

[MS-OXOFLAG]: Informational Flagging Protocol

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1 Introduction

The Informational Flagging Protocol allows a **Message object** to be marked for either follow-up or categorization. This protocol extends the Message and Attachment Object Protocol, which is described in [\[MS-OXCMSG\]](#).

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in [\[RFC2119\]](#). Sections 1.5 and 1.9 are also normative but do not contain those terms. All other sections and examples in this specification are informative.

1.1 Glossary

The following terms are defined in [MS-OXGLOS]:

Appointment object
basic flag
color flag
consolidated to-do list
Contact object
Coordinated Universal Time (UTC)
Draft Message object
Email object
handle
Journal object
mailbox
meeting-related object
Message object
named property
Note object
primary flag storage location
property ID
recipient
recipient flag
recipient reminder
reminder
reminder properties
remote operation (ROP)
ROP request
ROP request buffer
ROP response
ROP response buffer
secondary flag storage location
sender flag
sender reminder
Task object
time flag
Unicode

The following terms are specific to this document:

complete flag: A flag on a messaging object that indicates that the associated work item has been completed.

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

1.2 References

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

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information.

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

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

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

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

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

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

[MS-OXOMSG] Microsoft Corporation, "[Email Object Protocol](#)".

[MS-OXORMDR] Microsoft Corporation, "[Reminder Settings Protocol](#)".

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

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

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

1.2.2 Informative References

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

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

1.3 Overview

The Informational Flagging Protocol allows a user to mark an item for either follow-up or categorization. The marker is referred to as a flag. By flagging an item for follow up, the user can track the progress and completion of an associated work item. Categorizing items with flags enables a user to organize items in the user's **mailbox**. For example, users can assign start dates and due dates to their flagged items to prioritize their work, or they can assign a flag color to group related items.

This protocol specifies a set of properties that identify a Message object as being flagged. There are six different types of flags: **basic flag**, **color flag**, **time flag**, **complete flag**, **recipient flag**, and

sender flag. A Message object that is delivered to a **recipient** (1) and the sender's copy of that Message object can have their flag-related properties set independently of each other.

This protocol extends the Message and Attachment Object Protocol, described in [\[MS-OXCMSG\]](#), in that it adds capability for flagging a Message object.

1.4 Relationship to Other Protocols

The Informational Flagging Protocol has the same dependencies as the Message and Attachment Object Protocol, which is described in [\[MS-OXCMSG\]](#). A sender flag is closely related to a **sender reminder**, which is described in [\[MS-OXORMDR\]](#).

For conceptual background information and overviews of the relationships and interactions between this and other protocols, see [\[MS-OXPROTO\]](#).

1.5 Prerequisites/Preconditions

This protocol assumes that the client has previously logged on to the server, as specified in [\[MS-OXCSTOR\]](#), and has acquired a **handle** to the Message object on which it intends to operate.

1.6 Applicability Statement

A client can use the Informational Flagging Protocol to set various flags on a Message object. This protocol is intended to be a complement, and not a substitute, for full task management, which is described in [\[MS-OXOTASK\]](#).

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

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

2.2 Message Syntax

A Message object can have its flag state changed by the client. Constraints for setting flags on a Message object are defined in section [2.2.1](#) through section [2.2.3](#).

When a value is specified as not present, the property MUST NOT exist on the Message object, and if it exists, it MUST be deleted. Setting a property to 0 or to a zero-length string does not delete the property from the Message object.

2.2.1 Properties Specific to the Informational Flagging Protocol

2.2.1.1 PidTagFlagStatus Property

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

The **PidTagFlagStatus** property ([\[MS-OXPROPS\]](#) section 2.688) specifies the flag state of the Message object. This property is present on the Message object only if the object has been flagged and is not present otherwise. It MUST NOT exist on a **meeting-related object**, and it SHOULD NOT [<1>](#) exist on a **Task object**. When acting on other Message objects, this property is set to one of the following values.

Numeric value	Name	Meaning
0x00000001	followupComplete	The object is flagged as complete. This value is valid only for a complete flag.
0x00000002	followupFlagged	The object is flagged for follow-up. This value is valid for a basic flag, a color flag, a time flag, and a recipient flag.

2.2.1.2 PidTagFollowupIcon Property

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

The **PidTagFollowupIcon** property ([\[MS-OXPROPS\]](#) section 2.693) specifies the color of the flag that is set on the Message object. The flag will appear with the specified color in the UI. This property SHOULD NOT [<2>](#) exist on a Task object. When acting on other Message objects, this property is set to one of the following values. If this property is not present on a flagged object, the flag has no color. This property can be set to any of these values for a color flag, but it MUST be set to 0x00000006 for a time flag and a recipient flag.

Numeric value	Meaning
0x00000001	Purple flag
0x00000002	Orange flag

Numeric value	Meaning
0x00000003	Green flag
0x00000004	Yellow flag
0x00000005	Blue flag
0x00000006	Red flag

2.2.1.3 PidTagFlagCompleteTime Property

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

The **PidTagFlagCompleteTime** property ([\[MS-OXPROPS\]](#) section 2.687) specifies the date and time, in **Coordinated Universal Time (UTC)**, that the Message object was flagged as completed. The time's smallest resolution MUST be minutes, and the value MUST be a multiple of 600,000,000. This property is present on the Message object only if the object's **PidTagFlagStatus** property (section [2.2.1.1](#)) is set to 0x00000001. This property MUST NOT exist on a meeting-related object; it SHOULD NOT [<3>](#) exist on a Task object.

2.2.1.4 PidTagReplyRequested Property

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

The **PidTagReplyRequested** property ([\[MS-OXOMSG\]](#) section 2.2.1.45) indicates whether a reply is requested by the message's sender. This property SHOULD NOT be changed on a meeting-related object because this property has a specialized meaning for meeting-related objects, as specified in [\[MS-OXOCAL\]](#). This property SHOULD NOT [<4>](#) exist on a Task object. For a Message object that is neither a meeting-related object nor a Task object, this property SHOULD be set as follows for flags: [<5>](#)

- For a basic flag, color flag, time flag, or a recipient flag: 0x01 (TRUE)
- For a complete flag: 0x00 (FALSE)
- For a sender flag: the **PidTagReplyRequested** property is not present

The server does not set the **PidTagReplyRequested** property.

2.2.1.5 PidTagResponseRequested Property

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

The **PidTagResponseRequested** property ([\[MS-OXOMSG\]](#) section 2.2.1.46) has identical values and semantics to the **PidTagReplyRequested** property ([\[MS-OXOMSG\]](#) section 2.2.1.45) in terms of this protocol, and therefore, the client updates these values in an identical manner.

The server does not set the **PidTagResponseRequested** property.

2.2.1.6 PidTagToDoItemFlags Property

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

The **PidTagToDoItemFlags** property ([MS-OXPROPS] section 2.1036) specifies the type of flag that is set on a Message object.<6> The possible bit values are as follows. All bits not specified in the table are reserved. They MUST be ignored but SHOULD be preserved if they are set.

Bit	Bit name	Meaning
0x00000001	todoTimeFlagged	A time flag or a complete flag is set.
0x00000008	todoRecipientFlagged	A recipient flag or a sender flag is set. This bit SHOULD be set only on a Draft Message object .

