

[MS-OXOSRCH]: Search Folder List Configuration Protocol Specification

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Revision Summary

| Date | Revision History | Revision Class | Comments |
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1 Introduction

This document specifies the Search Folder List Configuration protocol that is used by the client to create, read, and execute **search folders**. A search folder is used to query for items that match specified criteria.

1.1 Glossary

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

AddressList
associated message
big-endian
binary large object (BLOB)
Coordinated Universal Time (UTC)
EntryList
folder
Folder object
GUID
mailbox
message
message database (MDB)
Message object
property
search criteria
search folder
search folder container
search folder definition message
Unicode

The following terms are specific to this document:

Active search folder: A **search folder** where the **search folder container** exists and is up-to-date with the correct **search criteria**.

Definition message: See **search folder definition message**.

inactive search folder: A **search folder** that does not have a **search folder container**.

Skip block: The block in a **binary large object (BLOB)** that acts as padding, reserving space that can be used by future versions to insert data. The block consists of a ULONG that describes how many additional ULONGs to skip ahead.

TickCount: The number of milliseconds since a system was started.

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://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-DTYP] Microsoft Corporation, "Windows Data Types", March 2007, <http://go.microsoft.com/fwlink/?LinkId=111558>.

[MS-OXCDATA] Microsoft Corporation, "[Data Structures](#)", June 2008.

[MS-OXCFOLD] Microsoft Corporation, "[Folder Object Protocol Specification](#)", June 2008.

[MS-OXCMSG] Microsoft Corporation, "[Message and Attachment Object Protocol Specification](#)", June 2008.

[MS-OXCPRPT] Microsoft Corporation, "[Property and Stream Object Protocol Specification](#)", June 2008.

[MS-OXCSTOR] Microsoft Corporation, "[Store Object Protocol Specification](#)", June 2008.

[MS-OXCTABL] Microsoft Corporation, "[Table Object Protocol Specification](#)", June 2008.

[MS-OXGLOS] Microsoft Corporation, "[Exchange Server Protocols Master Glossary](#)", June 2008.

[MS-OXOABK] Microsoft Corporation, "[Address Book Object Protocol Specification](#)", June 2008.

[MS-OXOCFG] Microsoft Corporation, "[Configuration Information Protocol Specification](#)", June 2008.

[MS-OXOMSG] Microsoft Corporation, "[E-Mail Object Protocol Specification](#)", June 2008.

[MS-OXOSFLD] Microsoft Corporation, "[Special Folders Protocol Specification](#)", June 2008.

[MS-OXPROPS] Microsoft Corporation, "[Exchange Server Protocols Master Property List](#)", June 2008.

[MS-OXPROTO] Microsoft Corporation, "[Exchange Server Protocols System Overview](#)", June 2008.

[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

[MSDN-FAIT] Microsoft Corporation, "Folder Associated Information Tables", <http://go.microsoft.com/fwlink/?LinkId=92924>.

1.3 Protocol Overview

A search folder provides a means of querying for items that match certain criteria. To the user, a search folder appears in the client as a normal **folder** that populates itself when opened. A search folder uses one of the standard templates or a custom search created by the user to include specific **search criteria**.

This protocol enables the client to create, read, and execute search folders. To create a search folder, the client collects the data used to define the search criteria, creates a **search folder container** to contain the search results, and creates a **search folder definition message** to persist the search folder. Search folder criteria is persisted on the server, although it is not necessary for the server to understand the criteria. Search folder criteria is saved as an **associated message** in a hidden folder outside the root **mailbox** and is not directly visible to the end user.

1.4 Relationship to Other Protocols

The Search Folder List Configuration protocol specification relies on the following:

- An understanding of the Office Exchange Protocols Overview as specified in [\[MS-OXPROTO\]](#).
- An understanding of messaging as specified in [\[MS-OXCMSG\]](#) and of **Message objects** as specified in [\[MS-OXOMSG\]](#).
- An understanding of using folders as specified in [\[MS-OXCFOLD\]](#) and of **Folder objects** as specified in [\[MS-OXOSFLD\]](#).
- An understanding of **properties** as specified in [\[MS-OXPROPS\]](#) and of setting properties on **Message** and Folder objects as specified in [\[MS-OXCPRPT\]](#).
- An understanding of the **message database (MDB)** as specified in [\[MS-OXCSTOR\]](#) and of manipulating tables in the message database as specified in [\[MS-OXCTABL\]](#).

1.5 Prerequisites/Preconditions

This protocol specification assumes that the messaging client has logged on to the message database, with the ability to open tables and read/write Message objects, Folder objects, and their properties.

1.6 Applicability Statement

A client can use this protocol to save user-created search queries that can be invoked again at a later time.

1.7 Versioning and Capability Negotiation

The **binary large object (BLOB)** stored in [PidTagSearchFolderDefinition](#) contains a version for that BLOB format.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The properties specified in this protocol are set by and returned from a server Message, as specified in [\[MS-OXCMSG\]](#), or from a folder [\[MS-OXCFOLD\]](#) that uses the underlying Property and Stream Object protocol, as specified in [\[MS-OXCPRPT\]](#).

