

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

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## Revision Summary

| Date       | Revision History | Revision Class | Comments  |
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| 04/25/2008 | 0.2              |                | Revised and updated property names and other technical content. |
| 06/27/2008 | 1.0              |                | Initial Release.  |
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| 08/04/2010 | 3.2              | Minor          | Clarified the meaning of the technical content.                 |
| 11/03/2010 | 3.3              | Minor          | Clarified the meaning of the technical content.                 |

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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)**  
**Common Views folder**  
**Coordinated Universal Time (UTC)**  
**EntryList**  
**Finder folder**  
**folder**  
**Folder object**  
**GUID**  
**mailbox**  
**message**  
**message database (MDB)**  
**Message object**  
**property (1)**  
**search criteria**  
**search folder**  
**search folder container**  
**search folder definition message**  
**skip block**  
**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**.

**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](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-DTYP] Microsoft Corporation, "Windows Data Types", March 2007, <http://msdn.microsoft.com/en-us/library/cc230273.aspx>

[MS-NSPI] Microsoft Corporation, "Name Service Provider Interface (NSPI) Protocol Specification", April 2008, [http://msdn.microsoft.com/en-us/library/dd942204\(Prot.10\).aspx](http://msdn.microsoft.com/en-us/library/dd942204(Prot.10).aspx)

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

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

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

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

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

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

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

[MS-OXOCAL] Microsoft Corporation, "[Appointment and Meeting Object Protocol Specification](#)", April 2008.

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

[MS-OXOCNTC] Microsoft Corporation, "[Contact Object Protocol Specification](#)", April 2008.

[MS-OXOJRNL] Microsoft Corporation, "[Journal Object Protocol Specification](#)", April 2008.

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

[MS-OXONOTE] Microsoft Corporation, "[Note Object Protocol Specification](#)", April 2008.

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

[MS-OXOTASK] Microsoft Corporation, "[Task-Related Objects Protocol Specification](#)", April 2008.

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

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

[MSDN-FAIT] Microsoft Corporation, "Folder-Associated Information Tables", <http://msdn.microsoft.com/en-us/library/ms531548.aspx>

## 1.3 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 messaging as specified in [\[MS-OXCMMSG\]](#) 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 section [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. [<1>](#) 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

Type: **PtypString**

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

Type: **PtypString**

[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

Type: **PtypBinary**



[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 section [2.2.4](#).

#### 2.2.1.2.2 PidTagSearchFolderTemplateId

Type: **PtypInteger32**

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

#### 2.2.1.2.3 PidTagSearchFolderTag

Type: **PtypInteger32**

[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 section [2.2.4](#).

#### 2.2.1.2.4 PidTagSearchFolderLastUsed

Type: **PtypInteger32**

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

#### 2.2.1.2.5 PidTagSearchFolderExpiration

Type: **PtypInteger32**

[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

Type: **PtypInteger32**

[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 section [2.2.1.2.8](#). The specific flags to use depends on the template; section [2.2.3](#) specifies the correct flags for each template definition.

The definitions of the flags are specified in network order in section [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     |

| Flag | Big-endian Bit |
|------|----------------|
| G    | 0x00000002     |
| H    | 0x00000001     |
| I    | 0x00008000     |
| J    | 0x00004000     |
| K    | 0x00002000     |
| L    | 0x00001000     |

### 2.2.1.2.7 PidTagSearchFolderEfpFlags

Type: **PtypInteger32**

[PidTagSearchFolderEfpFlags](#) SHOULD contain the flags in the **b** field of the **ExtendedFlags** sub-property in the [PidTagSearchFolderEfpFlags](#) property on the search folder, as specified in [\[MS-OXOCFG\]](#) section 2.2.6.1.2. <2>

