

# [MS-OXORMDR]:

## Reminder Settings Protocol

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Preliminary

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# 1 Introduction

The Reminder Settings Protocol enables a user to discover and act upon appointments, tasks, messages, or **contacts** that have a deadline or for which follow-up is necessary.

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 specific to this document:

**active reminder:** A **reminder** that is enabled on an object and is either pending or overdue, depending on whether the **signal time** has passed.

**Calendar object:** A **Message object** that represents an event, which can be a one-time event or a recurring event. The Calendar object includes properties that specify event details such as description, organizer, date and time, and status.

**calendar options dictionary:** A dictionary that contains calendar configuration data. It is stored in a folder associated information (FAI) message that is in a Calendar special folder.

**contact:** A person, company, or other entity that is stored in a directory and is associated with one or more unique identifiers and attributes (2), such as an Internet message address or login name.

**Contact object:** A **Message object** that contains properties pertaining to a **contact**.

**Coordinated Universal Time (UTC):** A high-precision atomic time standard that approximately tracks Universal Time (UT). It is the basis for legal, civil time all over the Earth. Time zones around the world are expressed as positive and negative offsets from UTC. In this role, it is also referred to as Zulu time (Z) and Greenwich Mean Time (GMT). In these specifications, all references to UTC refer to the time at UTC-0 (or GMT).

**dismiss:** A process that disables an **overdue reminder**. After a reminder is dismissed, it is not considered overdue anymore and is not signaled or displayed to a user or any agents who are acting on behalf of that user.

**Draft Message object:** A **Message object** that has not been sent.

**due time:** The time after which a user is considered late, such as the start time of an appointment or the time at which a work item is expected to be complete.

**Exception Attachment object:** An Attachment object on a **Recurring Calendar object** that contains the data for an exception, including an Exception Embedded Message object.

**Exception Embedded Message object:** An Embedded Message object that contains the changes for an Exception object.

**flags:** A set of values used to configure or report options or settings.

**Folder object:** A messaging construct that is typically used to organize data into a hierarchy of objects containing Message objects and folder associated information (FAI) Message objects.

**full reminder domain:** The maximum scope that a client is allowed to use when searching for objects that have **reminders** enabled. The full reminder domain includes all folders except the

following: Deleted Items, Junk Email, Drafts, Outbox, Conflicts, Local Failures, Server Failures, and Sync Issues.

**handle:** Any token that can be used to identify and access an object such as a device, file, or a window.

**instance:** A unique publication of data for a category (4). It enables a publisher to publish data for the same category multiple times. An example is a publisher who uses two different endpoints (5) to publish data. These endpoints can publish the same category. However, each endpoint requires a different instance number to be considered a distinct publication by the server (2). An instance number is provided by the publishing client.

**mailbox:** A message store that contains email, calendar items, and other **Message objects** for a single recipient.

**meeting-related object:** A **Message object** that represents a relay of information between a meeting organizer and an attendee. It can be any of the following: Meeting Request object, Meeting Update object, Meeting Cancellation object, or Meeting Response object.

**Message object:** A set of properties that represents an email message, appointment, contact, or other type of personal-information-management object. In addition to its own properties, a Message object contains recipient properties that represent the addressees to which it is addressed, and an attachments table that represents any files and other Message objects that are attached to it.

**minimal reminder domain:** The smallest scope that a client is allowed to use when searching for objects that have an **active reminder**. The minimal reminder domain includes the following folders: Inbox, primary Contacts, primary Calendar, and primary Tasks. It does not include sub-folders.

**named property:** A property that is identified by both a GUID and either a string name or a 32-bit identifier.

**object:** A set of attributes (1), each with its associated values. Two attributes of an object have special significance: an identifying attribute and a parent-identifying attribute. An identifying attribute is a designated single-valued attribute that appears on every object; the value of this attribute identifies the object. For the set of objects in a replica, the values of the identifying attribute are distinct. A parent-identifying attribute is a designated single-valued attribute that appears on every object; the value of this attribute identifies the object's parent. That is, this attribute contains the value of the parent's identifying attribute, or a reserved value identifying no object. For the set of objects in a replica, the values of this parent-identifying attribute define a tree with objects as vertices and child-parent references as directed edges with the child as an edge's tail and the parent as an edge's head. Note that an object is a value, not a variable; a replica is a variable. The process of adding, modifying, or deleting an object in a replica replaces the entire value of the replica with a new value. As the word replica suggests, it is often the case that two replicas contain "the same objects". In this usage, objects in two replicas are considered the same if they have the same value of the identifying attribute and if there is a process in place (replication) to converge the values of the remaining attributes. When the members of a set of replicas are considered to be the same, it is common to say "an object" as shorthand referring to the set of corresponding objects in the replicas.

**overdue reminder:** An **active reminder** whose **signal time** has passed.

**property ID:** A 16-bit numeric identifier of a specific attribute (1). A property ID does not include any property type information.

**recipient:** An entity that can receive email messages.



**recurrence BLOB:** The binary large object (BLOB) encoding of a recurrence pattern, a recurrence range, and recurrence exceptions.

**recurrence pattern:** Information for a repeating event, such as the start and end time, the number of occurrences, and how occurrences are spaced, such as daily, weekly, or monthly.

**Recurring Calendar object:** A **Calendar object** that describes an event that repeats according to a recurrence pattern.

**recurring series:** An event that repeats at specific intervals of time according to a recurrence pattern.

**recurring task:** A series of **Task objects** that are described by a recurrence pattern.

**Recurring Task object:** A **Task object** that represents a recurring task.

**reminder:** A generally user-visible notification that a specified time has been reached. A reminder is most commonly related to the beginning of a meeting or the due time of a task but it can be applied to any object type.

**reminder domain:** A set of folders that are searched for objects that have an **active reminder**.

**reminder properties:** A set of properties that specify the attributes of a reminder. These attributes include the time at which and the method by which a reminder is signaled or displayed.

**reminder queue:** A sorted list of objects that are in a reminder domain and have been stamped with properties implying that they could have an **active reminder**.

**ROP request:** See ROP request buffer.

**search folder:** (1) A collection of related items to be crawled by a search service.

(2) A **Folder object** that provides a means of querying for items that match certain criteria. The search folder includes the search folder definition message and the search folder container.

**Sent Items folder:** A **special folder** that is the default location for storing copies of **Message objects** after they are submitted or sent.

**signal time:** The time at which a **reminder** has been specified to notify the user or an agent acting on behalf of the user. For example, the signal time for a meeting that starts at 11:00 A.M. can be 10:45 A.M., thus allowing the user 15 minutes to prepare for or travel to the meeting upon receiving the notification.

**snooze:** A process that delays an **overdue reminder** by a specified time interval. At the end of the time interval, the reminder becomes overdue again.

**special folder:** One of a default set of **Folder objects** that can be used by an implementation to store and retrieve user data objects.

**Task object:** A **Message object** that represents an assignment to be 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

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents

in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

### 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.

- [MS-OXCDATA] Microsoft Corporation, "[Data Structures](#)".
- [MS-OXCFOLD] Microsoft Corporation, "[Folder Object Protocol](#)".
- [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-OXCTABL] Microsoft Corporation, "[Table Object Protocol](#)".
- [MS-OXOCAL] Microsoft Corporation, "[Appointment and Meeting Object Protocol](#)".
- [MS-OXOCFG] Microsoft Corporation, "[Configuration Information Protocol](#)".
- [MS-OXOFLAG] Microsoft Corporation, "[Informational Flagging Protocol](#)".
- [MS-OXOMSG] Microsoft Corporation, "[Email Object Protocol](#)".
- [MS-OXOSFLD] Microsoft Corporation, "[Special Folders Protocol](#)".
- [MS-OXOSRCH] Microsoft Corporation, "[Search Folder List Configuration 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-DTYP] Microsoft Corporation, "[Windows Data Types](#)".
- [MS-OXOCNTC] Microsoft Corporation, "[Contact Object Protocol](#)".
- [MS-OXPROTO] Microsoft Corporation, "[Exchange Server Protocols System Overview](#)".

## 1.3 Overview

This protocol allows the user or an agent who is acting on behalf of the user to associate a **reminder** with a given **Message object** with the intention that a client will somehow signal the user or agent when the **signal time** is reached.

The client creates, modifies, or removes reminders by setting **reminder properties** on Message objects, as specified in section [3.1.4](#). The client can specify such things as when to signal a reminder, the **due time** for the Message object about which the user is to be reminded, whether to play a sound when the reminder is signaled, which sound to play, and whether the reminder is enabled. On a **Draft Message object**, reminders for the **recipient** or recipients can be specified independently from those for the sender. For example, a user might have a recurring appointment but might want to remove the reminder for a particular instance of the appointment. For examples of how a client sets the properties on a Message object such as an appointment, see section [4](#).

The client processes **overdue reminders** as specified in section [3.1.4.5](#). Before signaling an overdue reminder, the client is responsible for determining which reminders to ignore and which to automatically **dismiss**.