2.2.1.7 PidTagSwappedToDoData Property

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

The **PidTagSwappedToDoData** property ([MS-OXPROPS] section 2.1025) acts as the **secondary flag storage location** if sender flags or sender reminders are supported.<7> This secondary storage location can be used by the client to maintain a second set of the flagging-related property values that do not affect the flag state of the Message object.

Properties for a sender flag or a sender reminder can be stored in the **PidTagSwappedToDoData** property without exposing the sender flag or sender reminder information to the recipients (1) of the message. Similarly, properties for a recipient flag or a **recipient reminder** can be stored in the **PidTagSwappedToDoData** property for informational purposes on a previously sent message. For details about **reminders**, see [MS-OXORMDR].

The **PidTagSwappedToDoData** property contains the following fields. The mapping of these fields to the **primary flag storage location** is specified in each field description.

0	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4	5	6	7	8	9	30	1
ulVersion																															
dwFlags																															
dwToDoItem																															
wszFlagTo																															
...																															
...																															
...																															
...																															
...																															
...																															

...
(wszFlagTo cont'd for 120 rows)
rtmStartDate
rtmDueDate
rtmReminder
fReminderSet

ulVersion (4 bytes): An integer that specifies the version of the **PidTagSwappedToDoData** property. This protocol specifies only version 0x00000001. The contents of the **PidTagSwappedToDoData** property MUST be ignored if the version number is not 0x00000001.

dwFlags (4 bytes): A set of bits that indicate the validity of the six member fields that correspond to properties. The bits specified in the following table are combined by using a bitwise OR operation.

Bit	Meaning
0x00000001	The dwToDoItem field contains valid data.
0x00000008	The rtmStartDate field contains valid data.
0x00000010	The rtmDueDate field contains valid data.
0x00000020	The wszFlagTo field contains valid data.
0x00000040	The fReminderSet field contains valid data.
0x00000080	The rtmReminder field contains valid data.

dwToDoItem (4 bytes): An integer that corresponds to the **PidTagToDoItemFlags** property (section [2.2.1.6](#)).

wszFlagTo (512 bytes): A string of **Unicode** characters that corresponds to the **PidLidFlagRequest** property (section [2.2.1.9](#)).

rtmStartDate (4 bytes): An integer that corresponds to the **PidLidTaskStartDate** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.4).

rtmDueDate (4 bytes): An integer that corresponds to the **PidLidTaskDueDate** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.5).

rtmReminder (4 bytes): An integer that corresponds to the **PidLidReminderTime** ([\[MS-OXORMDR\]](#) section 2.2.1.4), **PidLidReminderSignalTime** ([\[MS-OXORMDR\]](#) section 2.2.1.2), and **PidTagReplyTime** (section [2.2.3.1](#)) properties.

When the contents of the primary flag storage location and secondary flag storage location are swapped, the contents of the **rtmReminder** field are written to the **PidLidReminderTime**, **PidLidReminderSignalTime**, and **PidTagReplyTime** properties,

and the data in the **PidLidReminderTime** property is written to the **rtmReminder** field. For details about **reminder properties**, see [\[MS-OXORMDR\]](#) section 2.2.1.

fReminderSet (4 bytes): A Boolean value that corresponds to the **PidLidReminderSet** property ([\[MS-OXORMDR\]](#) section 2.2.1.1).

The value in the **rtmStartDate**, **rtmDueDate**, and **rtmReminder** fields is stored as a 4-byte integer that is expressed as the number of minutes since 00:00:00 on January 1, 1601, in UTC. To indicate no date and time, the **rtmStartDate**, **rtmDueDate**, and **rtmReminder** fields are set to the value 0x5AE980E0.

2.2.1.8 PidTagSwappedToDoStore Property

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

The **PidTagSwappedToDoStore** property ([\[MS-OXPROPS\]](#) section 2.1026) specifies a binary value that is used to determine the need for post-transmit processing of an e-mail message, as specified in section [3.1.4.3](#). If the **PidTagSwappedToDoData** property (section [2.2.1.7](#)) is set on a Draft Message object, then the **PidTagSwappedToDoStore** property is set to the value of the **PidTagStoreEntryId** property ([\[MS-OXCMSG\]](#) section 2.2.1.44) of the **E-mail object**; otherwise, the **PidTagSwappedToDoStore** property is not set.

2.2.1.9 PidLidFlagRequest Property

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

The **PidLidFlagRequest** property ([\[MS-OXPROPS\]](#) section 2.136) specifies user-supplied text to be associated with the flag that is set on the Message object. If the user does not supply a value, this property is set to "Follow up". This property SHOULD NOT exist on a meeting-related object.

The client ignores the **PidLidFlagRequest** property if the **PidLidFlagString** property (section [2.2.1.10](#)) is set to a nonzero value. The server always uses the **PidLidFlagRequest** property.

2.2.1.10 PidLidFlagString Property

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

The **PidLidFlagString** property ([\[MS-OXPROPS\]](#) section 2.137) contains an integer that identifies a predefined text string to be associated with the flag. This property MUST NOT exist on meeting-related objects and is optional on other Message objects. Setting this property is optional for the client. The server does not read or set this property. If this property is either not present on the object or set to 0x00000000, the client associates the value of the **PidLidFlagRequest** property (section [2.2.1.9](#)) with the flag; otherwise, the client uses the text identified by this property.

The predefined text strings and their associated integer identifiers are specified in the following tables. All strings can be translated into the user's language, if appropriate.

The predefined text strings for **Contact objects** are as follows.

Value	English string
0x0000006E	"Follow up"
0x0000006F	"Call"
0x00000070	"Arrange Meeting"

Value	English string
0x00000071	"Send E-mail"
0x00000072	"Send Letter"

The predefined text strings for all other Message objects are as follows.

Value	English string
0x00000001	"Call"
0x00000002	"Do not Forward"
0x00000003	"Follow up"
0x00000004	"For Your Information"
0x00000005	"Forward"
0x00000006	"No Response Necessary"
0x00000007	"Read"
0x00000008	"Reply"
0x00000009	"Reply to All"
0x0000000A	"Review"

2.2.1.11 PidLidValidFlagStringProof Property

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

The **PidLidValidFlagStringProof** property ([\[MS-OXPROPS\]](#) section 2.348) MUST NOT exist on meeting-related objects. On objects that are not sendable (received mail and objects that are not mail), this property is optional. If present, this property is set equal to the **PidTagMessageDeliveryTime** property ([\[MS-OXOMSG\]](#) section 2.2.3.9) when modifying the **PidLidFlagRequest** property (section [2.2.1.9](#)). Setting this property is optional for the client. The server does not read or set this property.

This property can be used to validate whether the **PidLidFlagRequest** property was set by an agent with knowledge of the value of the **PidTagMessageDeliveryTime** property. Since the value of the **PidTagMessageDeliveryTime** property cannot be predicted by the sender, if the value of the **PidLidValidFlagStringProof** property is equal to the value of the **PidTagMessageDeliveryTime** property, it is reasonably certain that the value of the **PidLidFlagRequest** property did not originate from the sender of the message. A client can decide how to present the value of the **PidLidFlagRequest** property to the end user based on the result of this comparison in accordance with the specific security policy of the client.

If the client ignores the **PidLidFlagRequest** property due to the value of the **PidLidFlagString** property (section [2.2.1.10](#)), the client also ignores the **PidLidValidFlagStringProof** property.