2.2 Message Syntax

The remaining subsections within [2.2](#) specify the format of properties that are specific to this protocol.

2.2.1 Definition Message

Search folder definition messages are stored as associated messages (as specified in [\[MS-OXCMSG\]](#)) in the associated information table (as specified in [\[MSDN-FAIT\]](#)) of the Common Views folder (as specified in [\[MS-OXOSFLD\]](#)) within a message database. The **definition message** is how a search folder is persisted; a search folder ceases to exist if its definition message is deleted. For more details about how definition messages relate to search folders and search folder containers, see section [2.2.4](#).

Search folder definition messages possess additional properties that describe the search folder criteria. These properties are described in the remaining subsections of section [2.2.1](#).

2.2.1.1 Common Properties

These properties are common to most messages, and their values do not specifically relate to search folder functionality. For more details about these properties, see [\[MS-OXPROPS\]](#).

2.2.1.1.1 PidTagMessageClass

The client uses [PidTagMessageClass](#) as a means of identifying a search folder definition message. A search folder definition message MUST set this property value to: IPM.Microsoft.WunderBar.SFInfo.

2.2.1.1.2 PidTagDisplayName

[PidTagDisplayName](#) is the name of the search folder. The client SHOULD use this property value as the display name of the folder object.

2.2.1.2 Additional Properties

The following properties are specifically indicated for search folders and they contain the information that defines a search folder.

2.2.1.2.1 PidTagSearchFolderId

[PidTagSearchFolderId](#) is a **GUID** that identifies the search folder. This GUID is used to tie the definition message to the corresponding search folder container. For more details, see [2.2.4](#).

2.2.1.2.2 PidTagSearchFolderTemplateId

[PidTagSearchFolderTemplateId](#) is the ID of the template that is being used for the search. For more details about search templates, see [2.2.3](#).

2.2.1.2.3 PidTagSearchFolderTag

[PidTagSearchFolderTag](#) is used to synchronize this definition message with the matching search folder container. It is changed when this definition message is changed. It MUST change with each iteration, but it does not have to be unique. For more details, see [2.2.4](#).

2.2.1.2.4 PidTagSearchFolderLastUsed

[PidTagSearchFolderLastUsed](#) is the last time the folder was accessed. It is formatted as the number of minutes since midnight (**UTC**) January 1, 1601.

2.2.1.2.5 PidTagSearchFolderExpiration

[PidTagSearchFolderExpiration](#) is the time at which the search folder container will be stale and has to be updated or recreated. It is formatted as the number of minutes since midnight (UTC) January 1, 1601.

2.2.1.2.6 PidTagSearchFolderStorageType

[PidTagSearchFolderStorageType](#) contains flags that specify the BLOB data that appears in the [PidTagSearchFolderDefinition](#) property. These flags are duplicated inside the BLOB. For more details about flag fields, see the definition of A through L in [2.2.1.2.8](#). The specific flags to use depends on the template; [2.2.3](#) specifies the correct flags for each template definition.

The definitions of the flags are specified in network order in [2.2.1.2.8](#). This property is stored as a 4- byte integer. The following table shows the flags in **big-endian** order.

| Flag | big-endian bit |
|------|----------------|
| B | 0x00000040 |
| C | 0x00000020 |
| D | 0x00000010 |
| E | 0x00000008 |
| F | 0x00000004 |
| G | 0x00000002 |
| H | 0x00000001 |
| I | 0x00008000 |
| J | 0x00004000 |
| K | 0x00002000 |
| L | 0x00001000 |

2.2.1.2.7 PidTagSearchFolderEfpFlags

[PidTagSearchFolderEfpFlags](#) SHOULD contain extended folder flags that apply to the search folder container for this search folder. Specifically, it SHOULD contain the flags in the [PidTagExtendedFolderFlags](#) property, ExtendedFlags sub-property, field **b** for that folder, as specified in [\[MS-OXOCFG\]](#). [<1>](#)

2.2.1.2.8 PidTagSearchFolderDefinition

[PidTagSearchFolderDefinition](#) contains data that specifies the search criteria.

The structure of the BLOB contained in [PidTagSearchFolderDefinition](#) is specified as follows. The specific content of each field is dependent upon the template ID that is specified in [PidTagSearchFolderTemplateId](#). For details, see section [2.2.3](#).

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|--|---|-----------|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|
| 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 field | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | (ignored) | | | | | | | | | | | | | | | | | | | |
| Numerical search field | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Text search field length | | | | | | | | | | Text search field length extended (optional) | | | | | | | | | | | | Text search field (optional, variable) | | | | | | | | | |
| Text search field (optional, variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skip block (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deep search field | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Folder list field 1 length | | | | | | | | | | Folder list field 1 length extended (optional) | | | | | | | | | | | | Folder list field 1 (optional, variable) | | | | | | | | | |
| Folder list field 1 (optional, variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Folder list field 2 byte count | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Folder list field 2 (optional, variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Address list field (optional, variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skip block (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SRestriction field (optional, variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advanced search field (optional, variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skip block (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Version field: This field SHOULD specify the version of this BLOB definition [<2>](#).