The client can dismiss or **snooze** overdue reminders as specified in section [3.1.4.6](#) and section [3.1.4.7](#).

## 1.4 Relationship to Other Protocols

The Reminder Settings Protocol extends the Message and Attachment Object Protocol, as specified in [\[MS-OXCMMSG\]](#), and therefore has the same dependencies.

This protocol uses data structures in Message objects, as described in [\[MS-OXCDATA\]](#).

This protocol creates, sends, and stores e-mail messages by representing them as Message objects, as described in [\[MS-OXOMSG\]](#). It flags Message objects as described in [\[MS-OXOFLAG\]](#).

This protocol works with **Folder objects**, as described in [\[MS-OXCFOLD\]](#); creates and reads **special folders**, as described in [\[MS-OXOSFLD\]](#); and uses **search folders (2)**, as described in [\[MS-OXOSRCH\]](#).

This protocol reads tabular data, as described in [\[MS-OXCTABL\]](#).

This protocol shares configuration data between clients and servers, as described in [\[MS-OXOCFG\]](#).

This protocol uses **Calendar objects** and **meeting-related objects**, as described [\[MS-OXOCAL\]](#).

This protocol uses **Task objects**, as described in [\[MS-OXOTASK\]](#).

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

## 1.5 Prerequisites/Preconditions

For requesting and configuring reminders, the Reminder Settings Protocol assumes that the client has previously logged on to the server and has acquired a **handle** to the Message object for which it intends to create or update reminder properties, as specified in [\[MS-OXCFOLD\]](#) and [\[MS-OXCMMSG\]](#).

For discovering Message objects that have reminders, the Reminder Settings Protocol assumes that the client has previously logged on to the server and has acquired a handle to the **mailbox** in which it intends to search, as specified in [\[MS-OXCSTOR\]](#).

## 1.6 Applicability Statement

The Reminder Settings Protocol is used to specify and raise time-specific reminders to a user or an agent who is acting on behalf of a user.

## **1.7 Versioning and Capability Negotiation**

None.

## **1.8 Vendor-Extensible Fields**

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

## **1.9 Standards Assignments**

None.

## 2 Messages

### 2.1 Transport

This protocol uses the transport specified in [\[MS-OXCMSG\]](#).

### 2.2 Message Syntax

Clients can create and modify reminders on any type of Message object by using the Message and Attachment Object Protocol, as specified in [\[MS-OXCMSG\]](#).

#### 2.2.1 Properties Used to Specify and/or Decode Reminders

Properties that are used to specify the reminder for a given Message object are specified in section [2.2.1.1](#) through section [2.2.1.9](#). These properties are set by the client to ensure that the user is reminded at the time and in the manner that the user wants.

##### 2.2.1.1 PidLidReminderSet Property

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

The **PidLidReminderSet** property ([\[MS-OXPROPS\]](#) section 2.222) specifies whether a reminder is set on the Message object.

If a **Recurring Calendar object** has the **PidLidReminderSet** property set to TRUE, the client can override this value for exceptions. For details, see the definition of the **PidLidAppointmentRecur** property in [\[MS-OXOCAL\]](#) section 2.2.1.44.

If the **PidLidReminderSet** property is set to FALSE on a Recurring Calendar object, reminders are disabled for the entire series, including exceptions.

For **Recurring Task objects**, the **PidLidReminderSet** property cannot be overridden by exceptions. For details, see [\[MS-OXOTASK\]](#) section 2.2.2.2.6.

##### 2.2.1.2 PidLidReminderSignalTime Property

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

The **PidLidReminderSignalTime** property ([\[MS-OXPROPS\]](#) section 2.223) specifies the time when a reminder transitions from pending to overdue. This property MUST be set if the **PidLidReminderSet** property (section [2.2.1.1](#)) is set to TRUE. Clients MUST set the value of this property in **Coordinated Universal Time (UTC)**.

This property is not overridden by exceptions; there is a single signal time per Recurring Calendar object.

The value of this property is not interpreted strictly as UTC. For details, see [\[MS-OXOCAL\]](#) section 3.1.5.5.

##### 2.2.1.3 PidLidReminderDelta Property

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

The **PidLidReminderDelta** property ([\[MS-OXPROPS\]](#) section 2.218) specifies the interval, in minutes, between the time at which the reminder first becomes overdue and the start time of the Calendar

object. This property MUST be set on Calendar objects. For all Message objects other than Calendar objects, this property SHOULD be set to 0x00000000 and is ignored.

When a reminder is dismissed for one **instance** of a Recurring Calendar object, the value of this property is used in the calculation of the signal time for the next instance. For details about creating Calendar objects, see [\[MS-OXOCAL\]](#) section 3.1.4.1.

#### 2.2.1.4 PidLidReminderTime Property

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

The **PidLidReminderTime** property ([\[MS-OXPROPS\]](#) section 2.224) specifies the initial signal time for Message objects other than Calendar objects. For Calendar objects, the value of this property represents the time after which the user would be late; that is, the start time of the appointment. Clients MUST set the value in UTC.

#### 2.2.1.5 PidLidReminderOverride Property

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

The **PidLidReminderOverride** property ([\[MS-OXPROPS\]](#) section 2.220), if set to TRUE, specifies that the client SHOULD respect the values of the **PidLidReminderPlaySound** property (section [2.2.1.6](#)) and the [%5BMS-OXPROPS%5D.pdf](#) **PidLidReminderFileParameter** property (section [2.2.1.7](#)). Otherwise, a client can use default values in place of the values of the **PidLidReminderPlaySound** and **PidLidReminderFileParameter** properties.

#### 2.2.1.6 PidLidReminderPlaySound Property

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

The **PidLidReminderPlaySound** property ([\[MS-OXPROPS\]](#) section 2.221), if set to TRUE, specifies that the client SHOULD play a sound when the reminder becomes overdue.

#### 2.2.1.7 PidLidReminderFileParameter Property

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

The **PidLidReminderFileParameter** property ([\[MS-OXPROPS\]](#) section 2.219) SHOULD specify the full path (but MAY specify only the file name) of the sound [<1>](#) that a client SHOULD play when the reminder for the Message object becomes overdue. If this property is not present, the client can use a default value.

#### 2.2.1.8 PidTagReplyTime Property

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

The **PidTagReplyTime** property ([\[MS-OXOFLAG\]](#) section 2.2.3.1), upon receipt of a Message object, specifies the due time that the sender wants, presumably for an associated work item. The value of this property is otherwise ignored. Clients MUST set the value in UTC.

#### 2.2.1.9 PidLidReminderType Property

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

The **PidLidReminderType** property ([MS-OXPROPS] section 2.227) SHOULD NOT [<2>](#) be set, and its value MUST be ignored.

## 2.2.2 Shared Properties

Shared properties are set when the user configures the reminder.

### 2.2.2.1 Properties Shared with the Message and Attachment Object Protocol

This protocol shares the following properties with the Message and Attachment Object Protocol:

- **PidTagAttachDataObject** ([MS-OXCMSG] section 2.2.2.8)
- **PidTagMessageClass** ([MS-OXCMSG] section 2.2.1.3)
- **PidTagMessageFlags** ([MS-OXCMSG] section 2.2.1.6)

The semantics and accepted values are identical to those specified in [MS-OXCMSG].

### 2.2.2.2 Properties Shared with the Informational Flagging Protocol

This protocol shares the following properties with the Informational Flagging Protocol:

- **PidTagSwappedToDoData** ([MS-EXOFLAG] section 2.2.1.7)
- **PidTagSwappedToDoStore** ([MS-EXOFLAG] section 2.2.1.8)

The semantics and accepted values are identical to those specified in [MS-EXOFLAG].

### 2.2.2.3 Properties Shared with the Task-Related Objects Protocol

This protocol shares the following properties with the Task-Related Objects Protocol:

- **PidLidTaskDueDate** ([MS-OXOTASK] section 2.2.2.2.5)
- **PidLidTaskRecurrence** ([MS-OXOTASK] section 2.2.2.2.15)
- **PidLidTaskResetReminder** ([MS-OXOTASK] section 2.2.2.2.6)

Unless noted in section [2.2.2.3.1](#), the semantics and accepted values are identical to those specified in [MS-OXOTASK].

#### 2.2.2.3.1 PidLidTaskDueDate Property

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

The **PidLidTaskDueDate** property ([MS-OXOTASK] section 2.2.2.2.5) SHOULD [<3>](#) be set when the client creates a reminder on an **object** that is neither a Task object nor a Calendar object.

Setting the **PidLidTaskDueDate** property allows for a more intuitive "due in" time when the reminder signals. The "due in" time is the time remaining until a Message object is due.

### 2.2.2.4 Properties Shared with the Appointment and Meeting Object Protocol

This protocol shares the following properties with the Appointment and Meeting Object Protocol:

- **PidLidAppointmentRecur** ([MS-OXOCAL] section 2.2.1.44)

- **PidLidAutoStartCheck** ([\[MS-OXPROPS\]](#) section 2.41)
- **PidLidConferencingCheck** ([MS-OXOCAL] section 2.2.1.51.2)

Unless otherwise noted, the semantics and accepted values are identical to those specified in [MS-OXOCAL].