2.2.1.12 PidLidToDoTitle Property

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

The **PidLidToDoTitle** property ([\[MS-OXPROPS\]](#) section 2.346) specifies user-supplied text to identify the Message object in a **consolidated to-do list**. The **PidLidToDoTitle** property MUST NOT be set on a Task object.

To indicate an empty property, the **PidLidToDoTitle** property SHOULD NOT be set to the zero-length string and instead SHOULD be deleted. If this property does not exist on an object, a client SHOULD [<8>](#) set this property to the value of the **PidTagNormalizedSubject** property ([\[MS-OXCMSG\]](#) section 2.2.1.10).

On a Draft Message object, if the client implements sender flags, this property SHOULD be set to the value of the **PidLidFlagRequest** property (section [2.2.1.9](#)).

2.2.1.13 PidLidToDoOrdinalDate Property

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

The **PidLidToDoOrdinalDate** property ([\[MS-OXPROPS\]](#) section 2.344) specifies the time that an object is flagged. When an object is flagged, this property SHOULD [<9>](#) be set to the current time in UTC.

This property SHOULD be used to determine the order of objects in a consolidated to-do list. If the client allows a user to reorder tasks within the consolidated to-do list via dragging or other mechanisms, the client can use any suitable algorithm to determine the new value of this property such that the task appears in the correct place when this property is used as a sorting field. When this property is used to sort objects and two or more of the objects have the same value for this property, the objects with the matching values will tie for placement in the list. In this case, the **PidLidToDoSubOrdinal** property (section [2.2.1.14](#)) is used to break the tie.

2.2.1.14 PidLidToDoSubOrdinal Property

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

The **PidLidToDoSubOrdinal** property ([\[MS-OXPROPS\]](#) section 2.345) specifies a string that is used to break a tie for placement within a sorted list of Message objects. When the **PidLidToDoOrdinalDate** property (section [2.2.1.13](#)) is used to sort objects and two or more of the objects have the same value for this property, the objects with the matching values tie for placement in the list. In this case, the **PidLidToDoSubOrdinal** property is used to break the tie. If used, this property MUST be sorted lexicographically.

The component characters of the string consist of only the numerals 0 through 9. This property SHOULD be initially set to "555555". The length of this property MUST NOT exceed 254 characters (excluding the terminating null character).

2.2.2 Properties Shared with the Task-Related Object Protocol

The following properties are shared by this protocol and the Task-Related Object Protocol, which is specified in [\[MS-OXOTASK\]](#):

- **PidLidTaskStartDate** ([\[MS-OXOTASK\]](#) section 2.2.2.2.4)
- **PidLidTaskDueDate** ([\[MS-OXOTASK\]](#) section 2.2.2.2.5)
- **PidLidTaskDateCompleted** ([\[MS-OXOTASK\]](#) section 2.2.2.2.9)
- **PidLidTaskComplete** ([\[MS-OXOTASK\]](#) section 2.2.2.2.20)

- **PidLidTaskStatus** ([\[MS-OXOTASK\]](#) section 2.2.2.2.2)
- **PidLidPercentComplete** (section [2.2.2.3](#))
- **PidLidCommonStart** ([\[MS-OXCMSG\]](#) section 2.2.1.18)
- **PidLidCommonEnd** ([\[MS-OXCMSG\]](#) section 2.2.1.19)

Unless noted in section [2.2.2.1](#) through section [2.2.2.3](#), the semantics and accepted values of these shared properties are identical to those specified in [\[MS-OXOTASK\]](#).

2.2.2.1 PidLidTaskStatus Property

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

The **PidLidTaskStatus** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.2) is set on a Message object as follows for flags: [<10>](#)

- For a time flag and a recipient flag: 0x00000000
- For a complete flag: 0x00000002
- For other flags: the **PidLidTaskStatus** property is not present.

The server does not set this property.

2.2.2.2 PidLidTaskComplete Property

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

The **PidLidTaskComplete** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.20) is set on a Message object as follows for flags: [<11>](#)

- For a time flag and a recipient flag: 0x00 (FALSE)
- For a complete flag: 0x01 (TRUE)
- For other flags: the **PidLidTaskComplete** property is not present.

The server does not set this property.

2.2.2.3 PidLidPercentComplete Property

Type: **PtypFloating64** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidLidPercentComplete** property ([\[MS-OXPROPS\]](#) section 2.202) is set on a Message object as follows for flags: [<12>](#)

- For a time flag and a recipient flag: 0.0
- For a complete flag: 1.0
- For other flags: the **PidLidPercentComplete** property is not present.

The server does not set this property.

2.2.3 Properties Shared with the Reminder Settings Protocol

The following properties are shared by this protocol and the Reminder Settings Protocol, as specified in [\[MS-OXORMDR\]](#):

- **PidLidReminderSet** ([\[MS-OXORMDR\]](#) section 2.2.1.1)
- **PidLidReminderTime** ([\[MS-OXORMDR\]](#) section 2.2.1.4)
- **PidLidReminderSignalTime** ([\[MS-OXORMDR\]](#) section 2.2.1.2)
- **PidTagReplyTime** (section [2.2.3.1](#))

Unless noted in section [2.2.3.1](#), the semantics and accepted values of these properties are identical to those specified in [\[MS-OXORMDR\]](#).

2.2.3.1 PidTagReplyTime Property

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

On a Draft Message object, if the sender desires to set a deadline for the recipient (1), the **PidTagReplyTime** property ([\[MS-OXPROPS\]](#) section 2.908) is set to the desired deadline, in UTC.

The server does not set the **PidTagReplyTime** property.

3 Protocol Details

3.1 Client Details

The client sets flags on a Message object and operates within the client role as specified in [\[MS-OXCMSG\]](#).

3.1.1 Abstract Data Model

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

A Message object is always considered to be in one of the following states with respect to this protocol:

- Unflagged
- Basic-flagged
- Color-flagged
- Time-flagged
- Flagged as complete
- Recipient-flagged
- Sender-flagged

Otherwise, the abstract data model of the Informational Flagging Protocol does not differ significantly from the abstract data model of the Message object to which this protocol is being applied. For details about the abstract data model of the Message object for the client, see [\[MS-OXCMSG\]](#) section 3.1.1.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

3.1.4.1 Flagging a Message Object

To flag a Message object, the client opens the object by sending a **RopOpenMessage remote operation (ROP)** request ([\[MS-OXCROPS\]](#) section 2.2.6.1). Message objects, other than **Appointment objects**, **Journal objects**, and **Note objects**, can be flagged. <13>

The client then sets properties on the object by using the property ROPs that are specified in [\[MS-OXCPRPT\]](#). The properties that are set depend on the particular flag used, as specified in section

[3.1.4.1.1](#) through section [3.1.4.1.6](#). In addition, some properties are not set on some Message objects. For details about property constraints, see the property definitions in section [2.2.1](#) through section [2.2.3](#).

3.1.4.1.1 Setting a Color Flag

The client sets the following properties to flag a Message object with a color flag.[<14>](#) Some of these properties cannot be set on a meeting-related object or a Task object. For details, see the property definitions in section [2.2.1](#).