### 2.2.1.2.8 PidTagSearchFolderDefinition

Type: **PtypBinary**

[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 | 10 | 11 | 12       | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                       | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| Version                 |   |   |   |   |   |   |   |  |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| A                       | B | C | D | E | F | G | H | I  | J | K  | L  | Reserved |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| Numerical Search        |   |   |   |   |   |   |   |  |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| Text Search Length      |   |   |   |   |   |   |   | Text Search Extended Length (optional)   |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    | Text Search (variable)   |    |    |    |    |    |    |    |
| ...                     |   |   |   |   |   |   |   |  |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| Skip Block 1 (variable) |   |   |   |   |   |   |   |  |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| ...                     |   |   |   |   |   |   |   |  |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| Deep Search             |   |   |   |   |   |   |   |  |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    |                          |    |    |    |    |    |    |    |
| Folder List 1 Length    |   |   |   |   |   |   |   | Folder List 1 Extended Length (optional) |   |    |    |          |    |    |    |    |    |    |    |    |    |    |    | Folder List 1 (variable) |    |    |    |    |    |    |    |

|                            |
|----------------------------|
| ...                        |
| Folder List 2 Length       |
| Folder List 2 (variable)   |
| ...                        |
| Address List (variable)    |
| ...                        |
| Skip Block 2 (variable)    |
| ...                        |
| Restriction (variable)     |
| ...                        |
| Advanced Search (variable) |
| ...                        |
| Skip Block 3 (variable)    |
| ...                        |

**Version (4 bytes):** This field SHOULD [<3>](#) specify the version of this BLOB definition.

**A (1 bit):** Ignored. This bit SHOULD be zero (0).

**B (1 bit):** If this field is set, the **Folder List 2** field SHOULD contain data that defines the search criteria.

**C (1 bit):** If this field is set, the **Folder List 1** field SHOULD contain data that defines the search criteria.

**D (1 bit):** If set to 1, the **Advanced Search** field exists. If set to 0, the **Advanced Search** is absent.

**E (1 bit):** MUST indicate whether the **Restriction** field exists and contains data that defines the search criteria.

**F (1 bit):** MUST indicate whether the **Address List** field exists and contains addresses that define the search criteria.

**G (1 bit):** SHOULD indicate that there is data in the **Text Search** field that defines the search criteria.

**H (1 bit):** SHOULD indicate that there is data in the **Numerical Search** field that defines the search criteria.

**I (1 bit):** Can indicate that this search folder is not an **active search folder**.

**J (1 bit):** 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 (1 bit):** 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 (1 bit):** 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.

**Reserved (20 bits):** Ignored. Should be set to 0x00000.

**Numerical Search (4 bytes):** 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 Length (1 byte):** This field contains a single byte integer that defines the length of the **Text Search** field. The length is the number of characters. If the **Text Search** field is an empty string, this field MUST be zero (0). If the **Text Search** field is longer than 254 characters, this field MUST be 255.

**Text Search Extended Length (2 bytes):** This field MUST NOT exist if the value of **Text Search Length** is less than 255. If **Text Search 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 (variable):** If **Text Search Length** is zero (0), this field MUST NOT exist. If **Text Search Length** is nonzero, 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 1 (variable):** This field contains a **skip block**, which is 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 (4 bytes):** 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 nonzero value for true.

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

**Folder List 1 Extended Length (2 bytes):** This field MUST NOT exist if the value of **Folder List 1 Length** is less than 255. If **Folder List 1 Length** is 255, this field contains a 2-byte integer that defines the length of the **Folder List 1**. The field length is the number of characters.

**Folder List 1 (variable):** If **Folder List 1 Length** is zero (0), this field MUST NOT exist. If **Folder List 1 Length** is nonzero, 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 2 Length (4 bytes):** This field contains a 4-byte integer that defines the number of bytes in the **Folder List 2** field. If the template specified in [PidTagSearchFolderTemplateId](#) does not require the **Folder List 2** (and therefore does not set the **B** flag in this BLOB), this field MUST be set to zero (0).

**Folder List 2 (variable):** If **Folder List 2 Length** is greater than zero (0), this field MUST exist and contains an **EntryList** ([\[MS-OXCDATA\]](#) section 2.3.1) that is used by some templates to define the search criteria. If **Folder List 2 Length** is equal to zero (0), this field MUST NOT exist.

**Address List (variable):** 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** structure (section [2.2.1.2.8.1](#)). If the template does not require it (and therefore does not set the **F** flag in this BLOB), this field MUST NOT exist.

**Skip Block 2 (variable):** This field contains a skip block, which is 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.

**Restriction (variable):** If the template specified by [PidTagSearchFolderTemplateId](#) requires this field (and sets the **E** flag in this BLOB), this field MUST exist and contains a **Restriction** structure (section [2.2.1.2.8.2](#)) 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 (variable):** If the **D** flag is set, this field contains a variable amount of bytes that SHOULD be ignored. If the **D** flag is not set, this field MUST NOT exist.