## 2.2.3 Properties Used to Specify User Preferences That Are Roamed on the Server

The property specified in section [2.2.3.1](#) is used to specify global state with respect to reminders. This property uses the protocol defined in [\[MS-OXOCFG\]](#) as a transport.

### 2.2.3.1 piReminderUpgradeTime Property

The **piReminderUpgradeTime** property is a 32-bit integer value (specified in number of minutes since midnight, January 1, 1601) stored in the **calendar options dictionary** that specifies the first time a **full reminder domain** client was used on the mailbox. The time is interpreted in the user's current time zone, not UTC.

For details about the calendar options dictionary, see [\[MS-OXOCFG\]](#).



## 3 Protocol Details

### 3.1 Client Details

#### 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 document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

Messages with **active reminders** can be discovered by using a persistent search folder (2) as specified in [\[MS-OXCFOld\]](#). Those messages can then be loaded into a list, referred to as the **reminder queue**, that holds the relevant information in memory for pending and/or overdue reminders. This list is sorted by the value of the **PidLidReminderSignalTime** property (section [2.2.1.2](#)).

Message objects can be in one of the following states:

- No active reminder
- Pending reminder
- Overdue reminders

The reminder queue contains Message objects that have a pending or overdue reminder.

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

##### 3.1.3.1 Scope of the Search for Active Reminders

One of two approaches is typically used to specify the scope of the search for active reminders in the reminder queue: **minimal reminder domain** or full reminder domain.

Clients SHOULD [<4>](#) use a full reminder domain scope strategy. Using multiple clients that use different scope strategies to access the same mailbox is not recommended.

Using multiple clients that use different **reminder domains** can lead to inconsistent reminder signaling behavior. For example, different overdue reminders might signal in different clients, which can lead to missed reminders in the client with the smaller reminder domain.

Clients that use a full reminder domain scope strategy MUST ensure that the **piReminderUpgradeTime** property (section [2.2.3.1](#)) is set. If the **piReminderUpgradeTime** property does not exist, the client MUST set it. The value SHOULD correspond to the current local time to reflect the time of upgrade to the expanded scope strategy of the newer client. The **piReminderUpgradeTime** property SHOULD [<5>](#) be set only once. If the value of the **piReminderUpgradeTime** property is already set, it SHOULD NOT be changed because it represents the first time an "upgraded" client was used.

### 3.1.3.2 Loading and Processing Reminders

When populating or updating the reminder queue with Message objects found in the reminder domain, the client SHOULD:

- Ignore certain Message objects, as specified in section [3.1.4.5.1](#).
- Automatically dismiss certain Message objects, as specified in section [3.1.4.5.2](#).
- Include any remaining Message objects that have active reminders (pending or overdue reminders).

### 3.1.4 Higher-Layer Triggered Events

#### 3.1.4.1 Setting a Reminder

To enable the signaling of a reminder, in addition to the behaviors specified in section [3.1.4.1.1](#) through section [3.1.4.1.5.2](#), the client sets the **PidLidReminderSet** property (section [2.2.1.1](#)) to TRUE on a Message object. The client sets the **PidLidReminderSignalTime** property (section [2.2.1.2](#)) to the specified time the reminder becomes overdue and sets the **PidLidReminderTime** property (section [2.2.1.4](#)).

##### 3.1.4.1.1 Reminders on Task Objects

To enable the signaling of a reminder on a Task object, the client sets the **PidLidReminderTime** property (section [2.2.1.4](#)) to the specified time at which the reminder becomes overdue.

##### 3.1.4.1.2 Reminders on Message Objects Other Than Calendar Objects and Task Objects

To enable the signaling of reminders on Message objects that are not Calendar objects or Task objects, the client sets the **PidLidReminderTime** property (section [2.2.1.4](#)) and SHOULD [<6>](#) set the **PidTagReplyTime** ([\[MS-OXOFLAG\]](#) section 2.2.3.1) property to the specified signal time.

In summary, the client sets the properties in the following table (or ensures that they are already set [<7>](#) for Message objects that are neither Calendar objects nor Task objects).

Property	Value
<b>PidLidReminderSet</b> (section <a href="#">2.2.1.1</a> )	TRUE
<b>PidLidReminderTime</b>	The specified signal time
<b>PidLidReminderSignalTime</b> (section <a href="#">2.2.1.2</a> )	The specified signal time
<b>PidTagReplyTime</b>	The specified signal time

##### 3.1.4.1.3 Reminders on Calendar Objects

To enable the signaling of a reminder on Calendar objects, the client sets properties (or otherwise ensures that the properties are already set) as shown in the following table. The **PidLidReminderTime** property (section [2.2.1.4](#)) and the **PidLidReminderDelta** property (section [2.2.1.3](#)) MUST be set.

Property	Value
<b>PidLidReminderSet</b> (section <a href="#">2.2.1.1</a> )	TRUE
<b>PidLidReminderTime</b>	SHOULD<8> be the appointment start time
<b>PidLidReminderDelta</b>	The interval, in minutes, between signal time and the appointment start time
<b>PidLidReminderSignalTime</b> (section <a href="#">2.2.1.2</a> )	The signal time in UTC

#### 3.1.4.1.4 Reminders on Recurring Calendar Objects

To enable the signaling of a reminder on Recurring Calendar objects, the client also sets or modifies the **recurrence BLOB** of the **PidLidAppointmentRecur** property ([\[MS-OXOCAL\]](#) section 2.2.1.44) on the Recurring Calendar object and the **Exception Embedded Message object** **PidTagAttachDataObject** property ([\[MS-OXCMMSG\]](#) section 2.2.2.8) on the **Exception Attachment object**, as specified in the following paragraphs.

To modify the reminder for specific instances in a **recurring series**, the client MUST create an exception if one does not already exist for that instance and then modify the recurrence BLOB and Exception Embedded Message object to store whichever properties are different from the Recurring Calendar object, such as the **StartTime** field in the recurrence BLOB, the **PidLidReminderDelta** property (section [2.2.1.3](#)) or **PidLidReminderSet** property (section [2.2.1.1](#)). For example recurrence BLOBs, see [\[MS-OXOCAL\]](#) section 4.1.1.

Setting the **PidLidReminderSet** property to FALSE on the Recurring Calendar object MUST take precedence over any reminders that are specified for exceptions. To disable reminders for the entire series, including all exceptions, the client sets the **PidLidReminderSet** property to FALSE on the Recurring Calendar object.

If one or more instances, but not all instances, need a reminder, the client sets the **PidLidReminderSet** property to TRUE on the Recurring Calendar object. The client then sets the **ReminderSet** field to FALSE in the recurrence BLOB for each instance that does not have a reminder and sets the **PidLidReminderSet** property on the Exception Embedded Message object to FALSE, creating exceptions as appropriate.

#### 3.1.4.1.5 Setting Reminders on Draft Message Objects

A client can set the reminder properties for the sender of a Message object independently from the reminder properties that are sent to recipients by using the same mechanism that allows the client to set flagging properties for the sender of a Message object independently from the flagging properties specified in [\[MS-OXOFLAG\]](#) that are sent to recipients.

If either a sender or a recipient reminder is specified by a client that supports sender reminders, the **PidTagSwappedToDoStore** property ([\[MS-OXOFLAG\]](#) section 2.2.1.8) MUST be set to enable post-transmit processing. The remaining work to process recipient and sender reminders is covered during post-transmit processing as specified in [\[MS-OXOFLAG\]](#) section 3.1.4.3.

##### 3.1.4.1.5.1 Setting a Reminder for all Recipients

To set a reminder for all recipients on a Draft Message object, the client sets the **PidLidReminderSet** property (section [2.2.1.1](#)) to TRUE and sets the **PidLidReminderTime** property (section [2.2.1.4](#)), the **PidLidReminderSignalTime** property (section [2.2.1.2](#)), and the **PidTagReplyTime** property ([\[MS-OXOFLAG\]](#) section 2.2.3.1) to the required signal time.

#### 3.1.4.1.5.2 Setting a Reminder for the Sender

To enable the signaling of a reminder for the sender, the client MUST set the **rtmReminder** field to the required signal time and the **fReminderSet** field to TRUE in the **PidTagSwappedToDoData** property ([MS-OXOFLAG] section 2.2.1.7). The client sets the corresponding validity bits (0x00000040 and 0x00000080) to 1 in the **dwFlags** field in the **PidTagSwappedToDoData** property.

#### 3.1.4.2 Post-Transmit Processing

The post-transmit processing required by the Reminder Settings Protocol is identical to the post-transmit processing specified in [MS-OXOFLAG] section 3.1.4.3.