- **PidTagFollowupIcon** (section [2.2.1.2](#))
- **PidLidFlagRequest** (section [2.2.1.9](#))
- **PidLidFlagString** (section [2.2.1.10](#))
- **PidLidValidFlagStringProof** (section [2.2.1.11](#))
- **PidTagFlagStatus** (section [2.2.1.1](#))
- **PidTagReplyRequested** (section [2.2.1.4](#))
- **PidTagResponseRequested** (section [2.2.1.5](#))

3.1.4.1.2 Setting a Basic Flag

A basic flag is identical to the color flag specified in section [3.1.4.1](#) except that the **PidTagFollowupIcon** property (section [2.2.1.2](#)) is not set.[<15>](#) Meeting-related objects cannot have a basic flag.

3.1.4.1.3 Setting a Time Flag

The client sets the following properties to flag a Message object with a time flag.[<16>](#) Some of these properties cannot be set on a meeting-related object or a Task object. For details, see the property definitions in section [2.2.1](#).

- **PidTagFollowupIcon** (section [2.2.1.2](#))
- **PidTagToDoItemFlags** (section [2.2.1.6](#))
- **PidLidToDoOrdinalDate** (section [2.2.1.13](#))—set only if it does not already exist on the object
- **PidLidToDoSubOrdinal** (section [2.2.1.14](#))
- **PidLidToDoTitle** (section [2.2.1.12](#))
- **PidLidFlagRequest** (section [2.2.1.9](#))—set only if it does not already exist on the object
- **PidLidFlagString** (section [2.2.1.10](#))—set only if it does not already exist on the object
- **PidLidValidFlagStringProof** (section [2.2.1.11](#))—set only if it does not already exist on the object
- **PidTagFlagStatus** (section [2.2.1.1](#))
- **PidTagReplyRequested** (section [2.2.1.4](#))
- **PidTagResponseRequested** (section [2.2.1.5](#))

- **PidLidTaskDueDate** ([\[MS-OXOTASK\]](#) section 2.2.2.2.5)
- **PidLidTaskStartDate** ([\[MS-OXOTASK\]](#) section 2.2.2.2.4)
- **PidLidCommonStart** ([\[MS-OXCMSG\]](#) section 2.2.1.18)
- **PidLidCommonEnd** ([\[MS-OXCMSG\]](#) section 2.2.1.19)
- **PidLidTaskComplete** (section [2.2.2.2](#))
- **PidLidTaskStatus** (section [2.2.2.1](#))
- **PidLidPercentComplete** (section [2.2.2.3](#))

Even if the user does not specify dates for the **PidLidTaskStartDate** and the **PidLidTaskDueDate** properties, the flag is still considered a time flag if the **PidTagToDoItemFlags** property is set to **todoTimeFlagged** (0x00000001).

3.1.4.1.4 Setting a Complete Flag

The client sets the following properties to flag a Message object with a complete flag. [<17>](#) Some of these properties cannot be set on a meeting-related object or a Task object. For details, see the property definitions in section [2.2.1](#).

- **PidTagToDoItemFlags** (section [2.2.1.6](#))
- **PidLidToDoOrdinalDate** (section [2.2.1.13](#))—set only if it does not already exist on the object
- **PidLidToDoSubOrdinal** (section [2.2.1.14](#))
- **PidLidToDoTitle** (section [2.2.1.12](#))
- **PidLidFlagRequest** (section [2.2.1.9](#))—set only if it does not already exist on the object
- **PidLidFlagString** (section [2.2.1.10](#))—set only if it does not already exist on the object
- **PidLidValidFlagStringProof** (section [2.2.1.11](#))—set only if it does not already exist on the object
- **PidTagFlagStatus** (section [2.2.1.1](#))
- **PidTagFlagCompleteTime** (section [2.2.1.3](#))
- **PidTagReplyRequested** (section [2.2.1.4](#))
- **PidTagResponseRequested** (section [2.2.1.5](#))
- **PidLidTaskDateCompleted** ([\[MS-OXOTASK\]](#) section 2.2.2.2.9)
- **PidLidTaskComplete** (section [2.2.2.2](#))
- **PidLidTaskStatus** (section [2.2.2.1](#))
- **PidLidPercentComplete** (section [2.2.2.3](#))

3.1.4.1.5 Setting a Recipient Flag

The client sets the following properties to flag a Draft Message object with a recipient flag. When a recipient flag arrives in the recipient's (1) mailbox, it appears as a basic flag.

- **PidTagFlagStatus** (section [2.2.1.1](#))
- **PidTagReplyRequested** (section [2.2.1.4](#))
- **PidTagResponseRequested** (section [2.2.1.5](#))
- **PidLidFlagRequest** (section [2.2.1.9](#))
- **PidLidFlagString** (section [2.2.1.10](#))
- **PidTagToDoItemFlags** (section [2.2.1.6](#))
- **PidLidTaskComplete** (section [2.2.2.2](#))
- **PidLidTaskStatus** (section [2.2.2.1](#))
- **PidLidPercentComplete** (section [2.2.2.3](#))

If the client supports sender flags, the **PidTagSwappedToDoStore** property (section [2.2.1.8](#)) is set to trigger the post-transmit processing specified in section [3.1.4.3](#).

3.1.4.1.6 Setting a Sender Flag

The client sets the following properties to flag a Draft Message object with a sender flag.[<18>](#)

- **PidTagSwappedToDoData** property (section [2.2.1.7](#))—acts as the secondary flag storage location
- **PidTagSwappedToDoStore** property (section [2.2.1.8](#))—triggers post-transmit processing, as specified in section [3.1.4.3](#)

The recipient flag properties are stored in the primary flag storage location, as specified in section [3.1.4.1.5](#), whereas the sender flag properties are stored in the secondary flag storage location (the **PidTagSwappedToDoData** property).

3.1.4.2 Clearing a Flag on a Message Object

To clear a flag from a Message object, the client opens the object by sending a **RopOpenMessage ROP request buffer** ([\[MS-OXCROPS\]](#) section 2.2.6.1). The client then sets or deletes properties on the object by using the property ROPs that are specified in [\[MS-OXCPRPT\]](#). The properties that are set depend on the particular flag used, as specified in section [3.1.4.1.1](#) through section [3.1.4.1.6](#).

3.1.4.2.1 Clearing a Flag on a Meeting-Related Object

Clearing a flag on a meeting-related object is identical to clearing a flag on other Message objects, as specified in section [3.1.4.2.3](#), except that the following properties MUST NOT be deleted or altered:

- **PidTagFlagStatus** (section [2.2.1.1](#))
- **PidTagFlagCompleteTime** (section [2.2.1.3](#))

- **PidTagReplyRequested** ([\[MS-OXOMSG\]](#) section 2.2.1.45)
- **PidTagResponseRequested** ([\[MS-OXOMSG\]](#) section 2.2.1.46)
- **PidLidFlagRequest** (section [2.2.1.9](#))
- **PidLidFlagString** (section [2.2.1.10](#))
- **PidLidValidFlagStringProof** (section [2.2.1.11](#))

3.1.4.2.2 Clearing a Flag on a Task Object

Flagging a task is a shortcut for the user to change the values of **PidLidTaskStartDate** ([\[MS-OXOTASK\]](#) section 2.2.2.2.4) and **PidLidTaskDueDate** ([\[MS-OXOTASK\]](#) section 2.2.2.2.5). A client can, in this way, always view an uncompleted task as having a time flag. Because of this, clearing a flag on a task can be viewed as equivalent to deleting the Task object.