**Skip Block 3 (variable):** This field contains a skip block, which is 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.

### 2.2.1.2.8.1 AddressList

The **AddressList** structure contains a list of addresses.

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

**AddressCount (4 bytes):** This field contains a 4-byte unsigned integer that indicates the number of **AddressEntry** structures in the **Addresses** field.

**Addresses (variable):** This field contains an array of **AddressEntry** structures, as specified in section [2.2.1.2.8.1.1](#).

### 2.2.1.2.8.1.1 AddressEntry

The **AddressEntry** structure contains properties that represent an addressee.

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

**PropertyCount (4 bytes):** This field contains a 4-byte unsigned integer that indicates the number of **PropertyValue** structures in the **Values** field.

**Pad (4 bytes):** Ignored. This field can be any value.

**Values (variable):** This field contains an array of **PropertyValue** structures (section [2.2.1.2.8.1.1.1](#)). This field MUST include the properties in the following list. Other properties can be included.

- [PidTagDisplayName](#) ([MS-OXPROPS] section 2.748)
- [PidTagAddressType](#) ([MS-OXPROPS] section 2.642)
- [PidTagEntryId](#) ([MS-OXPROPS] section 2.761)
- [PidTagObjectType](#) ([MS-OXPROPS] section 2.911)
- [PidTagDisplayType](#) ([MS-OXPROPS] section 2.751)
- [PidTagDisplayTypeEx](#) ([MS-OXPROPS] section 2.752)
- [PidTagEmailAddress](#) ([MS-OXPROPS] section 2.754)
- [PidTagRecipientType](#) ([MS-OXPROPS] section 2.1015)

### 2.2.1.2.8.1.1.1 PropertyValue

The **PropertyValue** structure represents a single property of an addressee.

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

...

**PropertyType (2 bytes):** This field contains a 2-byte integer that specifies the type of data in the **Value** field. It can have one of the following values.

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

**PropertyId (2 bytes):** This field contains a 2-byte integer that identifies the data in the **Value** field.

**Value (variable):** The contents of this field depend on the value of the **PropertyType** field. It must contain appropriately formatted data as specified in this section in the **PropertyType** field values table.

## 2.2.1.2.8.2 Restriction

The **Restriction** structure represents a filter that defines the search criteria in a search folder.

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

**RestrictionType (4 bytes):** This field contains a 4-byte integer that specifies the type of structure in the **RestrictionData** field. It can have one of the following values.

| RestrictionType name       | RestrictionType value | RestrictionData specification   |
|----------------------------|-----------------------|---|
| <b>AndRestriction</b>      | 0x00000000            | Variable size, a 32-bit count of subrestrictions, followed by the subrestrictions in <b>Restriction</b> format. An object satisfies this filter if and only if all subrestrictions are satisfied.   |
| <b>OrRestriction</b>       | 0x00000001            | Variable size, a 32-bit count of subrestrictions, followed by the subrestrictions in <b>Restriction</b> format. An object satisfies this filter if at least one subrestriction is satisfied.  |
| <b>NotRestriction</b>      | 0x00000002            | Variable size, a subrestriction in <b>Restriction</b> format. An object satisfies this filter if and only if the subrestriction is not satisfied.   |
| <b>ContentRestriction</b>  | 0x00000003            | Variable size, a 32-bit <b>ulFuzzyLevel</b> field ( <a href="#">[MS-NSPI]</a> ), followed by a 32-bit <b>PropertyTag</b> structure ( <a href="#">[MS-OXCDATA]</a> section 2.9), followed by the comparand in <b>PropertyValue</b> format (section <a href="#">2.2.1.2.8.1.1.1</a> ). An object satisfies this filter if and only if the given property is equivalent to the given comparand at the specified <b>ulFuzzyLevel</b> value.   |
| <b>PropertyRestriction</b> | 0x00000004            | Variable size, a 32-bit <b>RelOp</b> field ( <a href="#">[MS-OXCDATA]</a> section 2.12.5.1), followed by a 32-bit <b>PropertyTag</b> structure ( <a href="#">[MS-OXCDATA]</a> section 2.9), followed by the comparand in <b>PropertyValue</b> format (section <a href="#">2.2.1.2.8.1.1.1</a> ). An object satisfies this filter if and only if the <b>RelOp</b> value describes the given property's relationship to the comparand, as specified in <a href="#">[MS-OXCDATA]</a> section |