Flag fields:

A. Ignored. This bit SHOULD be zero (0).

B. Can indicate whether folder list field 2 contains data that defines the search criteria.

C. SHOULD indicate whether folder list field 1 contains data that defines the search criteria.

D. MUST indicate whether Advanced search field exists and contains the data that defines the search criteria.

E. MUST indicate whether SRestriction field exists and contains the data that defines the search criteria.

F. MUST indicate whether **address list** field exists and contains addresses that define the search criteria.

G. SHOULD indicate that there is data in the Text search field that defines the search criteria.

H. SHOULD indicate that there is data in the Numerical search field that defines the search criteria.

I. Can indicate that this search folder is not an **active search folder**.

J. Indicates that this search folder has to be refreshed daily. That is, when updating the [PidTagSearchFolderExpiration](#) value, it SHOULD be set one day in the future.

K. Indicates that this search folder has to be refreshed weekly. That is, when updating the [PidTagSearchFolderExpiration](#) value, it SHOULD be set one week in the future.

L. Indicates that this search folder has to be refreshed monthly. That is, when updating the [PidTagSearchFolderExpiration](#) value, it SHOULD be set one month in the future.

Numerical search field: This field contains a 4-byte integer that is used by some templates to define the search criteria. If the template specified in [PidTagSearchFolderTemplateId](#) does not require it (and therefore does not set the H flag in this BLOB), this field is ignored.

Text search field length: This field contains a single byte integer that defines the length of the Text search field. The length is the number of characters. If Text search field is an empty string, this field MUST be zero (0). If Text search field is longer than 254 characters, this field MUST be 255.

Text search field length extended: This field MUST NOT exist if the value of Text search field length is less than 255. If Text search field length is 255, this field contains a 2-byte integer defining the length of the Text search field. The length is the number of characters.

Text search field: If Text search field length is zero (0), this field MUST NOT exist. If Text search field length is non-zero, this field contains a string used by some templates to define the search criteria. If the template specified in [PidTagSearchFolderTemplateId](#) does not require it (and therefore does not set the G flag in this BLOB), this field is ignored. It MUST NOT be longer than 65,536 characters.

Skip block: This contains at least a 4-byte integer that defines how many bytes to skip ahead. This is for future versions to insert new data. If there is no data to skip, the value of this field MUST be zero (0), and its size will be 4 bytes. If there is data to skip, the size of this field MUST be 4 bytes plus the size of the data to be skipped.

Deep search field: This field contains a 4-byte integer that represents a Boolean value. It defines whether the search criteria have to include sub-folders. This MUST be set to zero (0) for false, and it MUST be set to a non-zero value for true.

Folder list field 1 length: This field contains a single byte integer that defines the length of folder list field 1. The length is the number of characters. If folder list field 1 is an empty string, this field MUST be zero (0). If folder list field 1 is longer than 254 characters, this field MUST be 255.

Folder list field 1 length extended: This field MUST NOT exist if the value of folder list field 1 length is less than 255. If folder list field 1 length is 255, this field contains a 2-byte integer that defines the length of the folder list field 1. The field length is the number of characters.

Folder list field 1: If folder list field 1 length is zero (0), this field MUST NOT exist. If folder list field 1 length is non-zero, this field contains a string that is used by some templates to define the folder names to search, delimited by semicolons. If the template specified in

[PidTagSearchFolderTemplateId](#) does not require it (and therefore does not set the C flag in this BLOB), this field is ignored. It MUST NOT be longer than 65,536 characters.

*Folder list field 1 = [folder_name] [";" folder_name]**

Folder list field 2-byte count: This field contains a 4-byte integer that defines the number of bytes in the next field, folder list field 2. If the template specified in [PidTagSearchFolderTemplateId](#) does not require folder list field 2 (and therefore does not set the B flag in this BLOB), this field MUST be set to zero (0).

Folder list field 2: If folder list field 2 byte count is greater than zero (0), this field MUST exist and contains an **EntryList** [\[MS-OXCDATA\]](#) that is used by some templates to define the search criteria. If folder list field 2 byte count is equal to zero (0), this field MUST NOT exist.

Address list field: If the template specified in [PidTagSearchFolderTemplateId](#) requires this field (and sets the F flag in this BLOB), this field MUST exist and contains an **AddressList** of addresses used by some templates to define the search criteria. If the template does not require it (and therefore does not set the F flag in this BLOB), this field MUST NOT exist. This field is formatted as follows:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| AddressCount | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Addresses (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AddressCount: This field contains a 4-byte unsigned integer that gives the number of addressees to follow.

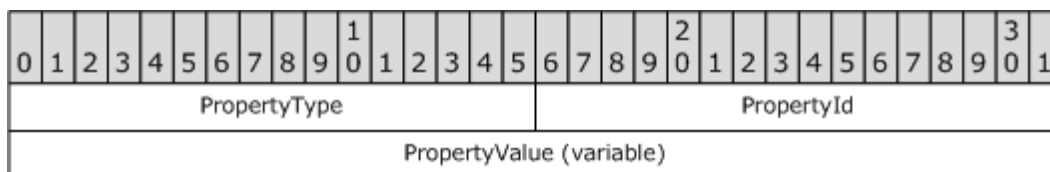
Addresses: This field contains AddressCount and **AddressEntry** structures. An AddressEntry is a set of properties that represent one addressee, and is specified as follows:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| PropertyCount | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Values (variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PropertyCount: This field contains a 4-byte unsigned integer that gives the number of values to follow.