3.1.4.2.3 Clearing a Flag on Other Message Objects

To clear a flag from a Message object, the properties that were set for the particular flag SHOULD be deleted, with the following exceptions. These properties are set to the following values.

Property	Value
PidTagToDoItemFlags (section 2.2.1.6)	Set the bit (todoTimeFlagged or todoRecipientFlagged) for the associated flag to 0.
PidLidTaskComplete (section 2.2.2.2)	0x00 (FALSE)
PidLidTaskStatus (section 2.2.2.1)	0x00000000
PidLidPercentComplete (section 2.2.2.3)	0.0
PidTagReplyRequested (section 2.2.1.4)	0x00 (FALSE)
PidTagResponseRequested (section 2.2.1.5)	0x00 (FALSE)
PidLidFlagRequest (section 2.2.1.9)	Zero-length string
PidLidFlagString (section 2.2.1.10)	0x00000000
PidLidToDoOrdinalDate (section 2.2.1.13)	4501/01/01 00:00:00.000
PidLidToDoSubOrdinal (section 2.2.1.14)	Zero-length string

3.1.4.3 Post-Transmit Processing of a Flagged Message

Once a message that has a value set for the **PidTagSwappedToDoStore** property (section [2.2.1.8](#)) has been sent, a client that supports sender flags or sender reminders takes the following actions.[<19>](#)

- If the value of the **PidTagSwappedToDoStore** property matches the value of the **PidTagStoreEntryId** property ([\[MS-OXCMSG\]](#) section 2.2.1.44) of the Message object, the

client swaps the contents of the **PidTagSwappedToDoData** property (section [2.2.1.7](#)) and the primary flag storage location, with the exception that if the **PidTagToDoItemFlags** property (section [2.2.1.6](#)) is set to **todoRecipientFlagged**, then the **dwToDoItem** field of the **PidTagSwappedToDoData** property is set to **todoTimeFlagged**. After the operation, the previous contents of the primary flag storage location are now in the secondary flag storage location and vice versa. In addition, the **PidLidValidFlagStringProof** property (section [2.2.1.11](#)) is set equal to the **PidTagMessageDeliveryTime** property ([\[MS-OXOMSG\]](#) section 2.2.3.9).

- If the value of the **PidTagSwappedToDoStore** property does not match the value of the **PidTagStoreEntryId** property, the client clears the **PidTagSwappedToDoData** property.

In both cases, the **PidTagSwappedToDoStore** property is deleted.

3.1.5 Message Processing Events and Sequencing Rules

None.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

3.2 Server Details

The server processes a client's requests regarding the flagging of a Message object and in all other ways operates within the server role as specified in [\[MS-OXCMSG\]](#).

3.2.1 Abstract Data Model

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

A Message object is always considered to be in one of the following states with respect to this protocol:

- Unflagged
- Basic-flagged
- Color-flagged
- Time-flagged
- Flagged as complete
- Recipient-flagged
- Sender-flagged

Otherwise, the abstract data model of the Informational Flagging Protocol does not differ significantly from the abstract data model of the Message object to which this protocol is being applied. For details about the abstract data model of the Message object for the server, see [\[MS-OXCMSG\]](#) section 3.2.1.

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

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

3.2.6 Timer Events

None.

3.2.7 Other Local Events

None.

4 Protocol Examples

All examples in this section assume that the user who is flagging the object resides in the Pacific Standard Time Zone (UTC - 8). The following are descriptions of what a client does to accomplish the scenarios and the responses that a server returns.

Before flagging any Message objects, the client requests the server to map **named properties** to **property IDs** by using the **RopGetPropertyIDsFromNames** ROP ([\[MS-OXCROPS\]](#) section 2.2.8.1).

Property	Property set GUID	LID
PidLidFlagRequest (section 2.2.1.9)	{00062008-0000-0000-C000-000000000046}	0x8530
PidLidFlagString (section 2.2.1.10)	{00062008-0000-0000-C000-000000000046}	0x85C0
PidLidValidFlagStringProof (section 2.2.1.11)	{00062008-0000-0000-C000-000000000046}	0x85BF
PidLidToDoTitle (section 2.2.1.12)	{00062008-0000-0000-C000-000000000046}	0x85A4
PidLidToDoOrdinalDate (section 2.2.1.13)	{00062008-0000-0000-C000-000000000046}	0x85A0
PidLidToDoSubOrdinal (section 2.2.1.14)	{00062008-0000-0000-C000-000000000046}	0x85A1
PidLidTaskStartDate ([MS-OXOTASK] section 2.2.2.2.4)	{00062003-0000-0000-C000-000000000046}	0x8104
PidLidTaskDueDate ([MS-OXOTASK] section 2.2.2.2.5)	{00062003-0000-0000-C000-000000000046}	0x8105
PidLidCommonStart ([MS-OXCMSG] section 2.2.1.18)	{00062008-0000-0000-C000-000000000046}	0x8516
PidLidCommonEnd ([MS-OXCMSG] section 2.2.1.19)	{00062008-0000-0000-C000-000000000046}	0x8517
PidLidTaskDateCompleted ([MS-OXOTASK] section 2.2.2.2.9)	{00062003-0000-0000-C000-000000000046}	0x810F
PidLidTaskComplete (section 2.2.2.2)	{00062003-0000-0000-C000-000000000046}	0x811C
PidLidTaskStatus (section 2.2.2.1)	{00062003-0000-0000-C000-000000000046}	0x8101
PidLidPercentComplete (section 2.2.2.3)	{00062003-0000-0000-C000-000000000046}	0x8102
PidLidReminderSet ([MS-OXORMDR] section 2.2.1.1)	{00062008-0000-0000-C000-000000000046}	0x8503
PidLidReminderDelta ([MS-OXORMDR] section 2.2.1.3)	{00062008-0000-0000-C000-000000000046}	0x8501

Property	Property set GUID	LID
PidLidReminderTime ([MS-OXORMDR] section 2.2.1.4)	{00062008-0000-0000-C000-000000000046}	0x8502
PidLidReminderSignalTime ([MS-OXORMDR] section 2.2.1.2)	{00062008-0000-0000-C000-000000000046}	0x8560

The server responds with the following property IDs, which will be used in the examples that follow (the actual identifiers are at the discretion of the server).

Property	Property ID
PidLidFlagRequest	0x802A
PidLidFlagString	0x83C0
PidLidValidFlagStringProof	0x83CA
PidLidToDoTitle	0x8018
PidLidToDoOrdinalDate	0x830D
PidLidToDoSubOrdinal	0x830E
PidLidTaskStartDate	0x8143
PidLidTaskDueDate	0x8144
PidLidCommonStart	0x81BC
PidLidCommonEnd	0x81BB
PidLidTaskDateCompleted	0x8149
PidLidTaskComplete	0x8148
PidLidTaskStatus	0x8145
PidLidPercentComplete	0x8146
PidLidReminderSet	0x8004
PidLidReminderDelta	0x81FF
PidLidReminderTime	0x8005
PidLidReminderSignalTime	0x8006

4.1 Color-Flagged Object

Ryan Gregg has a message in his Inbox related to the Woodgrove Bank account, which he has associated to the orange flag. He uses the default request string designated by the client, which is "Follow up". The following is a description of what a client might do to accomplish Ryan's intentions and the responses a server might return.