#### 3.1.4.3 Post-Receive Processing

For received Message objects that are not time-flagged, if the **PidTagReplyTime** property ([MS-OXOFLAG] section 2.2.3.1) exists, the client SHOULD copy the value of the **PidTagReplyTime** property into the **PidLidReminderTime** (section 2.2.1.4) and **PidLidReminderSignalTime** (section 2.2.1.2) properties and SHOULD set the **PidLidReminderSet** property (section 2.2.1.1) to TRUE. For details about flagging and flagged states of a Message object, see [MS-OXOFLAG].

#### 3.1.4.4 Removing a Reminder

##### 3.1.4.4.1 Single Instance Objects

To remove a reminder for a single instance, the client sets the **PidLidReminderSet** property (section 2.2.1.1) to FALSE, which disables the reminder.

If the Message object is neither a Task object nor a Calendar object, the client MAY<9> delete the **PidLidReminderTime** property (section 2.2.1.4) and the **PidLidReminderSignalTime** property (section 2.2.1.2) and SHOULD delete the **PidTagReplyTime** property ([MS-OXOFLAG] section 2.2.3.1).

If the Message object is a Calendar object, the client SHOULD set the **PidLidAutoStartCheck** property ([MS-OXPROPS] section 2.41) to FALSE.

If the Message object is a Task object, the client SHOULD NOT change the value of the **PidLidAutoStartCheck** property.

##### 3.1.4.4.2 Recurring Calendar Objects

To remove the reminder for all instances on a Recurring Calendar object, including any exceptions, the client MUST set the **PidLidReminderSet** property (section 2.2.1.1) to FALSE.

To remove the reminder for a single instance on a Recurring Calendar object, the client ensures that an exception exists for the instance, sets the value of the **ReminderSet** field for the corresponding exception in the recurrence BLOB to FALSE, sets the **PidLidReminderSet** property on the Exception Embedded Message object to FALSE, and SHOULD set the **PidLidAutoStartCheck** property ([MS-OXPROPS] section 2.41) on the Exception Embedded Message object to FALSE. For details about how to modify the appointment recurrence BLOB of the **PidLidAppointmentRecur** property ([MS-OXOCAL] section 2.2.1.44), see [MS-OXOCAL]. The Exception Embedded Message object is stored in the **PidTagAttachDataObject** property ([MS-OXCMSG] section 2.2.2.8).

##### 3.1.4.4.3 Recurring Task Objects

To remove the reminder for all instances on a Recurring Task object, the client sets the **PidLidReminderSet** property (section 2.2.1.1) to FALSE and SHOULD ensure that the

**PidLidTaskResetReminder** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.6) either is not present or has the value FALSE.

Removing the reminder for a single instance of a Recurring Task object is not possible because Recurring Task objects do not support exceptions. Therefore, the reminder can be enabled or disabled only for the entire **recurrence pattern**.

### 3.1.4.5 When a Reminder Becomes Overdue

#### 3.1.4.5.1 Reminders That Are Ignored When They Become Overdue

Minimal reminder domain clients SHOULD ignore reminders for the following types of Message objects, and full reminder domain clients MUST ignore reminders for the following types of Message objects:

- Meeting-related objects - any Message object where the value of the **PidTagMessageClass** property ([\[MS-OXCMMSG\]](#) section 2.2.1.3) contains the prefix "IPM.Schedule".
- Unsent mail - any Message object that contains the **PidTagMessageFlags** property ([MS-OXCMMSG] section 2.2.1.6) with the flag set corresponding to **MSGFLAG\_UNSENT**.
- Message objects that have the **PidTagSwappedToDoStore** property ([\[MS-OXOFLAG\]](#) section 2.2.1.8) set. [<10>](#)

#### 3.1.4.5.2 Reminders That Are Automatically Dismissed When Overdue

Clients following the full reminder domain scope strategy, as specified in section [3.1.3.1](#), SHOULD automatically dismiss any Message objects that are found outside the minimal reminder domain and for which the value of the **PidLidReminderSignalTime** property (section [2.2.1.2](#)) is earlier than the value of the **piReminderUpgradeTime** property (section [2.2.3.1](#)), so that the Message objects never have to be considered again. A reminder is automatically dismissed by setting the **PidLidReminderSet** property (section [2.2.1.1](#)) to FALSE.

#### 3.1.4.5.3 Actions for Overdue Reminders That Are Not Ignored or Automatically Dismissed

When a reminder becomes overdue, the client commonly prompts the user to take action, such as dismissing or snoozing. To identify the reminder to the user (or user agent), the client can use any properties [<11>](#) in addition to the following properties that the client SHOULD use to determine the due time for displaying how long until the Message object is due or how much time has passed since the Message object became due.

When displaying how long until the Message object is due, the time is calculated from the due time, as summarized in the following table.

Case	Due time
For Message objects other than Calendar objects <a href="#">&lt;12&gt;</a>	If the <b>PidLidTaskDueDate</b> property ( <a href="#">[MS-OXOTASK]</a> section 2.2.2.2.5) exists, the client SHOULD <a href="#">&lt;13&gt;</a> use "TaskDueDate + default End-of-Day time"; otherwise use the value of the <b>PidLidReminderTime</b> property (section <a href="#">2.2.1.4</a> ) as the due time. For details about End-of-Day time, see the <b>End</b> element in <a href="#">[MS-OXOCFG]</a> section 2.2.5.2.1.
For single instance Calendar objects	The client uses the value of the <b>PidLidReminderTime</b> property.
For Recurring Calendar objects	The client SHOULD use the start time of the latest instance with enabled reminder for which the time defined by evaluating the expression ( <b>StartTime</b> – <b>ReminderDelta</b> ) is less than or equal to the time encoded in the value of the <b>PidLidReminderSignalTime</b> property (section <a href="#">2.2.1.2</a> ) on the Recurring Calendar object.

Case	Due time
	<b>Note</b> <b>StartTime</b> and <b>ReminderDelta</b> could be overridden by exceptions.

If the **PidLidReminderOverride** property (section [2.2.1.5](#)) is set to FALSE or is not set, the client SHOULD play the default reminder sound.

If the **PidLidReminderOverride** property is set to TRUE, the client SHOULD use the values of the **PidLidReminderPlaySound** (section [2.2.1.6](#)) and **PidLidReminderFileParameter** (section [2.2.1.7](#)) properties from the reminder properties of the given Message object.

If the **PidLidReminderPlaySound** property is TRUE, the client SHOULD use the value of the **PidLidReminderFileParameter** property to locate the specified sound file and then play it.

If the **PidLidReminderPlaySound** property is FALSE, the client SHOULD NOT play a reminder sound.

If the client uses the value of the **PidLidReminderFileParameter** property to play a sound and it does not represent a full path, the client can search for a matching file name.

### 3.1.4.5.3.1 Starting a Conference

The client can launch a conference if the **PidLidConferencingCheck** property ([MS-OXOCAL] section 2.2.1.51.2) and the **PidLidAutoStartCheck**<14> property ([MS-OXPROPS] section 2.41) are both set to TRUE. The client MAY launch a conference if the **PidLidConferencingType** property ([MS-OXOCAL] section 2.2.1.51.3) is set to 0x00000000 and use the values of the following properties:

- **PidLidConferencingCheck**
- **PidLidConferencingType**
- **PidLidOrganizerAlias** ([MS-OXOCAL] section 2.2.1.51.6)
- **PidLidDirectory** ([MS-OXPROPS] section 2.94)
- **PidTagConversationTopic** ([MS-OXOMSG] section 2.2.1.5)
- **PidLidCollaborateDoc** ([MS-OXOCAL] section 2.2.1.51.7)
- **PidLidNetShowUrl** ([MS-OXOCAL] section 2.2.1.51.8)
- **PidLidAppointmentStateFlags** ([MS-OXOCAL] section 2.2.1.10)

### 3.1.4.6 Dismissing a Reminder

#### 3.1.4.6.1 Dismissing Single Instance Objects

To dismiss a reminder for all single instance Message objects, the client MUST set the **PidLidReminderSet** property (section [2.2.1.1](#)) to FALSE.

In addition, for single instance Task objects, the client can follow the guidance in section [3.1.4.6.2](#) for dismissing a Recurring Task object.

#### 3.1.4.6.2 Dismissing Recurring Calendar Objects

To dismiss a reminder for a Recurring Calendar object if there is a future instance (including exceptions) with a pending reminder (in other words, the reminder is not disabled individually on all future instances), the client MUST set the value of the **PidLidReminderSignalTime** property (section

[2.2.1.2](#)) to the start time of that instance minus the value of the **PidLidReminderDelta** property (section [2.2.1.3](#)).

If no more instances (including exceptions) have a pending reminder, it is recommended that the client avoid setting the **PidLidReminderSet** property (section [2.2.1.1](#)) to FALSE, and the client MUST set the **PidLidReminderSignalTime** property to the **PtypTime** ([MS-OXCDATA] section 2.11.1) value Low:0xA3DD4000 High:0x0CB34557 (4501/01/01 00:00:00.000).

It is recommended that the client avoid setting the **PidLidReminderSet** property to FALSE when dismissing reminders for Recurring Calendar objects, even when no more instances require a reminder to signal. This is to preserve the user's intent to signal reminders, in case the recurrence is extended at a later date, to include instances in the future.