| RestrictionType name                | RestrictionType value | RestrictionData specification  |
|-------------------------------------|-----------------------|--|
|                                     |                       | 2.12.5.1.  |
| <b>ComparePropertiesRestriction</b> | 0x00000005            | 12 bytes, a 32-bit <b>RelOp</b> field ( <a href="#">[MS-OXCADATA]</a> section 2.12.6.1), followed by two 32-bit <b>PropertyTag</b> ( <a href="#">[MS-OXCADATA]</a> section 2.9) structures. An object satisfies this filter if and only if the <b>RelOp</b> value describes the first property's relationship to the second property, as specified in <a href="#">[MS-OXCADATA]</a> section 2.12.6.1.  |
| <b>BitMaskRestriction</b>           | 0x00000006            | 12 bytes, a 32-bit <b>BitmapRelOp</b> field ( <a href="#">[MS-OXCADATA]</a> section 2.12.7.1), followed by a 32-bit <b>PropertyTag</b> ( <a href="#">[MS-OXCADATA]</a> section 2.9) structure, followed by the comparand as a 32-bit mask. An object satisfies this filter if and only if the bitwise AND of the property with the comparand satisfies the <b>BitmapRelOp</b> value, as specified in <a href="#">[MS-OXCADATA]</a> section 2.12.7.1. |
| <b>ExistRestriction</b>             | 0x00000008            | 4 bytes, a 32-bit <b>PropertyTag</b> structure ( <a href="#">[MS-OXCADATA]</a> section 2.9). An object satisfies this filter if and only if the given property is set on the object.   |
| <b>CommentRestriction</b>           | 0x0000000A            | Variable size, a 32-bit count of annotations, followed by a subrestriction in <b>Restriction</b> format, followed by the annotations in <b>PropertyValue</b> format (section <a href="#">2.2.1.2.8.1.1.1</a> ). An object satisfies this filter if and only if the object satisfies the subrestriction. The annotations SHOULD be left intact and ignored.   |
| <b>CountRestriction</b>             | 0x0000000B            | Variable size, a subrestriction in <b>Restriction</b> format. An object satisfies this filter if and only if the object satisfies the subrestriction.  |
| <b>AnnotationRestriction</b>        | 0x0000000C            | Variable size, a 32-bit count of annotations, followed by a subrestriction in <b>Restriction</b> format, followed by the annotations in <b>PropertyValue</b> format (section <a href="#">2.2.1.2.8.1.1.1</a> ). An object satisfies this filter if and only if the object satisfies the subrestriction. The annotations SHOULD be left intact and ignored.   |

**RestrictionData (variable):** The contents of this field depend on the value of the **RestrictionType** field. It must contain appropriately formatted data as specified in the table in the description of **RestrictionType** in this section.

### 2.2.1.2.9 PidTagSearchFolderRecreateInfo

Type: **PtypBinary**

This property SHOULD 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 section [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

Type: **PtypString**

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

#### 2.2.2.1.2 PidTagExtendedFolderFlags

Type: **PtypBinary**

[PidTagExtendedFolderFlags](#) is a BLOB specified in [\[MS-OXOCFG\]](#) section 2.2.6. 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 defines the SearchFolderTag sub-property within the Folder flags BLOB ([\[MS-OXOCFG\]](#) section 2.2.6). 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 <a href="#">PidTagSearchFolderTag</a> property of the definition message. |

## 2.2.3 Search Templates

Search folder criteria are specified by a template. 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 section [2.2.1.2.6](#)) and in the second field of the binary data in [PidTagSearchFolderDefinition](#) (as specified in section [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 section [2.2.3](#) define the templates, including their requirements for [PidTagSearchFolderStorageType](#) flags and [PidTagSearchFolderDefinition](#) fields. <4><5>

### 2.2.3.1 Unread Messages

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

### 2.2.3.2 Marked for Followup

|   |   |
|---|---|
| <b>ID</b>   | <b>3</b>  |
| <b>Folders excluded</b>                             | Failed Sync Items, Deleted Items, Junk E-mail, Outbox<6>  |
| <b>Item Types excluded</b>                          | Appointments, contacts, distribution lists, journal items, sticky notes, tasks  |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x00000048 ( <b>B</b> and <b>E</b> )  |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <b>Folder list field 2:</b> The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this |

|           |   |
|-----------|---|
| <b>ID</b> | <b>3</b>  |
|           | template.<br><b>SRestriction field:</b> A SRestriction describing messages that are marked for follow-up. |