To open the message to be flagged, the client sends a **RopOpenMessage ROP request** ([\[MS-OXCROPS\]](#) section 2.2.6.1) and waits for the server to respond. The server response contains a handle to the Message object.

To retrieve some properties of the Message object, the client sends a **RopGetPropertiesSpecific** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.3).

Property	Property ID	Property type
PidTagMessageDeliveryTime ([MS-OXOMSG] section 2.2.3.9)	0x0E06	0x0040 (PtypTime ([MS-OXCDATA] section 2.11.1))

The client receives a **ROP response buffer** from the server with the requested property values.

Property	Property ID	Property type	Value
PidTagMessageDeliveryTime	0x0E06	0x0040	2008/02/11 22:41:24.765

To set the properties for the color flag, the client sends a **RopSetProperties** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.6) with the values that are specified in the following table.

Property	Property ID	Property type	Value
PidTagFlagStatus (section 2.2.1.1)	0x1090	0x0003 (PtypInteger32 ([MS-OXCDATA] section 2.11.1))	0x00000002
PidTagFollowupIcon (section 2.2.1.2)	0x1095	0x0003	0x00000002
PidTagReplyRequested (section 2.2.1.4)	0x0C17	0x000B (PtypBoolean ([MS-OXCDATA] section 2.11.1))	0x01 (TRUE)
PidTagResponseRequested (section 2.2.1.5)	0x0063	0x000B	0x01 (TRUE)
PidLidFlagRequest (section 2.2.1.9)	0x802A	0x001F (PtypString ([MS-OXCDATA] section 2.11.1))	"Follow up"
PidLidFlagString (section 2.2.1.10)	0x83C0	0x0003	0x00000003
PidLidValidFlagStringProof (section 2.2.1.11)	0x83CA	0x0040	2008/02/11 22:41:24.765

Finally, to persist the Message object on the server, the client sends a **RopSaveChangesMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.3), followed by a **RopRelease** ROP request ([\[MS-OXCROPS\]](#) section 2.2.15.3) to release the object.

The above properties are all that is strictly necessary to flag an object with a color flag. Clients can set the other properties discussed in section [2.2.1.7](#) to appropriate values, if desired.

4.2 Time Flagged Object

Kendall Keil has a message in his Inbox with the subject "Contoso Project", and he wants to be sure to remember to follow up on that message starting on 2008/02/11, and he needs to be done by 2008/02/12. He uses the default request string designated by the client, which is "Follow up". He flags the item on 2008/02/11 22:16:28.177 (UTC). The following is a description of what a client might do to accomplish Kendall's intentions and the responses a server might return.

As before, the client first retrieves a handle to the Message object by sending a **RopOpenMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.1).

Besides a handle, the server returns the following relevant data in the **RopOpenMessage ROP response** ([\[MS-OXCROPS\]](#) section 2.2.6.1).

Property	Property ID	Property type	Value
PidTagNormalizedSubject ([MS-OXCMSG] section 2.2.1.10)	0x0E1D	0x001F (PtypString ([MS-OXCDATA] section 2.11.1))	"Contoso Project"

To retrieve the state of the Message object, the client sends a **RopGetPropertiesSpecific** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.3).

Property	Property ID	Property type
PidTagMessageDeliveryTime ([MS-OXOMSG] section 2.2.3.9)	0x0E06	0x0040 (PtypTime ([MS-OXCDATA] section 2.11.1))

The client receives a ROP response buffer from the server with the requested values.

Property	Property ID	Property type	Value
PidTagMessageDeliveryTime	0x0E06	0x0040	2008/02/11 22:41:24.765

To set the properties for the time flag, the client sends a **RopSetProperties** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.6) with the values that are specified in the following table.

Property	Property ID	Property type	Value
PidTagFlagStatus (section 2.2.1.1)	0x1090	0x0003 (PtypInteger32 ([MS-OXCDATA] section 2.11.1))	0x00000002
PidTagFollowupIcon (section 2.2.1.2)	0x1095	0x0003	0x00000006
PidTagReplyRequested (section 2.2.1.4)	0x0C17	0x000B (PtypBoolean ([MS-OXCDATA] section 2.11.1))	0x01 (TRUE)
PidTagResponseRequested (section 2.2.1.5)	0x0063	0x000B	0x01 (TRUE)
PidTagToDoItemFlags (section 2.2.1.6)	0x0E2B	0x0003	0x00000001
PidLidFlagRequest (section 2.2.1.9)	0x802A	0x001F	"Follow up"
PidLidFlagString (section 2.2.1.10)	0x83C0	0x0003	0x00000003
PidLidValidFlagStringProof (section 2.2.1.11)	0x83CA	0x0040	2008/02/11 22:41:24.765
PidLidToDoTitle (section 2.2.1.12)	0x8018	0x001F	"Contoso Project"

Property	Property ID	Property type	Value
PidLidToDoOrdinalDate (section 2.2.1.13)	0x830D	0x0040	2008/02/11 22:16:28.177
PidLidToDoSubOrdinal (section 2.2.1.14)	0x830E	0x001F	"5555555"
PidLidTaskStartDate ([MS-OXOTASK] section 2.2.2.2.4)	0x8143	0x0040	2008/02/11 00:00:00.000
PidLidTaskDueDate ([MS-OXOTASK] section 2.2.2.2.5)	0x8144	0x0040	2008/02/12 00:00:00.000
PidLidCommonStart ([MS-OXCMSG] section 2.2.1.18)	0x81BC	0x0040	2008/02/11 08:00:00.000
PidLidCommonEnd ([MS-OXCMSG] section 2.2.1.19)	0x81BB	0x0040	2008/02/12 08:00:00.000

Finally, to persist the Message object on the server, the client sends a **RopSaveChangesMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.3) followed by a **RopRelease** ROP request ([\[MS-OXCROPS\]](#) section 2.2.15.3) to release the object.

4.3 Completed Object

Kendall Keil is now finished with the work item associated with the message in the example given in section [4.2](#). The following is a description of what a client might do to accomplish Kendall's intentions and the responses a server might return.

As before, the client first retrieves a handle to the Message object by sending a **RopOpenMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.1).

To set the properties for the complete flag, the client sends a **RopSetProperties** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.6) with the values that are specified in the following table.

Property	Property ID	Property type	Value
PidTagFlagStatus (section 2.2.1.1)	0x1090	0x0003 (PtypInteger32 ([MS-OXCDATA] section 2.11.1))	0x00000001
PidTagFlagCompleteTime (section 2.2.1.3)	0x1091	0x0040 (PtypTime ([MS-OXCDATA] section 2.11.1))	2008/02/11 22:23:00.000
PidTagReplyRequested (section 2.2.1.4)	0x0C17	0x000B	0x00 (FALSE)
PidTagResponseRequested (section 2.2.1.5)	0x0063	0x000B	0x00 (FALSE)
PidLidTaskDateCompleted ([MS-OXOTASK] section 2.2.2.2.9)	0x8149	0x0040	2008/02/11 08:00:00.000
PidLidTaskComplete (section 2.2.2.2)	0x8148	0x000B	0x01 (TRUE)

Property	Property ID	Property type	Value
PidLidTaskStatus (section 2.2.2.1)	0x8145	0x0003	0x00000002
PidLidPercentComplete (section 2.2.2.3)	0x8146	0x0005 (PtypFloating64 ([MS-OXCDATA] section 2.11.1))	1.0
PidLidReminderSet ([MS-OXORMDR] section 2.2.1.1)	0x8004	0x000B	0x00 (FALSE)

To delete the following property, the client sends a **RopDeletePropertiesNoReplicate** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.9).