Dismissing a reminder for a Recurring Calendar object never causes an instance to become an exception.

### 3.1.4.6.3 Dismissing for Recurring Task Objects

To dismiss a reminder for a Recurring Task object, the client MUST set the **PidLidReminderSet** property (section [2.2.1.1](#)) to FALSE and SHOULD [<15>](#) set the **PidLidTaskResetReminder** property ([MS-OXOTASK] section 2.2.2.2.6) to TRUE.

For Task objects, if the value of the **PidLidReminderTime** property (section [2.2.1.4](#)) is in the future, the client SHOULD set the **PidLidReminderSignalTime** property (section [2.2.1.2](#)) to the same value as the **PidLidReminderTime** property so that the reminder will be signaled at the appropriate time for the next instance.

Dismissing a reminder for a Recurring Task object never causes an instance to become an exception.

### 3.1.4.7 Snoozing a Reminder

#### 3.1.4.7.1 Snoozing for Single Instance Objects

To snooze a reminder for a single instance object, the client MUST set the **PidLidReminderSignalTime** property (section [2.2.1.2](#)) to the time specified by the user (or user agent).

#### 3.1.4.7.2 Snoozing for Recurring Calendar Objects and Recurring Task Objects

To snooze a reminder for a Recurring Calendar object or Recurring Task object, the client MUST set the **PidLidReminderSignalTime** property (section [2.2.1.2](#)) to either the specified time or the signal time for the next instance with an active reminder (for example, the start time of the next instance minus the value of the **PidLidReminderDelta** property (section [2.2.1.3](#))), whichever is earlier.

Snoozing a reminder for a Recurring Calendar object or Recurring Task object never causes an instance to become an exception.

### 3.1.4.8 Generating Instances for Recurring Task Objects

In addition to the details related to the semantics and the use of the **PidLidTaskResetReminder** property specified in [MS-OXOTASK] section 2.2.2.2.6, the following applies to generating instances for Recurring Task objects:

When a Recurring Task object is updated after one instance of the task is marked complete, if the value of the **PidLidTaskResetReminder** property is TRUE or the value of the **PidLidReminderSet** property (section [2.2.1.1](#)) is TRUE, a reminder SHOULD be set on the Recurring Task object by setting both the **PidLidReminderTime** property (section [2.2.1.4](#)) and the **PidLidReminderSignalTime**



property (section [2.2.1.2](#)) to the next signal time. These values SHOULD correspond to the same time as the previous reminder but on a different day, such that the difference between the new signal time and the new task due date is the same as the difference between the old signal time and old task due date values. The client adjusts for Daylight Saving Time (DST) when necessary (if a change in DST occurs between the current and next instance), so the reminder signals at the same time of day.

After an instance of a **recurring task** that has an active reminder is complete, the future instance MUST have the **PidLidReminderSet** property set to TRUE, and the **PidLidTaskResetReminder** property SHOULD NOT be TRUE. The now-completed instance MUST have the **PidLidReminderSet** property set to FALSE, and the **PidLidTaskResetReminder** property SHOULD NOT be TRUE.

### 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 fulfills the server role as specified in the following documents:

- [\[MS-OXPROPS\]](#)
- [\[MS-OXOMSG\]](#)
- [\[MS-OXCFOLD\]](#)
- [\[MS-OXCTABL\]](#)
- [\[MS-OXOSFLD\]](#)
- [\[MS-OXOSRCH\]](#)
- [\[MS-OXOCFG\]](#)
- [\[MS-OXOCAL\]](#)
- [\[MS-OXOTASK\]](#)
- [\[MS-OXOFLAG\]](#)

### 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.

## 4 Protocol Examples

Before adding, removing, or modifying a reminder on any Message objects, the client asks the server to map from **named properties** to **property IDs** by sending a **RopGetPropertyIdsFromNames ROP request** ([MS-OXCROPS] section 2.2.8.1), as follows.

Property	Property Set GUID	Name or ID
<b>PidLidReminderSet</b> (section <a href="#">2.2.1.1</a> )	{00062008-0000-0000-C000-000000000046}	0x8503
<b>PidLidReminderTime</b> (section <a href="#">2.2.1.4</a> )	{00062008-0000-0000-C000-000000000046}	0x8502
<b>PidLidReminderDelta</b> (section <a href="#">2.2.1.3</a> )	{00062008-0000-0000-C000-000000000046}	0x8501
<b>PidLidReminderSignalTime</b> (section <a href="#">2.2.1.2</a> )	{00062008-0000-0000-C000-000000000046}	0x8560
<b>PidLidTaskDueDate</b> ([MS-OXOTASK] section 2.2.2.2.5)	{00062003-0000-0000-C000-000000000046}	0x8105
<b>PidLidTaskResetReminder</b> ([MS-OXOTASK] section 2.2.2.2.6)	{00062003-0000-0000-C000-000000000046}	0x8107
<b>PidLidAppointmentRecur</b> ([MS-OXOCAL] section 2.2.1.44)	{00062002-0000-0000-C000-000000000046}	0x8216
<b>PidLidAutoStartCheck</b> ([MS-OXPROPS] section 2.41)	{00062002-0000-0000-C000-000000000046}	0x8244
<b>PidLidFExceptionalAttendees</b> ([MS-OXOCAL] section 2.2.2.3)	{00062002-0000-0000-C000-000000000046}	0x822B

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

Property	Property ID
<b>PidLidReminderSet</b>	0x8004
<b>PidLidReminderTime</b>	0x8005
<b>PidLidReminderDelta</b>	0x81FF
<b>PidLidReminderSignalTime</b>	0x8006
<b>PidLidTaskDueDate</b>	0x8144
<b>PidLidTaskResetReminder</b>	0x815B
<b>PidLidAppointmentRecur</b>	0x81AE
<b>PidLidAutoStartCheck</b>	0x82E0
<b>PidLidFExceptionalAttendees</b>	0x82D7

## 4.1 Setting a Reminder on a Single Instance Appointment

John has an existing appointment for dinner with Robin Counts at Coho Vineyard on February 15, 2008, from 6:00 P.M. to 7:00 P.M., Pacific Standard Time. Some of the properties of the Message object are as follows.

Property	Property ID	Property type	Data	Value
<b>PidTagNormalizedSubject</b> ([MS-OXCMMSG] section 2.2.1.10)	0x0E1D	<b>PtypString</b> ([MS-OXCADATA] section 2.11.1)	44 00 69 00 6E 00 6E 00 65 00 72 00 20 00 77 00 69 00 74 00 68 00 20 00 52 00 6F 00 62 00 69 00 6E 00 20 00 43 00 6F 00 75 00 6E 00 74 00 73 00 00 00	"Dinner with Robin Counts"
<b>PidLidLocation</b> ([MS-OXOCAL] section 2.2.1.4)	0x8009	<b>PtypString</b>	43 00 6F 00 68 00 6F 00 20 00 56 00 69 00 6E 00 65 00 79 00 61 00 72 00 64 00 00 00	"Coho Vineyard"
<b>PidTagStartDate</b> ([MS-OXOCAL] section 2.2.1.30)	0x0060	<b>PtypTime</b> ([MS-OXCADATA] section 2.11.1)	00 10 00 A3 3F 70 C8 01	2008/02/16 02:00:00.000
<b>PidTagEndDate</b> ([MS-OXOCAL] section 2.2.1.31)	0x0061	<b>PtypTime</b>	00 78 C4 04 48 70 C8 01	2008/02/16 03:00:00.000
<b>PidLidReminderSet</b> (section 2.2.1.1)	0x8004	<b>PtypBoolean</b> ([MS-OXCADATA] section 2.11.1)	00	FALSE
<b>PidLidReminderTime</b> (section 2.2.1.4)	0x8005	<b>PtypTime</b>	Deleted	N/A
<b>PidLidReminderSignalTime</b> (section 2.2.1.2)	0x8006	<b>PtypTime</b>	Deleted	N/A
<b>PidLidReminderDelta</b> (section 2.2.1.3)	0x81FF	<b>PtypInteger32</b> ([MS-OXCADATA] section 2.11.1)	0F 00 00 00	15 minutes

Around 11:44 A.M., John sets a reminder on the appointment for 30 minutes. In response to the user-entered data, 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.

The client then sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following properties.

Property	Property ID	Property type	Data	Value
<b>PidLidReminderSet</b>	0x8004	<b>PtypBoolean</b>	01	TRUE
<b>PidLidReminderDelta</b>	0x81FF	<b>PtypInteger32</b>	1E 00 00 00	30 minutes
<b>PidLidReminderSignalTime</b>	0x8006	<b>PtypTime</b>	00 DC 1D 72 3B 70 C8 01	2008/02/16 01:30:00.000

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

## 4.2 Setting a Reminder on a Message Object

John, who is currently working in the Pacific Standard time zone, has an existing message titled "Important Project Information" that was previously flagged for follow-up by February 14, 2008.