Pad: Ignored, this 4-byte field can be any value.

Values: This field contains PropertyCount properties that specify the properties of an addressee. These properties are each formatted as follows:



PropertyType: This field contains a 2-byte integer that specifies the type of PropertyValue.

PropertyId: This field contains a 2-byte integer that identifies the data in PropertyValue.

PropertyType and PropertyId together specify a property. Each AddressEntry MUST include the following nine properties: [PidTagDisplayName](#), [PidTagPrimarySmtpAddress](#), [PidTagAddressType](#), [PidTagEntryId](#), [PidTagObjectType](#), [PidTagDisplayType](#), [PidTagDisplayTypeEx](#), [PidTagEmailAddress](#), and [PidTagRecipientType](#). Other PropertyIds can be included. See [\[MS-OXPROPS\]](#) for more details and a complete list of properties.

PropertyValue: The contents of this field depend on PropertyType. It MUST contain appropriately formatted data as specified in the following table.

| PropertyType name | PropertyType value | PropertyValue specification | Alternate names |
|---------------------|--------------------|--|-----------------|
| PtypInteger32 | 0x0003 | 4 bytes, a 32-bit integer. [MS-DTYP] : INT32 | PT_LONG, PT_I4 |
| PtypErrorCode | 0x000A | 4 bytes, a 32-bit integer encoding error information | PT_ERROR |
| PtypBoolean | 0x000B | 2 bytes, a 16-bit integer, zero (0) is false, non-zero is true. | PT_BOOLEAN |
| PtypString | 0x001F | Variable size, a 16-bit byte count followed by a string of Unicode characters in UTF-16LE encoding with terminating null character (2 bytes of zero). | PT_UNICODE |
| PtypString8 | 0x001E | Variable size, a 16-bit byte count followed by a string of multi-byte characters in externally specified encoding with terminating null character (single 0 byte). | PT_STRING8 |
| PtypTime | 0x0040 | 8 bytes, a 64-bit integer representing the number of 100-nanosecond intervals since January 1, 1601. [MS-DTYP] : FILETIME | PT_SYSTIME |
| PtypBinary | 0x0102 | Variable size, a 16-bit byte count followed by that many bytes. | PT_BINARY |
| PtypMultipleString8 | 0x101E | Variable size, a 16-bit byte count followed by that many PtypString8 values (as specified above) | PT_MV_STRING8 |
| PtypMultipleBinary | 0x1102 | Variable size, a 16-bit byte count followed by that many PtypBinary values (as specified above). | PT_MV_BINARY |

Skip block: See skip block, previously in this section.

SRestriction field: If the template specified by [PidTagSearchFolderTemplateId](#) requires this field (and sets the E flag in this BLOB), this field MUST exist and contains a SRestriction that explicitly defines the search criteria. If the template does not require it (and therefore does not set the E flag in this BLOB), this field MUST NOT exist.

Advanced search field: If the template specified by [PidTagSearchFolderTemplateId](#) requires this field (and sets the D flag in this BLOB), this field MUST exist and contains a BLOB representing the advanced search dialog. If the template does not require it (and therefore does not set the D flag in this BLOB), this field MUST NOT exist.

Skip block: See skip block, earlier in this section.

2.2.1.2.9 PidTagSearchFolderRecreateInfo

This property MAY not be used.

2.2.2 Search Folder Container

While the definition message persists, the definition of a search folder, a search folder container only exists if the search folder is an active search folder. If a search folder is inactive, the search folder container will not exist. For more details about active and **inactive search folders**, and the relationship between definition messages and search folder containers, see [2.2.4](#).

A search folder container is created and modified as described in sections [3.1.4.1](#) and [3.1.4.3](#). A search folder container uses search criteria, a feature that is not unique to this protocol. These folders also require the use of several common properties.

2.2.2.1 Common Properties

These properties are not unique to search folder containers, but their values have to be correct to function in the search folder protocol.

2.2.2.1.1 PidTagContainerClass

[PidTagContainerClass](#) MUST be set to "IPF.Note" for the folder to be recognized as a search folder container.

2.2.2.1.2 PidTagExtendedFolderFlags

[PidTagExtendedFolderFlags](#) is a BLOB specified in [\[MS-OXOCFG\]](#). It MUST contain equivalent data to the [PidTagSearchFolderId](#) of the definition message and [PidTagSearchFolderTag](#) properties of the definition message. For more details about how these properties work together, see section 2.2.4.

The Folder flags BLOB specified in [\[MS-OXOCFG\]](#) defines a number of sub-properties, each consisting of an Id, Cb, and Data block. These sub-properties include SearchFolderID, which corresponds to the [PidTagSearchFolderId](#) property of the definition message.