### 2.2.3.3 Unread or Marked for Followup

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

### 2.2.3.4 Important Mail

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

### 2.2.3.5 Conversations

|   |  |
|---|--|
| <b>ID</b>   | <b>6</b>   |
| <b>Folders excluded</b>                             | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts  |
| <b>Item Types excluded</b>                          | Appointments, contacts, distribution lists, journal items, sticky notes, tasks   |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x0000004e ( <b>B</b> , <b>E</b> , <b>F</b> , and <b>G</b> )   |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <b>Folder list field 2:</b> The EntryList of folders to search. This includes all mailbox folders, except the ones specifically excluded for this template.<br><b>SRestriction field:</b> A SRestriction describing messages to and from people in the address list field. |

|           |  |
|-----------|--|
| <b>ID</b> | <b>6</b>   |
|           | <p><b>Address list field:</b> An <b>AddressList</b> of the people by which to filter conversations.</p> <p><b>Text search field:</b> A text list of the people by which to filter conversations.</p> |

### 2.2.3.6 From a Specific Person

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

### 2.2.3.7 Sent Directly to Me

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

### 2.2.3.8 Sent to a Specific Distribution List

|                            |  |
|----------------------------|--|
| <b>ID</b>                  | <b>9</b>   |
| <b>Folders excluded</b>    | Failed Sync Items, Deleted Items, Junk E-mail                                  |
| <b>Item Types excluded</b> | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |

|   |   |
|---|---|
| <b>ID</b>   | <b>9</b>  |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x0000004e ( <b>B, E, F, and G</b> )  |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <p><b>Folder list field 2:</b> The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p><b>SRestriction field:</b> A SRestriction describing messages to distribution lists in the address list field.</p> <p><b>Address field:</b> An AddressList of the distribution lists by which to filter messages.</p> <p><b>Text search field:</b> A text list of the distribution lists by which to filter messages.</p> |

### 2.2.3.9 Large Messages

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

### 2.2.3.10 Old Mail

|   |  |
|---|--|
| <b>ID</b>   | <b>11</b>  |
| <b>Folders excluded</b>                             | Failed Sync Items, Deleted Items, Junk E-mail  |
| <b>Item Types excluded</b>                          | Appointments, contacts, distribution lists, journal items, sticky notes, tasks   |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x00004049 ( <b>B, E, H, and J</b> ) This SHOULD include <b>J</b> (daily), to indicate that these folders have to update daily. It can include <b>K</b> or <b>L</b> instead of <b>J</b> .  |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <p><b>Folder list field 2:</b> The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p><b>SRestriction field:</b> A SRestriction describing messages that are older than the age specified in <b>Number search field</b>.</p> <p><b>Number search field:</b> The age. This is formatted as follows (in big-endian <b>byte</b> order):</p> |

|           |   |
|-----------|---|
| <b>ID</b> | <b>11</b>   |
|           | <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

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

### 2.2.3.12 Mail Received This Week

|   |  |
|---|--|
| <b>ID</b>   | <b>13</b>  |
| <b>Folders excluded</b>                             | Failed Sync Items, Deleted Items, Junk E-mail, Drafts, Outbox, Sent Items  |
| <b>Item Types excluded</b>                          | Appointments, contacts, distribution lists, journal items, sticky notes, tasks   |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x00002048 ( <b>B</b> , <b>E</b> , and <b>K</b> )  |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <p><b>Folder list field 2:</b> The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p><b>SRestriction field:</b> 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 determined by computer locale settings but can potentially be overridden by the user.</p> |

### 2.2.3.13 With Specific Words

|                            |  |
|----------------------------|--|
| <b>ID</b>                  | <b>14</b>  |
| <b>Folders excluded</b>    | Failed Sync Items, Deleted Items, Junk E-mail, Outbox, Drafts<9>               |
| <b>Item Types excluded</b> | Appointments, contacts, distribution lists, journal items, sticky notes, tasks |

|   |   |
|---|---|
| <b>ID</b>   | <b>14</b>   |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x0000004a ( <b>B</b> , <b>E</b> , and <b>G</b> )   |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <p><b>Folder list field 2:</b> The EntryList of folders to search. This will include all mailbox folders, except the ones specifically excluded for this template.</p> <p><b>SRestriction field:</b> A SRestriction describing messages that contain words specified in the <b>Text search field</b>.</p> <p><b>Text search field:</b> The words for which to search.</p> |

