Abstract data model  
[client](#) 13  
[server](#) 14  
Additional property constraints  
[attachment to the Message object](#) 12  
[PidTagDisplayName property](#) 12  
[PidTagMessageClass property](#) 12  
[Additional Property Constraints message](#) 12  
[Applicability](#) 6  
[Attachment to the Message object additional property constraints](#) 12

### C

[Capability negotiation](#) 6  
[Change tracking](#) 20  
Client  
[abstract data model](#) 13  
[initialization](#) 13  
[message processing](#) 14  
[other local events](#) 14  
[overview](#) 13  
[sequencing rules](#) 14  
[timer events](#) 14  
[timers](#) 13  
Client - higher-layer triggered events  
[creating a Document object](#) 13  
[deleting a Document object](#) 14  
[opening a Document object](#) 14  
Creating a Document object example  
[creating the attachment](#) 16  
[creating the object](#) 16  
[final save](#) 17  
[overview](#) 16  
[setting properties on the Document object](#) 17

### D

Data model - abstract  
[client](#) 13  
[server](#) 14  
Document-specific properties  
[PidNameApplicationName property](#) 8  
[PidNameAuthor property](#) 7  
[PidNameByteCount property](#) 10  
[PidNameCategory property](#) 9  
[PidNameCharacterCount property](#) 9  
[PidNameComments property](#) 8  
[PidNameCompany property](#) 10  
[PidNameCreateDateTimeReadOnly property](#) 8  
[PidNameDocumentParts property](#) 11  
[PidNameEditTime property](#) 8  
[PidNameHeadingPairs property](#) 11  
[PidNameHiddenCount property](#) 10  
[PidNameKeywords property](#) 7  
[PidNameLastAuthor property](#) 8

[PidNameLastPrinted property](#) 8  
[PidNameLastSaveDateTime property](#) 9  
[PidNameLineCount property](#) 10  
[PidNameLinksDirty property](#) 11  
[PidNameManager property](#) 9  
[PidNameMultimediaClipCount property](#) 10  
[PidNameNoteCount property](#) 10  
[PidNamePageCount property](#) 9  
[PidNameParagraphCount property](#) 10  
[PidNamePresentationFormat property](#) 9  
[PidNameRevisionNumber property](#) 8  
[PidNameScale property](#) 11  
[PidNameSecurity property](#) 9  
[PidNameSlideCount property](#) 10  
[PidNameSubject property](#) 7  
[PidNameTemplate property](#) 8  
[PidNameThumbnail property](#) 11  
[PidNameTitle property](#) 7  
[PidNameWordCount property](#) 9  
[Document-Specific Properties message](#) 7

### E

Examples  
[creating a Document object](#) 16  
[PidTagMessageClass property values for different file types](#) 16

### F

[Fields - vendor-extensible](#) 6

### G

[Glossary](#) 5

### H

Higher-layer triggered events  
[server](#) 15  
Higher-layer triggered events - client  
[creating a Document object](#) 13  
[deleting a Document object](#) 14  
[opening a Document object](#) 14

### I

[Implementer - security considerations](#) 18  
[Index of security parameters](#) 18  
[Informative references](#) 6  
Initialization  
[client](#) 13  
[server](#) 15  
[Introduction](#) 5

### M

Message processing

[client](#) 14  
[server](#) 15  
Messages  
[Additional Property Constraints](#) 12  
[Document-Specific Properties](#) 7  
[syntax](#) 7  
[transport](#) 7

**N**

[Normative references](#) 5

**O**

Other local events  
[client](#) 14  
[server](#) 15  
[Overview \(synopsis\)](#) 6

**P**

[Parameters - security index](#) 18  
[PidNameApplicationName document-specific property](#) 8  
[PidNameAuthor document-specific property](#) 7  
[PidNameByteCount document-specific property](#) 10  
[PidNameCategory document-specific property](#) 9  
[PidNameCharacterCount document-specific property](#) 9  
[PidNameComments document-specific property](#) 8  
[PidNameCompany document-specific property](#) 10  
[PidNameCreateDateTimeReadOnly document-specific property](#) 8  
[PidNameDocumentParts document-specific property](#) 11  
[PidNameEditTime document-specific property](#) 8  
[PidNameHeadingPairs document-specific property](#) 11  
[PidNameHiddenCount document-specific property](#) 10  
[PidNameKeywords document-specific property](#) 7  
[PidNameLastAuthor document-specific property](#) 8  
[PidNameLastPrinted document-specific property](#) 8  
[PidNameLastSaveDateTime document-specific property](#) 9  
[PidNameLineCount document-specific property](#) 10  
[PidNameLinksDirty document-specific property](#) 11  
[PidNameManager document-specific property](#) 9  
[PidNameMultimediaClipCount document-specific property](#) 10  
[PidNameNoteCount document-specific property](#) 10  
[PidNamePageCount document-specific property](#) 9  
[PidNameParagraphCount document-specific property](#) 10  
[PidNamePresentationFormat document-specific property](#) 9  
[PidNameRevisionNumber document-specific property](#) 8  
[PidNameScale document-specific property](#) 11  
[PidNameSecurity document-specific property](#) 9  
[PidNameSlideCount document-specific property](#) 10  
[PidNameSubject document-specific property](#) 7

[PidNameTemplate document-specific property](#) 8  
[PidNameThumbnail document-specific property](#) 11  
[PidNameTitle document-specific property](#) 7  
[PidNameWordCount document-specific property](#) 9  
[PidTagDisplayName property constraints](#) 12  
[PidTagMessageClass property constraints](#) 12  
[PidTagMessageClass property values for different file types example](#) 16  
[Preconditions](#) 6  
[Prerequisites](#) 6  
[Product behavior](#) 19

**R**

[References](#) 5  
[informative](#) 6  
[normative](#) 5  
[Relationship to other protocols](#) 6

**S**

Security  
[implementer considerations](#) 18  
[parameter index](#) 18  
Sequencing rules  
[client](#) 14  
[server](#) 15  
Server  
[abstract data model](#) 14  
[higher-layer triggered events](#) 15  
[initialization](#) 15  
[message processing](#) 15  
[other local events](#) 15  
[overview](#) 14  
[sequencing rules](#) 15  
[timer events](#) 15  
[timers](#) 15  
[Standards assignments](#) 6  
[Syntax](#) 7

**T**

Timer events  
[client](#) 14  
[server](#) 15  
Timers  
[client](#) 13  
[server](#) 15  
[Tracking changes](#) 20  
[Transport](#) 7  
Triggered events - client  
[creating a Document object](#) 13  
[deleting a Document object](#) 14  
[opening a Document object](#) 14  
Triggered events - higher-layer  
[server](#) 15

**V**

[Vendor-extensible fields](#) 6  
[Versioning](#) 6