The Search Folder List Configuration protocol extends that BLOB by defining another sub-property, SearchFolderTag. This sub-property corresponds with the [PidTagSearchFolderTag](#) property of the definition message and is specified as follows:

| Sub-property field | Value |
|--------------------|--|
| Id | 0x03 |
| Cb | 0x04 |
| Data | A 4-byte number that matches the PidTagSearchFolderTag property of the definition message. |

2.2.3 Search Templates

Search folder criteria are specified by a template [<3>](#). The [PidTagSearchFolderTemplateId](#) property on the Message that defines the search folder identifies its corresponding template. In addition to defining search criteria, a template also defines folders to exclude from the search, defines items to exclude from the search, and specifies the value of [PidTagSearchFolderStorageType](#). For more details about the folders that are excluded from the search, see [\[MS-OXOSFLD\]](#). For more details about the item types that are excluded from the search, see the following:

- [\[MS-OXOCAL\]](#) for details about appointments.
- [\[MS-OXOCNTC\]](#) for details about contacts.
- [\[MS-OXOABK\]](#) for details about distribution lists.
- [\[MS-OXOJRNL\]](#) for details about journal items.
- [\[MS-OXONOTE\]](#) for details about sticky notes.
- [\[MS-OXOTASK\]](#) for details about tasks.

The flags set in [PidTagSearchFolderStorageType](#) (as specified in [2.2.1.2.6](#)) and in the second field of the binary data in [PidTagSearchFolderDefinition](#) (as specified in [2.2.1.2.8](#)) vary according to template. The fields required in the binary data of [PidTagSearchFolderDefinition](#) also vary according to template. The remaining subsections within [2.2.3](#) define the templates, including their requirements for [PidTagSearchFolderStorageType](#) flags and [PidTagSearchFolderDefinition](#) fields. [<4>](#) [<5>](#)

2.2.3.1 Unread Messages

| ID | 2 |
|---|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x0000048 (B and E) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing Unread messages.</p> |

2.2.3.2 Marked for Followup

| ID | 3 |
|---|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox <6> |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000048 (B and E) |
| PidTagSearchFolderDefinition fields | Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template. SRestriction field: A SRestriction describing messages that are marked for follow-up. |

2.2.3.3 Unread or Marked for Followup

| ID | 4 |
|---|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000048 (B and E) |
| PidTagSearchFolderDefinition fields | Folder list field 2: The EntryList of folders to search. This includes all mailbox folders, except the ones specifically excluded for this template. SRestriction field: A SRestriction describing the unread message AND messages marked for follow-up. |

2.2.3.4 Important Mail

| ID | 5 |
|---|--|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts <7> |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000048 (B and E) |
| PidTagSearchFolderDefinition fields | Folder list field 2: The EntryList of folders to search. This includes all Mailboxfolders, except the ones specifically excluded for this template. SRestriction field: SRestriction messages that have been marked as important. |

2.2.3.5 Conversations

| ID | 6 |
|-------------------------|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts |

| ID | 6 |
|---|--|
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x0000004e (B, E, F, and G) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This includes all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages to and from people in the address list field.</p> <p>Address list field: An AddressList of the people by which to filter conversations.</p> <p>Text search field: A text list of the people by which to filter conversations.</p> |

2.2.3.6 From a Specific Person

| ID | 7 |
|---|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts, Sent Items |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x0000004e (B, E, F, and G) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages from people in the address list field.</p> <p>Address list field: An AddressList of the people by which to filter received messages.</p> <p>Text search field: A text list of the people by which to filter received messages.</p> |

2.2.3.7 Sent Directly to Me

| ID | 8 |
|---|--|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts, Sent Items |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000048 (B and E) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages that include</p> |

| | |
|-----------|--------------------------|
| ID | 8 |
| | the user as a recipient. |

2.2.3.8 Sent to a Specific Distribution List

| | |
|---|--|
| ID | 9 |
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail |
| Item Types excluded | appointments, contacts, distribution lists, journal items, sticky notes, tasks, |
| PidTagSearchFolderStorageType | 0x0000004e (B , E , F , and G) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages to distribution lists in the address list field.</p> <p>Address field: An AddressList of the distribution lists by which to filter messages.</p> <p>Text search field: A text list of the distribution lists by which to filter messages.</p> |

2.2.3.9 Large Messages

| | |
|---|---|
| ID | 10 |
| Folders excluded | Failed Sync Items, Deleted Items |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x0000004b (B , E , G , and H) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This includes all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages that are larger than n kilobytes, where n is the number specified in Number search field.</p> <p>Text search field: The size as a string, including units. Example: 99 KB</p> <p>Number search field: The size to filter by, in kilobytes.</p> |

2.2.3.10 Old Mail

| | |
|----------------------------|--|
| ID | 11 |
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |

| ID | 11 |
|---|--|
| PidTagSearchFolderStorageType | 0x00004049 (B , E , H , and J) This SHOULD include J (daily), to indicate that these folders have to update daily. It can include K or L instead of J . |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages that are older than the age specified in Number search field.</p> <p>Number search field: The age. This is formatted as follows (in big-endian byte order):</p> <p>HIWORD: These 2 bytes describe the units.</p> <p>0x0000: Days</p> <p>0x0001: Weeks</p> <p>0x0002: Months</p> <p>LOWORD: These 2 bytes describe the amount.</p> <p>For example, 0x0001002a would mean an age of 42 weeks.</p> |