Property	Property ID	Property type
PidTagFollowupIcon (section 2.2.1.2)	0x1095	0x0003

Finally, to persist the Message object on the server, the client sends a **RopSaveChangesMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.3) followed by a **RopRelease** ROP request ([\[MS-OXCROPS\]](#) section 2.2.15.3) to release the object.

4.4 Flagging a Draft Message Object for the Sender and Recipient

Randy Byrne is planning to send a contract to a customer on March 7, 2008. He wants his co-worker, Marina Dukhon, to review the contract before he sends it out. He sends a message to Marina with a sender flag that has a due date of 2008/03/07 with a request string of "Forward", and a recipient flag to Marina with a reminder on March 6, 2008, at 4:00 P.M. local time and a request string of "Review". The following is a description of what a client might do to accomplish Randy's intentions and the responses a server might return.

As before, the client first retrieves a handle to the Message object by sending the **RopOpenMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.1).

To set the properties for the sender flag and the recipient flag, the client sends a **RopSetProperties** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.6) with the values that are specified in the following table.

Property	Property ID	Property type	Value
PidTagFlagStatus (section 2.2.1.1)	0x1090	0x0003 (PtypInteger32 ([MS-OXCDATA] section 2.11.1))	0x00000002
PidTagReplyRequested (section 2.2.1.4)	0x0C17	0x000B (PtypBoolean ([MS-OXCDATA] section 2.11.1))	0x01 (TRUE)
PidTagResponseRequested (section 2.2.1.5)	0x0063	0x000B	0x01 (TRUE)
PidTagReplyTime (section 2.2.3.1)	0x0030	0x0040 (PtypTime ([MS-OXCDATA] section 2.11.1))	2008/03/07 00:00:00.000
PidTagToDoItemFlags (section 2.2.1.1)	0x0E2B	0x0003	0x00000008

Property	Property ID	Property type	Value
2.2.1.6)			
PidTagSwappedToDoData (section 2.2.1.7)	0x0E2D	0x0102 (PtypBinary ([MS-OXCDATA] section 2.11.1))	See note 2 following this table
PidTagSwappedToDoStore (section 2.2.1.8)	0xE2C	0x0102	See note 1 following this table
PidLidFlagRequest (section 2.2.1.9)	0x802A	0x001F (PtypString ([MS-OXCDATA] section 2.11.1))	"Review"
PidLidFlagString (section 2.2.1.10)	0x83C0	0x0003	0x0000000A
PidLidToDoTitle (section 2.2.1.12)	0x8018	0x001F	"Review"
PidLidTaskStatus (section 2.2.2.1)	0x8145	0x0003	0x00000000
PidLidPercentComplete (section 2.2.2.3)	0x8146	0x0005 (PtypFloating64 ([MS-OXCDATA] section 2.11.1))	0.0
PidLidTaskComplete (section 2.2.2.2)	0x8148	0x000B	0x00 (FALSE)
PidLidReminderSet ([MS-OXORMDR] section 2.2.1.1)	0x8004	0x000B	0x01 (TRUE)
PidLidReminderDelta ([MS-OXORMDR] section 2.2.1.3)	0x81FF	0x0003	0x00000000
PidLidReminderTime ([MS-OXORMDR] section 2.2.1.4)	0x8005	0x0040	2008/03/07 00:00:00.000
PidLidReminderSignalTime ([MS-OXORMDR] section 2.2.1.2)	0x8006	0x0040	2008/03/07 00:00:00.000

Note 1: The **PidTagSwappedToDoStore** property is set to the value of the **PidTagStoreEntryId** property ([\[MS-OXCMSG\]](#) section 2.2.1.44) of the Message object.

Note 2: The **PidTagSwappedToDoData** property contains the following binary data.

```

000: 01 00 00 00 79 00 00 00 01 00 00 00 46 00 6F 00
010: 72 00 77 00 61 00 72 00 64 00 00 00 00 00 00 00
020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

```

0E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
100: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
110: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
120: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
130: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
140: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
150: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
160: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
170: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
180: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
190: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
200: 00 00 00 00 00 00 00 00 00 00 00 00 00 E0 80 E9 5A
210: 60 C0 C3 0C 00 00 00 00 00 00 00 00 00 00 00

```

This binary data corresponds to the following values in the fields of the **PidTagSwappedToDoData** property.

Field	Value
ulVersion	0x00000001
dwFlags	0x00000079
dwToDoItem	0x00000001
wszFlagTo	"Forward"
rtmStartDate	0x5AE980E0 (None)
rtmDueDate	0x0CC3C060 (2008/03/07 00:00:00.000)
rtmReminder	0x00000000
fReminderSet	0x00000000 (FALSE)

Finally, to send the message to the intended recipients (1), the client sends a **RopSubmitMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.7.1) followed by a **RopRelease** ROP request ([\[MS-OXCROPS\]](#) section 2.2.15.3) to release the object.

When the above message is sent, the client performs post-transmit processing on the message, as described in both section [3.1.4.3](#) and the remainder of this section.

The client retrieves a handle to the Message object by sending a **RopOpenMessage** request and gets the relevant flagging properties by sending a **RopGetPropertiesSpecific** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.3). The values of the properties returned would be identical to the values set above, except for the following property, which is changed by the server during message delivery.

Property	Property ID	Property type	Value
PidTagMessageDeliveryTime ([MS-OXOMSG] section 2.2.3.9)	0x0E06	0x0040	2008/03/03 21:03:00.000

To perform the swap, the client sends a **RopSetProperties** request with the values that are specified in the following table.

Property	Property ID	Property type	Value
PidTagFlagStatus	0x1090	0x0003	0x00000002
PidTagFollowupIcon (section 2.2.1.2)	0x1095	0x0003	0x00000006
PidTagReplyRequested	0x0C17	0x000B	0x01 (TRUE)
PidTagResponseRequested	0x0063	0x000B	0x01 (TRUE)
PidTagToDoItemFlags	0x0E2B	0x0003	0x00000001
PidTagSwappedToDoData	0x0E2D	0x0102	See note 3 following this table.
PidLidFlagRequest	0x802A	0x001F	"Forward"
PidLidFlagString	0x83C0	0x0003	0x00000000
PidLidValidFlagStringProof (section 2.2.1.11)	0x83CA	0x0040	2008/03/03 21:03:00.000
PidLidToDoTitle	0x8018	0x001F	"Contoso Project"
PidLidToDoOrdinalDate (section 2.2.1.13)	0x830D	0x0040	2008/03/03 21:03:29.438
PidLidToDoSubOrdinal (section 2.2.1.14)	0x830E	0x001F	"5555555"
PidLidTaskDueDate ([MS-OXOTASK] section 2.2.2.2.5)	0x8144	0x0040	2008/03/07 00:00:00.000
PidLidCommonEnd ([MS-OXCMSG] section 2.2.1.19)	0x81BB	0x0040	2008/03/07 08:00:00.000
PidLidTaskComplete	0x8148	0x000B	0x00 (FALSE)
PidLidTaskStatus	0x8145	0x0003	0x00000000
PidLidPercentComplete	0x8146	0x0005	0.0
PidLidReminderSet	0x8004	0x000B	0x00 (FALSE)

Note 3: The **PidTagSwappedToDoData** property contains the following binary data.