Some of the properties of the Message object are as follows.

Property	Property ID	Property type	Data	Value
<b>PidTagNormalizedSubject</b> ([MS-OXCMSG] section 2.2.1.10)	0x0E1D	<b>PtypString</b> ([MS-OXCADATA] section 2.11.1)	49 00 6D 00 70 00 6F 00 72 00 74 00 61 00 6E 00 74 00 20 00 50 00 72 00 6F 00 6A 00 65 00 63 00 74 00 20 00 49 00 6E 00 66 00 6F 00 72 00 6D 00 61 00 74 00 69 00 6F 00 6E 00 00 00	"Important Project Information"
<b>PidLidTaskStartDate</b> ([MS-OXOTASK] section 2.2.2.2.4)	0x8143	<b>PtypTime</b> ([MS-OXCADATA] section 2.11.1)	00 C0 A3 8A 9C 6E C8 01	2008/02/14 00:00:00.000
<b>PidLidTaskDueDate</b> ([MS-OXOTASK] section 2.2.2.2.5)	0x8144	<b>PtypTime</b>	00 C0 A3 8A 9C 6E C8 01	2008/02/14 00:00:00.000
<b>PidLidReminderSet</b> (section 2.2.1.1)	0x8004	<b>PtypBoolean</b> ([MS-OXCADATA] section 2.11.1)	00	FALSE
<b>PidLidReminderTime</b> (section 2.2.1.4)	0x8005	<b>PtypTime</b>	Deleted	N/A
<b>PidLidReminderSignalTime</b> (section 2.2.1.2)	0x8006	<b>PtypTime</b>	Deleted	N/A

To ensure that the message is not forgotten, John sets a reminder for 6:00 P.M. In response to the user-entered data, 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.

The client then sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following properties.

Property	Property ID	Property type	Data	Value
<b>PidLidReminderTime</b>	0x8005	<b>PtypTime</b>	00 50 96 78 76 6f c8 01	2008/02/15 02:00:00.000
<b>PidLidReminderSignalTime</b>	0x8006	<b>PtypTime</b>	00 50 96 78 76 6f c8 01	2008/02/15 02:00:00.000
<b>PidLidReminderSet</b> (section 2.2.1.1)	0x8004	<b>PtypBoolean</b>	01	TRUE

Property	Property ID	Property type	Data	Value
<b>PidTagReplyTime</b> ([MS-OXOFLAG] section 2.2.3.1)	0x0030	<b>PtypTime</b>	00 50 96 78 76 6f c8 01	2008/02/15 02:00:00.000
<b>PidTagReplyRequested</b> ([MS-OXOMSG] section 2.2.1.45)	0x0C17	<b>PtypBoolean</b>	01	TRUE
<b>PidTagResponseRequested</b> ([MS-OXOMSG] section 2.2.1.46)	0x0063	<b>PtypBoolean</b>	01	TRUE
<b>PidTagFlagStatus</b> ([MS-OXOFLAG] section 2.2.1.1)	0x1090	<b>PtypInteger32</b> ([MS-OXCADATA] section 2.11.1)	02 00 00 00	0x00000002

Next, the client sends a **RopDeletePropertiesNoReplicate** ROP request ([MS-OXCROPS] section 2.2.8.9) for the following property.

Property	Property ID	Property type
<b>PidTagFlagCompleteTime</b> ([MS-OXOFLAG] section 2.2.1.3)	0x1091	<b>PtypTime</b>

Finally, the client persists the Message object on the server by sending a **RopSaveChangesMessage** ROP request ([MS-OXCROPS] section 2.2.6.3) and releases the Message object by sending a **RopRelease** ROP request ([MS-OXCROPS] section 2.2.15.3).

### 4.3 Dismissing a Reminder on a Task

John had previously created a Task object titled "Prepare for Contoso presentation" with a reminder that was signaled on February 15, 2008, at 11:30 A.M., Pacific Standard Time.

Some of the properties of the reminder are as follows.

Property	Property ID	Property type	Data	Value
<b>PidTagNormalizedSubject</b> ([MS-OXCMSG] section 2.2.1.10)	0x0E1D	<b>PtypString</b> ([MS-OXCADATA] section 2.11.1)	50 00 72 00 65 00 70 00 61 00 72 00 65 00 20 00 66 00 6F 00 72 00 20 00 43 00 6F 00 6E 00 74 00 6F 00 73 00 6F 00 20 00 70 00 72 00 65 00 73 00 65 00 6E 00 74 00 61 00 74 00 69 00 6F 00 6E 00 00 00	"Prepare for Contoso presentation"
<b>PidLidTaskStartDate</b> ([MS-OXOTASK] section 2.2.2.2.4)	0x8143	<b>PtypTime</b> ([MS-OXCADATA] section 2.11.1)	00 80 0D B5 65 6F C8 01	2008/02/15 00:00:00.000
<b>PidLidTaskDueDate</b> ([MS-OXOTASK] section 2.2.2.2.5)	0x8144	<b>PtypTime</b>	00 80 0D B5 65 6F C8 01	2008/02/15 00:00:00.000
<b>PidLidReminderSet</b> (section 2.2.1.1)	0x8004	<b>PtypBoolean</b> ([MS-OXCADATA] section 2.11.1)	01	TRUE

Property	Property ID	Property type	Data	Value
<b>PidLidReminderTime</b> (section <a href="#">2.2.1.4</a> )	0x8005	<b>PtypTime</b>	00 6C 83 27 09 70 C8 01	2008/02/15 19:30:00.000
<b>PidLidReminderSignalTime</b> (section <a href="#">2.2.1.2</a> )	0x8006	<b>PtypTime</b>	00 6C 83 27 09 70 C8 01	2008/02/15 19:30:00.000
<b>PidLidTaskResetReminder</b> ([MS-OXOTASK] section 2.2.2.2.6)	0x815B	<b>PtypBoolean</b>	Deleted	N/A

Because he is done, John dismisses the reminder at 11:31 A.M. In response to the user-entered data, 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.

The client then sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following properties.

Property	Property ID	Property type	Data	Value
<b>PidLidReminderSet</b>	0x8004	<b>PtypBoolean</b>	00	FALSE
<b>PidLidTaskResetReminder</b>	0x815B	<b>PtypBoolean</b>	01	TRUE

Finally, the client persists the Message object on the server by sending a **RopSaveChangesMessage** ROP request ([MS-OXCROPS] section 2.2.6.3) and releases the Message object by sending a **RopRelease** ROP request ([MS-OXCROPS] section 2.2.15.3).

#### 4.4 Dismissing a Reminder on a Recurring Calendar Object

John has a recurring appointment for lunch with Ben Smith every Friday at noon Pacific Standard Time, with a 20-minute reminder.

Some of the properties of the Message object are as follows.

Property Name	Property ID	Property Type	Data	Value
<b>PidTagNormalizedSubject</b> ( <a href="#">[MS-OXCMSG]</a> section 2.2.1.10)	0x0E1D	<b>PtypString</b> ( <a href="#">[MS-OXCDATA]</a> section 2.11.1)	4C 00 75 00 6E 00 63 00 68 00 20 00 77 00 69 00 74 00 68 00 20 00 42 00 65 00 6E 00 20 00 53 00 6D 00 69 00 74 00 68 00 00 00	"Lunch with Ben Smith"
<b>PidLidLocation</b> ( <a href="#">[MS-OXOCAL]</a> section 2.2.1.4)	0x8009	<b>PtypString</b>	43 00 6F 00 68 00 6F 00 20 00 57 00 69 00 6E 00 65 00 72 00 79 00 00 00	"Coho Winery"
<b>PidTagStartDate</b> ([MS-OXOCAL] section 2.2.1.30)	0x0060	<b>PtypTime</b> ([MS-OXCDATA] section 2.11.1)	00 A0 65 58 0D 70 C8 01	2008/02/15 20:00:00.000
<b>PidTagEndDate</b> ([MS-OXOCAL] section 2.2.1.31)	0x0061	<b>PtypTime</b>	00 08 2A BA 15 70 C8 01	2008/02/15 21:00:00.000
<b>PidLidReminderSet</b> (section	0x8004	<b>PtypBoolean</b>	01	TRUE

Property Name	Property ID	Property Type	Data	Value
<a href="#">2.2.1.1</a> )		([MS-OXCDA] section 2.11.1)		
<b>PidLidReminderTime</b> (section <a href="#">2.2.1.4</a> )	0x8005	<b>PtypTime</b>	00 A0 65 58 0D 70 C8 01	2008/02/15 20:00:00.000
<b>PidLidReminderSignalTime</b> (section <a href="#">2.2.1.2</a> )	0x8006	<b>PtypTime</b>	00 28 24 8D 0A 70 C8 01	2008/02/15 19:40:00.000
<b>PidLidReminderDelta</b> (section <a href="#">2.2.1.3</a> )	0x81FF	<b>PtypInteger32</b> ([MS-OXCDA] section 2.11.1)	14 00 00 00	20 minutes
<b>PidLidAppointmentRecur</b> ([MS-OXOCAL] section 2.2.1.44)	0x81AE	<b>PtypBinary</b> ([MS-OXOCAL] section 2.11.1)	Cb: 50 00 Lpb: (Information follows the table)	Cb: 80 bytes Lpb: (See [MS-OXOCAL])

The value of the **PidLidAppointmentRecur** property is as follows.