2.2.3.11 With Attachments

| ID | 12 |
|---|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts <8> |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000048 (B and E) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages that have file attachments.</p> |

2.2.3.12 Mail Received This Week

| ID | 13 |
|---|--|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Drafts, Outbox, Sent Items |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00002048 (B, E, and K) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction that describes messages that arrived on or after the first day of the current week, but no later than seven days after the first day of the week. The first day of the week is</p> |

| ID | 13 |
|----|---|
| | determined by computer locale settings but can potentially be overridden by the user. |

2.2.3.13 With Specific Words

| ID | 14 |
|---|---|
| folders excluded | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts <9> |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x0000004a (B , E , and G) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: A SRestriction describing messages that contain words specified in the Text search field.</p> <p>Text search field: The words for which to search.</p> |

2.2.3.14 Categorized

| ID | 15 |
|---|---|
| Folders excluded | Failed Sync Items, Deleted Items, Junk E-mail |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000048 (B and E) (any category) 0x0000004a (B , E , and G) (specific categories) |
| PidTagSearchFolderDefinition fields | <p>Folder list field 2: The EntryList of folders to search. This will include all Mailbox folders, except the ones specifically excluded for this template.</p> <p>SRestriction field: SRestriction describing messages that have a category. If G is specified in PidTagSearchFolderStorageType, the SRestriction specifies messages that have a category matching the string in Text search field.</p> <p>Text search field: The category text to match, if G is specified.</p> |

2.2.3.15 Custom

| ID | 1 |
|---|--|
| Folders excluded | Failed Sync Items |
| Item Types excluded | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |
| PidTagSearchFolderStorageType | 0x00000010 (D) This template can contain other flags, but MUST include this flag. |

| ID | 1 |
|---|---|
| PidTagSearchFolderDefinition fields | Advanced search field: A client specific binary serialization of the advanced find dialog. |

2.2.4 Search Folder Definition Messages and Search Folder Containers

A search folder exists only if it has a definition message. Each definition message **MUST** have a GUID, stored in the [PidTagSearchFolderId](#) property. This GUID is fixed and **MUST NOT** change. Search folder containers also have a GUID, stored in the **SearchFolderId** sub-property of the [PidTagExtendedFolderFlags](#) property. A search folder container **MUST** have the same **SearchFolderId** as the [PidTagSearchFolderId](#) of its corresponding definition message. If it does not, that search folder container **SHOULD** be deleted. This is how a definition message is connected to a corresponding search folder container. If both the search folder container and the definition message exist (with search folder container **SearchFolderId** matching definition message [PidTagSearchFolderId](#)), the search folder is active. If the search folder container does not exist, the search folder is inactive. The client can make an inactive search folder active by creating the search folder container as specified in section [3.1.4.1.2](#).

To keep the search folder container updated, the client uses the [PidTagSearchFolderTag](#) property on the search folder definition message and the corresponding SearchFolderTag property stored in the [PidTagExtendedFolderFlags](#) property of the search folder container. When a search folder container is created, this SearchFolderTag property **MUST** have the value as the [PidTagSearchFolderTag](#) property on its corresponding definition message. If the definition message is changed, the value of [PidTagSearchFolderTag](#) **MUST** change. If this scenario occurs, the corresponding search folder container would have an unmatched SearchFolderTag value, so the client **MUST** update the physical search folder to set the SearchFolderTag value to match the value of [PidTagSearchFolderTag](#) on the definition message. For more details, see [3.1.4.3](#).

3 Protocol Details

3.1 Client Details

3.1.1 Abstract Data Model

This section specifies 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.

All data necessary for the search folder protocol is persisted in the search folder definition message, the format of which is specified in [2.2.1](#). This data is used to create and maintain search folder containers, as specified in [2.2.2](#).

3.1.2 Timers

None.

3.1.3 Initialization

For this protocol, there is no specific initialization, as all messages use the existing connection assumed in section [1.5](#).

To display the list of existing search folders to the user at start-up, the client:

- SHOULD return the associated messages (as specified in [\[MS-OXCMSG\]](#)) in the Common Views folder (as specified in [\[MS-OXOSFLD\]](#)) from the message database (as specified in [\[MS-OXCSTOR\]](#)). Each Message with [PidTagMessageClass](#) set to "IPM.Microsoft.Wunderbar.SFInfo" is a search folder definition message.
- SHOULD load the Folder objects (as specified in [\[MS-OXCFOLD\]](#)) in the **Finder folder** (as specified in [\[MS-OXOSFLD\]](#)). Each folder with property [PidTagFolderType](#) set to FOLDER_SEARCH (0x00000002) and [PidTagContainerClass](#) set to "IPF.Note" is a search folder container.
- SHOULD examine the [PidTagExtendedFolderFlags](#) property, SearchFolderTag sub-property (as specified in [\[MS-OXOCFG\]](#)) of each search folder container. If that GUID matches the value of a search folder definition message [PidTagSearchFolderId](#) property, that Folder Object is associated with that search Message.
- MUST delete any search folder container that does not have a corresponding search folder definition message.