```

000: 01 00 00 00 F9 00 00 00 01 00 00 00 52 00 65 00
010: 76 00 69 00 65 00 77 00 00 00 00 00 00 00 00 00
020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

```

040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
100: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
110: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
120: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
130: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
140: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
150: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
160: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
170: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
180: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
190: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1D0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1F0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
200: 00 00 00 00 00 00 00 00 00 00 00 00 00 E0 80 E9 5A
210: E0 80 E9 5A 60 C0 C3 0C 01 00 00 00

```

This binary data corresponds to the following values in the fields of the **PidTagSwappedToDoData** property.

Field	Value
ulVersion	0x00000001
dwFlags	0x000000F9
dwToDoItem	0x00000001
wszFlagTo	"Review"
rtmStartDate	0x5AE980E0 (None)
rtmDueDate	0x5AE980E0 (None)
rtmReminder	0x0CC3C060 (2008/03/07 00:00:00.000)
fReminderSet	0x00000001 (TRUE)

To delete the following properties, the client sends a **RopDeletePropertiesNoReplicate** ROP request ([\[MS-OXCROPS\]](#) section 2.2.8.9).

Property	Property ID	Property type
PidTagSwappedToDoStore	0xE2C	0x0102
PidLidTaskStartDate ([MS-OXOTASK] section 2.2.2.2.4)	0x8143	0x0040
PidLidCommonStart ([MS-OXCMSG] section 2.2.1.18)	0x81BC	0x0040
PidLidTaskDateCompleted ([MS-OXOTASK] section 2.2.2.2.9)	0x8149	0x0040
PidLidReminderTime	0x8005	0x0040
PidLidReminderSignalTime	0x8006	0x0040
PidTagReplyTime	0x0030	0x0040

Finally, to persist the Message object on the server, the client sends a **RopSaveChangesMessage** ROP request ([\[MS-OXCROPS\]](#) section 2.2.6.3) followed by a **RopRelease** ROP request to release the object.

5 Security

5.1 Security Considerations for Implementers

There are no security considerations specific to the Informational Flagging Protocol. General security considerations pertaining to the underlying transport apply, as described in [\[MS-OXCMSG\]](#).

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

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

- Microsoft Exchange Server 2003
- Microsoft Exchange Server 2007
- Microsoft Exchange Server 2010
- Microsoft Exchange Server 2013
- Microsoft Office Outlook 2003
- Microsoft Office Outlook 2007
- Microsoft Outlook 2010
- Microsoft Outlook 2013

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

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

[<1> Section 2.2.1.1:](#) Office Outlook 2003 does provide a way for the user to set the value of the **PidTagFlagStatus** property (section [2.2.1.1](#)) on a Task object.

[<2> Section 2.2.1.2:](#) Office Outlook 2003 does provide a way for the user to set the value of the **PidTagFollowupIcon** property (section [2.2.1.2](#)) on a Task object.

[<3> Section 2.2.1.3:](#) Office Outlook 2003 does provide a way for the user to set the value of the **PidTagFlagCompleteTime** property (section [2.2.1.3](#)) on a Task object.

[<4> Section 2.2.1.4:](#) Office Outlook 2003 does provide a way for the user to set the value of the **PidTagReplyRequested** ([\[MS-OXOMSG\]](#) section 2.2.1.45) and **PidTagResponseRequested** ([\[MS-OXOMSG\]](#) section 2.2.1.46) properties on a Task object.

[<5> Section 2.2.1.4:](#) In Office Outlook 2007, when swapping the contents of the primary flag storage location and secondary flag storage location, the **PidTagReplyRequested** ([\[MS-OXOMSG\]](#) section 2.2.1.45) and **PidTagResponseRequested** ([\[MS-OXOMSG\]](#) section 2.2.1.46) properties do not get updated to the correct value according to the new flagging state of the primary flag storage location.

[<6> Section 2.2.1.6:](#) Exchange 2003 and Office Outlook 2003 do not read or write the **PidTagToDoItemFlags** property (section [2.2.1.6](#)).

[<7> Section 2.2.1.7:](#) Exchange 2003 and Office Outlook 2003 do not support sender flags.

[<8> Section 2.2.1.12:](#) Office Outlook 2007 substitutes the concatenated values of **PidTagSubjectPrefix** ([\[MS-OXCMSG\]](#) section 2.2.1.9) and **PidTagNormalizedSubject** ([\[MS-](#)

[OXCMSG](#) section 2.2.1.10) when displaying a Message object without a value in the **PidLidToDoTitle** property.

<9> [Section 2.2.1.13](#): Exchange 2003 and Office Outlook 2003 do not read or write the **PidLidToDoOrdinalDate** property.

<10> [Section 2.2.2.1](#): Office Outlook 2003 does not set the **PidLidTaskStatus** property (section 2.2.2.1).

<11> [Section 2.2.2.2](#): Office Outlook 2003 does not set the **PidLidTaskComplete** property (section 2.2.2.2).

<12> [Section 2.2.2.3](#): Office Outlook 2003 does not set the **PidLidPercentComplete** property (section 2.2.2.3).

<13> [Section 3.1.4.1](#): The default Outlook user interface does not permit users to flag Appointment objects, Journal objects, or Note objects, but it is possible to manipulate the UI in nonstandard ways in order to set flag-related properties on such objects. Flagging Appointment objects, Journal objects, or Note objects will result in undefined behavior.

<14> [Section 3.1.4.1.1](#): Exchange 2007, Exchange 2010, Exchange 2013, Office Outlook 2007, Outlook 2010, and Outlook 2013 do not support color flags.

<15> [Section 3.1.4.1.2](#): Except for receiving a recipient flag, as described in section 3.1.4.1.5, basic flags are not supported by Office Outlook 2007, Outlook 2010, and Outlook 2013.

<16> [Section 3.1.4.1.3](#): Exchange 2003 and Office Outlook 2003 do not support time flags.

<17> [Section 3.1.4.1.4](#): In addition to the exceptions as noted for individual properties, Exchange 2003 and Office Outlook 2003 do not set the following properties when marking a Message object complete: **PidTagToDoItemFlags** (section 2.2.1.6), **PidLidToDoTitle** (section 2.2.1.12), **PidLidToDoOrdinalDate** (section 2.2.1.13), **PidLidToDoSubOrdinal** (section 2.2.1.14), **PidLidTaskDateCompleted** ([\[MS-OXOTASK\]](#) section 2.2.2.9), **PidLidTaskComplete** ([\[MS-OXOTASK\]](#) section 2.2.2.20), **PidLidTaskStatus** ([\[MS-OXOTASK\]](#) section 2.2.2.2), and **PidLidPercentComplete** (section 2.2.2.3). Because Exchange 2003 and Office Outlook 2003 also do not set the **PidTagFlagStatus** property (section 2.2.1.1) for a meeting-related object, Exchange 2003 and Office Outlook 2003 do not support complete flags for a meeting-related object.

<18> [Section 3.1.4.1.6](#): Office Outlook 2003 does not support sender flags. Only recipient flags can be set in Office Outlook 2003.

<19> [Section 3.1.4.3](#): Exchange 2003 and Office Outlook 2003 do not support sender flags, and thus do not support post-transmit processing of a flagged message.

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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