#### 2.2.3.14 Categorized

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

#### 2.2.3.15 Custom

|   |   |
|---|---|
| <b>ID</b>   | <b>1</b>  |
| <b>Folders excluded</b>                             | Failed Sync Items   |
| <b>Item Types excluded</b>                          | Appointments, contacts, distribution lists, journal items, sticky notes, tasks                    |
| <a href="#">PidTagSearchFolderStorageType</a>       | 0x00000010 ( <b>D</b> )<br>This template can contain other flags, but MUST include this flag.     |
| <a href="#">PidTagSearchFolderDefinition</a> fields | <b>Advanced search field:</b> 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 section [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 section [2.2.1](#). This data is used to create and maintain search folder containers, as specified in section [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 section [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 section [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  |
|---|--|
| <a href="#">PidTagFolderType</a>          | MUST be FOLDER_SEARCH (0x00000002)   |
| <a href="#">PidTagDisplayName</a>         | SHOULD be name for the search folder, as specified in section <a href="#">3.1.4.1.1</a> .  |
| <a href="#">PidTagContainerClass</a>      | MUST be IPF.Note.  |
| <a href="#">PidTagExtendedFolderFlags</a> | <p>MUST contain a BLOB, as specified in <a href="#">[MS-OXOCFG]</a>. Among others, that BLOB MUST contain:</p> <ul style="list-style-type: none"> <li>▪ SearchFolderID: a generated GUID identifying the Message object. This MUST be the same as <a href="#">PidTagSearchFolderId</a> of the Message object created (as specified in section <a href="#">3.1.4.1.3</a>).</li> <li>▪ SearchFolderTag: another ID (such as a <b>TickCount</b> or other implementation-specific value) used to indicate whether this Folder object is synchronized with the associated Message object.</li> <li>▪ ExtendedFlags: search folders support the total COUNT and unread COUNT flags.</li> </ul> |

The client MUST also set the search criteria. For more details, see [\[MS-OXCFCFG\]](#) 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  |
|--|--|
| <a href="#">PidTagMessageClass</a>           | MUST be "IPM.Microsoft.WunderBar.SFInfo".  |
| <a href="#">PidTagDisplayName</a>            | SHOULD match the name of the search folder.  |
| <a href="#">PidTagSearchFolderId</a>         | MUST be the same GUID as stored in the extended folder properties BLOB on the Folder object. |
| <a href="#">PidTagSearchFolderTemplateId</a> | MUST be the ID of the template chosen, as specified in section <a href="#">2.2.3</a> .       |

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

### 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 event 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.

## 3.2 Server Details

None.

### **3.2.1 Abstract Data Model**

None.

### **3.2.2 Timers**

None.

### **3.2.3 Initialization**

None.

### **3.2.4 Higher-Layer Triggered Events**

None.

### **3.2.5 Message Processing Events and Sequencing Rules**

None.

### **3.2.6 Timer Events**

None.

### **3.2.7 Other Local Events**

None.



| Property                                      | Value  |
|---|--|
|   | 20DBD8900000210B4D3000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD8900000210B4D4000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD8900000210B4D1000001000000020000000600000000000000300070E010000000600000001000000030097100100000000000000 |
| <a href="#">PidTagSearchFolderStorageType</a> | 72<br>(0x48, Flags <b>B</b> and <b>E</b> )   |
| <a href="#">PidTagSearchFolderTag</a>         | 1045439171   |
| <a href="#">PidTagSearchFolderFlags</a>       | 0  |