Cb: 50 00

Lpb:

```

0x0000: 04 30 04 30 0B 20 01 00-00 00 C0 21 00 00 01 00
0x0010: 00 00 00 00 00 00 20 00-00 00 23 20 00 00 0A 00
0x0020: 00 00 00 00 00 00 00 00-00 00 00 00 00 00 40 4A
0x0030: C3 0C DF 80 E9 5A 06 30-00 00 09 30 00 00 D0 02
0x0040: 00 00 0C 03 00 00 00 00-00 00 00 00 00 00 00

```

For information about interpreting the data, see [MS-OXOCAL].

The reminder for the first instance is displayed, and John dismisses the reminder before leaving for the Coho Winery. In response to the user-entered data, 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.

The client then sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following property.

Property	Property ID	Property type	Data	Value
<b>PidLidReminderSignalTime</b>	0x8006	<b>PtypTime</b>	00 68 08 B6 8A 75 C8 01	2008/02/22 19:40:00.000

Finally, the client persists the Message object on the server by sending a **RopSaveChangesMessage** ROP request ([MS-OXCROPS] section 2.2.6.3) and releases the Message object by sending a **RopRelease** ROP request ([MS-OXCROPS] section 2.2.15.3).

## 4.5 Snoozing a Reminder on a Contact Object

John has an existing **Contact object** for Adam Barr with a reminder set so that he is reminded to call on February 15, 2008, at 11:15 A.M. Pacific Standard Time.

Some of the properties of the Message object are as follows.

Property	Property ID	Property type	Data	Value
<b>PidTagNormalizedSubject</b> ([MS-OXCMSG] section 2.2.1.10)	0x0E1D	<b>PtypString</b> ([MS-OXCDATA] section 2.11.1)	41 00 64 00 61 00 6D 00 20 00 42 00 61 00 72 00 72 00 00 00	"Adam Barr"
<b>PidLidTaskStartDate</b> ([MS-OXOTASK] section 2.2.2.2.4)	0x8143	<b>PtypTime</b> ([MS-OXCDATA] section 2.11.1)	00 80 0D B5 65 6F C8 01	2008/02/15 00:00:00.000
<b>PidLidTaskDueDate</b> ([MS-OXOTASK] section 2.2.2.2.5)	0x8144	<b>PtypTime</b>	00 80 0D B5 65 6F C8 01	2008/02/15 00:00:00.000
<b>PidLidReminderSet</b> (section 2.2.1.1)	0x8004	<b>PtypBoolean</b> ([MS-OXCDATA] section 2.11.1)	01	TRUE
<b>PidLidReminderTime</b> (section 2.2.1.4)	0x8005	<b>PtypTime</b>	00 52 12 0F 07 70 C8 01	2008/02/15 19:15:00.000
<b>PidLidReminderSignalTime</b> (section 2.2.1.2)	0x8006	<b>PtypTime</b>	00 52 12 0F 07 70 C8 01	2008/02/15 19:15:00.000

The reminder is displayed, but John is still in the middle of a project, so at 11:18 A.M., John snoozes the reminder for 1 hour. In response to the user-entered data, 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.

The client then sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following property.

Property	Property ID	Property type	Data	Value
<b>PidLidReminderSignalTime</b>	0x8006	<b>PtypTime</b>	00 8C 20 DC 0F 70 C8 01	2008/02/15 20:18:00.000

Finally, the client persists the Message object on the server by sending a **RopSaveChangesMessage** ROP request ([MS-OXCROPS] section 2.2.6.3) and releases the Message object by sending a **RopRelease** ROP request ([MS-OXCROPS] section 2.2.15.3).

#### 4.6 Removing a Reminder from an Instance of a Recurring Calendar Object

John has an existing recurring appointment for lunch on Fridays at noon, Pacific Standard Time, but the instance for next week, which occurs on February 22, 2008, was previously changed to 11:00 A.M. (that is, the next instance already has an exception).

Some of the properties of the Recurring Calendar object are as follows.

Property	Property ID	Property type	Data	Value
<b>PidTagNormalizedSubject</b> ([MS-OXCMSG] section 2.2.1.10)	0x0E1D	<b>PtypString</b> ([MS-OXCDATA] section 2.11.1)	4C 00 75 00 6E 00 63 00 68 00 20 00 77 00 69 00 74 00 68 00 20 00 42 00 65 00 6E 00 20 00 53 00 6D 00 69 00 74 00 68 00	"Lunch with Ben Smith"



Property	Property ID	Property type	Data	Value
			00 00	
<b>PidTagStartDate</b> ([MS-OXOCAL] section 2.2.1.30)	0x0060	<b>PtypTime</b> ([MS-OXCDATA] section 2.11.1)	00 A0 65 58 0D 70 C8 01	2008/02/15 20:00:00.000
<b>PidTagEndDate</b> ([MS-OXOCAL] section 2.2.1.31)	0x0061	<b>PtypTime</b>	00 08 2A BA 15 70 C8 01	2008/02/15 21:00:00.000
<b>PidLidReminderSet</b> (section 2.2.1.1)	0x8004	<b>PtypBoolean</b> ([MS-OXCDATA] section 2.11.1)	01	TRUE
<b>PidLidReminderTime</b> (section 2.2.1.4)	0x8005	<b>PtypTime</b>	00 A0 65 58 0D 70 C8 01	2008/02/15 20:00:00.000
<b>PidLidReminderSignalTime</b> (section 2.2.1.2)	0x8006	<b>PtypTime</b>	00 00 44 54 82 75 C8 01	2008/02/22 06:40:00.000
<b>PidLidAppointmentRecur</b> ([MS-OXOCAL] section 2.2.1.44)	0x81AE	<b>PtypBinary</b> ([MS-OXCDATA] section 2.11.1)	Cb: 72 00 Lpb: (Information follows the table)	Cb: 114 bytes Lpb: (See [MS-OXOCAL])

The value of the **PidLidAppointmentRecur** property is as follows:

Cb: 72 00

Lpb:

```

0x0000: 04 30 04 30 0B 20 01 00-00 00 C0 21 00 00 01 00
0x0010: 00 00 00 00 00 00 20 00-00 00 23 20 00 00 0A 00
0x0020: 00 00 00 00 00 00 01 00-00 00 A0 71 C3 0C 01 00
0x0030: 00 00 A0 71 C3 0C 40 4A-C3 0C DF 80 E9 5A 06 30
0x0040: 00 00 09 30 00 00 D0 02-00 00 0C 03 00 00 01 00
0x0050: 34 74 C3 0C 70 74 C3 0C-70 74 C3 0C 00 00 00 00
0x0060: 00 00 04 00 00 00 00 00-00 00 00 00 00 00 00 00
0x0070: 00 00

```

For details about interpreting the data, see [MS-OXOCAL].

Some properties from the Exception Attachment object are listed in the following table.

Property	Property ID	Property type	Data	Value
<b>PidTagAttachSize</b> ([MS-OXCMSG] section 2.2.2.5)	0x0E20	<b>PtypInteger32</b>	DC 0E 00 00	3804 bytes
<b>PidTagLastModificationTime</b> ([MS-OXCMSG] section 2.2.2.2)	0x3008	<b>PtypTime</b>	62 BC D2 86 20 70 C8 01	2008/02/15 22:17:18.328

John opens that instance, sets the signal time to none, and saves the Message object, disabling the reminder for just that instance. In response to the user-entered data, 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 Recurring Calendar object.

Then the client sends a **RopOpenAttachment** ROP request ([MS-OXCROPS] section 2.2.6.12) and waits for the server to respond. The server response contains a handle to the Exception Attachment object. For information about using the attachment table to find the attachment that corresponds to a given exception, see [MS-OXOCAL] section 4.2.2.7.

Then the client sends a **RopOpenEmbeddedMessage** ROP request ([MS-OXCROPS] section 2.2.6.16) and waits for the server to respond. The server response contains a handle to the Exception Embedded Message object.

Next, in response to the user-entered data for the Exception Embedded Message object, the client sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following properties (followed by a **RopSaveChangesMessage** ROP request ([MS-OXCROPS] section 2.2.6.3) to persist the object on the server).