3.1.4 Higher-Layer Triggered Events

3.1.4.1 Creating a Search Folder

To create a search folder, the client MUST complete three steps:

- Obtain data to define the search criteria.
- Create the search folder container to contain the search results.
- Create the definition message to persist the search folder.

The remaining subsections of [3.1.4.1](#) specify details for each of these steps.

3.1.4.1.1 Obtaining Data

The client SHOULD do the following:

- Obtain a name for the search folder.
- Identify which template to use. For more details about search templates, see [2.2.3](#).
- Obtain specific data needed by the chosen template.

3.1.4.1.2 Creating a New Search Folder Container

In the "Finder" folder of the message database, the client MUST create a new search folder container that has the following properties:

| Property | Value |
|---|---|
| PidTagFolderType | MUST be FOLDER_SEARCH (0x00000002) |
| PidTagDisplayName | SHOULD be name for the search folder, as specified in section 3.1.4.1.1 . |
| PidTagContainerClass | MUST be IPF.Note. |
| PidTagExtendedFolderFlags | MUST contain a BLOB, as specified in [MS-OXOCFG] . Among others, that BLOB MUST contain: <ul style="list-style-type: none">▪ SearchFolderID: a generated GUID identifying the Message object. This MUST be the same as PidTagSearchFolderId of the Message object created (as specified in section 3.1.4.1.3).▪ SearchFolderTag: another ID, often a TickCount, used to indicate whether this Folder Object is synchronized with the associated Message object.▪ ExtendedFlags: search folders support the total COUNT and unread COUNT flags. |

The client MUST also set the search criteria. For more details, see [\[MS-OXCFOLD\]](#) and [\[MS-OXOCFG\]](#).

3.1.4.1.3 Creating a New Definition Message

In the associated message table of the Common Views folder in the message database, the client MUST create a new definition message and populate each property specified in section [2.2.1.2](#).

| Property | Value |
|--|--|
| PidTagMessageClass | MUST be "IPM.Microsoft.WunderBar.SFInfo". |
| PidTagDisplayName | SHOULD match the name of the search folder. |
| PidTagSearchFolderId | MUST be the same GUID as stored in the extended folder properties BLOB on the Folder Object. |
| PidTagSearchFolderTemplateId | MUST be the ID of the template chosen, as specified in section 2.2.3 . |

| Property | Value |
|---|--|
| PidTagSearchFolderTag | SHOULD be the same value as the SearchFolderTag stored in the PidTagExtendedFolderFlags property BLOB on the Folder Object. |
| PidTagSearchFolderLastUsed | SHOULD be set to the current time. |
| PidTagSearchFolderExpiration | SHOULD be set to the date and time at which the search folder container object will be deleted. |
| PidTagSearchFolderStorageType | SHOULD clear the 0x00008000 flag, because the search folder container object exists. The value of this flag SHOULD be the value specified by the template definition in section 2.2.3 . The 0x00000004, 0x00000008, and 0x00000010 (big-endian) flags MUST be set as specified by the template being used. |
| PidTagSearchFolderEfpFlags | SHOULD be the same as the flags stored in the extended folder properties BLOB on the Folder Object. |
| PidTagSearchFolderDefinition | <p>MUST contain a BLOB as specified in section 2.2.1.2.8. ULONG version of the search folder implementation. <10> ULONG value in PidTagSearchFolderStorageType. ULONG number used by the search template. This number MUST be present, regardless of whether the template specifies it or not. Unicode string with preceding length used by the search template. This MUST be present, regardless of whether the template specifies it or not. See section 2.2.1.2.8 for the exact format. A skip block, a ULONG defining how many more ULONGs to read and skip. If no skipping is needed, this value MUST be 0x00000000. Boolean: whether the search is to search sub-folders. This MUST be present. Unicode string with preceding length of semi-colon delimited folder names indicating the folders to search. See section 2.2.1.2.8 for the exact format. This field is only used by the Custom template (as specified in section 2.2.3.14). ULONG indicating the byte size of the following field. EntryList containing the folders to search. This MUST be present if the previous field is greater than zero (0). AddressList containing the addresses related to the search criteria. This MUST be present if PidTagSearchFolderStorageType contains the 0x00000004 flag. If PidTagSearchFolderStorageType does not contain that flag, this field MUST NOT be present. Another skip block. The SRestriction criteria for the search folder. This MUST be present if PidTagSearchFolderStorageType contains 0x00000008. If PidTagSearchFolderStorageType does not contain that flag, this field MUST NOT be present. BLOB detailing an advanced custom search folder. This BLOB MUST be present if PidTagSearchFolderStorageType contains 0x00000010. If PidTagSearchFolderStorageType does not contain that flag, this field MUST NOT be present.</p> |

3.1.4.2 Opening a Search Folder

If the search folder is not active, the client MUST create the folder in the finder of the message database, as specified in [3.1.4.1](#).

If the current date/time is later than the [PidTagSearchFolderExpiration](#) value of the search folder Message, the client SHOULD recreate the criteria and update the Message and the folder.