The value of [PidTagSearchFolderDefinition](#) is interpreted as specified in section [2.2.1.2.8](#):

| Field           | Value   |
|-----------------|---|
| <b>V</b> ersion | 0x00001004  |
| <b>A</b>        | 0   |
| <b>B</b>        | 1<br>( <b>Folder List 2</b> field contains data.)   |
| <b>C</b>        | 0   |
| <b>D</b>        | 0   |
| <b>E</b>        | 1<br>( <b>Restriction</b> field exists and contains data that defines the search criteria.) |
| <b>F</b>        | 0   |
| <b>G</b>        | 0   |
| <b>H</b>        | 0   |
| <b>I</b>        | 0   |
| <b>J</b>        | 0   |
| <b>K</b>        | 0   |
| <b>L</b>        | 0   |



| Field                | Value  |
|----------------------|--|
| Numerical Search     | 0x00000000   |
| Text Search Length   | 0x00   |
| Skip Block 1         | 0x00000000   |
| Deep Search          | 0x00000001   |
| Folder List 1 Length | 0x00   |
| Folder List 2 Length | 0x0000003E   |
| Folder List 2        | <p>01000000BCCD87182E000000C4CD871800000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD890000020DEFA80000</p> <p><b>EntryList</b> structure (<a href="#">[MS-OXCDATA]</a> section 2.3.1):</p> <ul style="list-style-type: none"> <li>▪ <b>EntryCount:</b> 0x00000001</li> <li>▪ <b>Pad:</b> 0x1887CDBC</li> </ul> |

| File Id             | Value   |
|---------------------|---|
|                     | <ul style="list-style-type: none"> <li>▪ <b>EntryLength:</b> 0x0000002E, 0x1887CDC4</li> <li>▪ <b>EntryIDs:</b><br/>00000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD89000020DEFA80000</li> </ul>   |
| <b>Skip Block 2</b> | 0x00000000  |
| <b>Restriction</b>  | <p>00000000200000000000000070000000200000003000000020001001E001A001E001A00100049504D2E4170706F696E746D656E7400020000003000000020001001E001A001E001A000C0049504D2E436F6E7461637400020000003000000020001001E001A001E001A000D0049504D2E446973744C69737400020000003000000020001001E001A001E001A000D0049504D2E416374697669747900020000003000000020001001E001A001E001A000F0049504D2E537469636B794E6F7465000200000030000000000001001E001A001E001A00090049504D2E5461736B000200000003000000020001001E001A001E001A000A0049504D2E5461736B2E00000000002000000000000800000004000000050000000201090E0201090E2E0000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD890000020DEFAE000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C01004A0BB9D92C2CA846B335575CBBF05492000001640002000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD890000020DD133000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD890000020DEFAC000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD8900000210B4D2000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD8900000210B4D3000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD8900000210B4D4000004000000050000000201090E0201090E2E00000000000A19D6BCC8B44A4CBF5DF63A922E170C010014E20014EE879243A1A829B0620DBD8900000210B4D1000001000000020000000600000000000000300070E010000000600000001000000300971001000000</p> <p>(Restriction structures (<a href="#">[MS-OXCDATA]</a> section 2.12))</p> |
| <b>Skip Block 3</b> | 0x00000000  |

## 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 Microsoft products:

- 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. 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 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:](#) Exchange 2003, Exchange 2007, and Exchange 2010 ignore the definition message.

[<2> Section 2.2.1.2.7:](#) Office Outlook 2003, Office 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, Office Outlook 2003, Office Outlook 2007, and Outlook 2010 set field b to 0x2, even if [PidTagSearchFolderEfpFlags](#) is 0x00000000.

[<3> Section 2.2.1.2.8:](#) Office Outlook 2003, Office Outlook 2007, and Outlook 2010 use 0x04100000 (network order).

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

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

[<6> Section 2.2.3.2:](#) In Office 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 Office 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 Office 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 Office 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](#): Office Outlook 2003, Office Outlook 2007, and Outlook 2010 use 0x04100000 (network order).

## 7 Change Tracking

This section identifies changes that were made to the [MS-OXOSRCH] protocol document between the August 2010 and November 2010 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.
- Changes made for template compliance.
- Removal of a document from the documentation set.

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 revision 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 Definition Message</a>   | 57235<br>Added product behavior note specifying that the Exchange server ignores the definition message.  | N                     | New product behavior note added. |
| <a href="#">2.2.1.2.8.1.1 AddressEntry</a> | 57355<br>Removed PidTagPrimarySmtpAddress from the list of properties that MUST be included in the Values field.  | N                     | Content updated.                 |
| <a href="#">2.2.3 Search Templates</a>     | 57235<br>Removed product behavior note about how Exchange Server exposes active search folders through Outlook Web Access and incorporated the statement about the definition message into section 2.2.1. | N                     | Product behavior note removed.   |

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