After the Folder Object is updated, or if the search folder was active already, the client MUST open the folder. When the search folder is opened, the client SHOULD set the value of [PidTagSearchFolderLastUsed](#) to the current time.

3.1.4.3 Modifying a Search Folder

Any changes to the search folder MUST be made to the definition message in the Common Views associated table. The search folder container (if one exists) MUST be updated or deleted. If it is deleted, it MUST be updated or recreated when the search folder is accessed. In addition to any change:

- The [PidTagSearchFolderTag](#) of the Message object and the, SearchFolderTag sub-property in the search folder container [PidTagExtendedFolderFlags](#) property SHOULD be updated. These new values MUST be equal.
- The [PidTagSearchFolderLastUsed](#) SHOULD be set to the current time.

3.1.4.4 Deleting a Search Folder

To delete a search folder, the client MUST delete the Message object from the Common Views associated message table and delete the Folder Object in the Finder folder. For more details about deleting messages and folders, see [\[MS-OXCMSG\]](#) and [\[MS-OXCFLD\]](#).

3.1.4.5 Current Time Exceeds PidTagSearchFolderExpiration

When the current time passes the time in [PidTagSearchFolderExpiration](#), the client SHOULD delete (mark inactive) the actual folder items in the message database finder.

3.1.5 Message Processing Events and Sequencing Rules

In the **revent** that messages with potentially conflicting changes arrive close to one another, this protocol follows the standard messaging behavior as specified in [\[MS-OXCMSG\]](#).

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

4.1 Search Folder Message Object

[illegible]

| PidTag MessageClass | IPM.Microsoft.WunderBar.SFInfo |
|---|---|
| | 4E20014EE879243A1A829B0620DBD8900000210B4D1000001000000020000000600000000000000003000070E01000000060000000100000003009710010000000000000000 |
| PidTagSearchFolderStorageType | 72 |
| PidTagSearchFolderTag | 1045439171 |
| PidTagSearchFolderFlags | 0 |

5 Security

5.1 Security Considerations for Implementers

There are no security considerations beyond those specified in [\[MS-OXCMSG\]](#) and [\[MS-OXCFOLD\]](#).

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

The information in this specification is applicable to the following product versions. References to product versions include released service packs.

- Microsoft Office Outlook 2003
- Microsoft Exchange Server 2003
- Microsoft Office Outlook 2007
- Microsoft Exchange Server 2007
- Microsoft Outlook 2010
- Microsoft Exchange Server 2010

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. The new behavior also applies to subsequent service packs of the product unless otherwise specified.

Unless otherwise specified, any statement of optional behavior in this specification 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 product does not follow the prescription.

[<1> Section 2.2.1.2.7:](#) Outlook 2003, Outlook 2007, and Outlook 2010 set the [PidTagExtendedFolderFlags](#) property of the container, sub-property ExtendedFlags, field b to 0x1 even if the [PidTagSearchFolderEfpFlags](#) property of the definition message is 0x00000000. If the value of [PidTagSearchFolderTemplateId](#) is 3 or 4, Outlook 2003, Outlook 2007, and Outlook 2010 set field b to 0x2, even if [PidTagSearchFolderEfpFlags](#) is 0x00000000.

[<2> Section 2.2.1.2.8:](#) Outlook 2003, Outlook 2007, and Outlook 2010 use 0x04100000 (network order).

[<3> Section 2.2.3:](#) Exchange 2003, Exchange 2007, and Exchange 2010 ignore the definition messages. Exchange does expose active search folders through its Outlook Web Access Web client by identifying search folder containers in the Finder folder [\[MS-OXOSFLD\]](#). These search folder containers are identified by examining the [PidTagExtendedFolderFlags](#) property of the folder, as specified in [\[MS-OXOCFG\]](#). If the sub-property SearchFolderID is defined, Exchange treats the container as a search folder. Exchange (and Outlook Web Access) do not support inactive search folders.

[<4> Section 2.2.3:](#) The Mail Received This Week template is not supported in Outlook 2007 and Outlook 2010.

[<5> Section 2.2.3:](#) The Categorized template is not supported in Outlook 2003.

[<6> Section 2.2.3.2:](#) In Outlook 2003, the following folders are excluded by the Marked for Followup template: Failed Sync Items, Deleted Items, and Junk E-mail.

[<7> Section 2.2.3.4:](#) In Outlook 2003, the following folders are excluded by the Important Mail template: Failed Sync Items, Deleted Items, Junk E-mail, Drafts, Outbox, and Sent Items.

[<8> Section 2.2.3.11:](#) In Outlook 2003, the following folders are excluded by the With attachments template: Failed Sync Items, Deleted Items, Junk E-mail, Drafts, Outbox, and Sent Items.

[<9> Section 2.2.3.13:](#) In Outlook 2003, the following folders are excluded by the With Specific Words template: Failed Sync Items, Deleted Items, Junk E-mail, Drafts, Outbox, and Sent Items.

[<10> Section 3.1.4.1.3:](#) Outlook 2003, Outlook 2007, and Outlook 2010 use 0x04100000 (network order).

7 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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