Property	Property ID	Property type	Data	Value
<b>PidLidAutoStartCheck</b> ([MS-OXPROPS] section 2.41)	0x82E0	<b>PtypBoolean</b>	00	FALSE
<b>PidLidReminderSet</b>	0x8004	<b>PtypBoolean</b>	00	FALSE

Next, in response to the user-entered data for the Exception Attachment object, the client sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following properties (followed by a **RopSaveChangesAttachment** ROP request ([MS-OXCROPS] section 2.2.6.15) to persist the object on the server):

Property	Property ID	Property type	Data	Value
<b>PidTagAttachMethod</b> ([MS-OXCMSG] section 2.2.2.9)	0x3705	<b>PtypInteger32</b>	05 00 00 00	5
<b>PidTagRenderingPosition</b> ([MS-OXCMSG] section 2.2.2.16)	0x370B	<b>PtypInteger32</b>	FF FF FF FF	-1
<b>PidTagExceptionStartTime</b> ([MS-OXOCAL] section 2.2.10.1.4)	0x7FFB	<b>PtypTime</b>	00 38 62 11 42 75 C8 01	2008/02/22 11:00:00.000
<b>PidTagAttachEncoding</b> ([MS-OXCMSG] section 2.2.2.20)	0x3702	<b>PtypBinary</b>	00 00	Size: 0 bytes
<b>PidTagExceptionEndTime</b> ([MS-OXOCAL] section 2.2.10.1.5)	0x7FFC	<b>PtypTime</b>	00 a0 26 73 4A 75 C8 01	2008/02/22 12:00:00.000
<b>PidTagAttachmentFlags</b> ([MS-OXCMSG] section 2.2.2.23)	0x7FFD	<b>PtypInteger32</b>	02 00 00 00	Exception to a recurrence
<b>PidTagDisplayName</b> ([MS-OXCFOLD] section 2.2.2.2.2.5)	0x3001	<b>PtypString</b>	55 00 6E 00 74 00 69 00 74 00 6C 00 65 00 64 00 00 00	"Untitled"
<b>PidTagAttachmentLinkId</b> ([MS-OXCMSG] section 2.2.2.22)	0x7FFA	<b>PtypInteger32</b>	00 00 00 00	0
<b>PidTagAttachFlags</b> ([MS-OXCMSG] section 2.2.2.18)	0x3714	<b>PtypInteger32</b>	00 00 00 00	0
<b>PidTagAttachmentHidden</b> ([MS-OXCMSG] section 2.2.2.24)	0x7FFE	<b>PtypBoolean</b>	01	TRUE
<b>PidTagAttachmentContactPhoto</b> ([MS-	0x7FFF	<b>PtypBoolean</b>	00	FALSE

Property	Property ID	Property type	Data	Value
<a href="#">OXOCNTC</a> section 2.2.1.8)				

Next, in response to user-entered data for the Recurring Calendar object, the client sends a **RopSetProperties** ROP request ([MS-OXCROPS] section 2.2.8.6) with the following properties (followed by a **RopSaveChangesMessage** ROP request ([MS-OXCROPS] section 2.2.6.3) to persist the object on the server).

Property	Property ID	Property type	Data	Value
<b>PidLidAppointmentRecur</b>	0x81AE	<b>PtypBinary</b>	Cb: 76 00 Lpb: The value is listed later in this section.	Cb: 118 bytes Lpb: The value is listed later in this section.
<b>PidLidFExceptionalAttendees</b> ([MS-OXOCAL] section 2.2.2.3)	0x82D7	<b>PtypBoolean</b>	00	FALSE
<b>PidLidReminderSignalTime</b>	0x8006	<b>PtypTime</b>	00 A8 EC DE 0A 7B C8 01	2008/02/29 19:40:00.000

Then the client releases the Exception Embedded Message object by sending a **RopRelease** ROP request ([MS-OXCROPS] section 2.2.15.3) and releases the Exception Attachment object by sending a **RopRelease** ROP request.

Finally, the client releases the attachment table by sending a **RopRelease** ROP request and releases the Recurring Calendar object by sending a **RopRelease** ROP request.

The value of the **PidLidAppointmentRecur** property is as follows.

Cb: 76 00

Lpb:

```

0x0000: 04 30 04 30 0B 20 01 00-00 00 C0 21 00 00 01 00
0x0010: 00 00 00 00 00 00 20 00-00 00 23 20 00 00 0A 00
0x0020: 00 00 00 00 00 00 01 00-00 00 A0 71 C3 0C 01 00
0x0030: 00 00 A0 71 C3 0C 40 4A-C3 0C DF 80 E9 5A 06 30
0x0040: 00 00 09 30 00 00 D0 02-00 00 0C 03 00 00 01 00
0x0050: 34 74 C3 0C 70 74 C3 0C-70 74 C3 0C 08 00 00 00
0x0060: 00 00 00 00 00 00 04 00-00 00 00 00 00 00 00 00
0x0070: 00 00 00 00 00 00

```

This corresponds to the following table, in which the **OverrideFlags** and **fReminder** fields for the first exception are the only two fields that changed within the **PidLidAppointmentRecur** property. In this specific case, the 2-byte value starting at the 93rd byte (**flags**) was changed from 0x0000 to 0x0008, and a 4-byte value representing FALSE (0x00000000) was inserted between the 94th and 95th bytes, extending the size of the property from 114 bytes to 118 bytes. For information about how to determine the byte position in other cases, see [MS-OXOCAL] section 2.2.1.44.1.

Field name	Type	Size, in bytes	Data	Description
<b>ReaderVersion</b>	<b>WORD</b>	2	04 30	This field is set to 0x3004.

Field name	Type	Size, in bytes	Data	Description
	([MS-DTYP])			
<b>WriterVersion</b>	<b>WORD</b>	2	04 30	This field is set to 0x3004.
<b>UIGroup</b>	<b>WORD</b>	2	0B 20	The pattern of the recurrence is weekly (0x200b).
<b>PatternType</b>	<b>WORD</b>	2	01 00	The pattern type is weekly (0x0001).
<b>CalendarType</b>	<b>WORD</b>	2	00 00	The calendar type is Gregorian (0x0000).
<b>FirstDateTime</b>	<b>ULONG</b> ([MS-DTYP])	4	C0 21 00 00	For information about how this property was calculated based on the start date, see [MS-OXOCAL] section 2.2.1.44.1.
<b>Period</b>	<b>ULONG</b>	4	01 00 00 00	The recurrence occurs every week (0x00000001).
<b>SlidingFlag</b>	<b>ULONG</b>	4	00 00 00 00	The recurring instances do not rely on completion of the previous instances.
<b>PatternTypeSpecific</b>	<b>PtypBinary</b>	Varies (4 bytes, in this case, for Weekly pattern)	20 00 00 00	The recurring appointment occurs on Friday. For information about how the value is determined, see [MS-OXOCAL] section 2.2.1.44.1.4.
<b>EndType</b>	<b>ULONG</b>	4	23 20 00 00	No End. (0x00002023)
<b>OccurrenceCount</b>	<b>ULONG</b>	4	0A 00 00 00	Ignored, because recurrence does not have an end.
<b>FirstDOW</b>	<b>ULONG</b>	4	00 00 00 00	The first day of the week on the calendar is Sunday (the default value).
<b>DeletedInstanceCount</b>	<b>ULONG</b>	4	01 00 00 00	One deleted instance.
<b>Deleted Instance Start</b>	<b>ULONG</b>	4	A0 71 C3 0C	0x0CC371A0 == February 22, 2008, at 00:00 in UTC.
<b>ModifiedInstanceCount</b>	<b>ULONG</b>	4	01 00 00 00	One modified instance.
<b>Modified Instance Start</b>	<b>ULONG</b>	4	A0 71 C3 0C	0x0CC371A0 == February 22, 2008, at 00:00 in UTC.
<b>Start Date of entire series</b>	<b>ULONG</b>	4	40 4A C3 0C	The start date of the recurrence given in minutes since midnight January 1, 1601, corresponds to February 15, 2008, 12:00:00 A.M. 0x0CC34A40
<b>EndDate of entire series</b>	<b>ULONG</b>	4	DF 80 E9 5A	The end date of the recurrence given in minutes since midnight January 1, 1601; however, because there is no end date, this value corresponds to the last valid date: December 31, 4500, 11:59 P.M. (0x5AE980DF)

Field name	Type	Size, in bytes	Data	Description
<b>ReaderVersion2</b>	<b>ULONG</b>	4	06 30 00 00	This value is set to 0x00003006.
<b>WriterVersion2</b>	<b>ULONG</b>	4	09 30 00 00	This value is set to 0x00003009.
<b>StartTimeOffset</b>	<b>ULONG</b>	4	D0 02 00 00	The hexadecimal start time of the recurrence is 0x000002D0, which corresponds to 720 in decimal. 720 minutes is 12 hours, which is 12:00 P.M.
<b>EndTimeOffset</b>	<b>ULONG</b>	4	0C 03 00 00	The hexadecimal end time of the recurrence is 0x00000030C, which corresponds to 780 minutes, which is 1:00 P.M.
<b>ExceptionCount</b>	<b>WORD</b>	2	01 00	There is one exception in this recurrence BLOB.
ExceptionInfo block for exception 1:				
<b>Start Date Time</b>	<b>ULONG</b>	4	34 74 C3 0C	0x0CC37434 == February 22, 2008, at 11:00 A.M.
<b>End Date Time</b>	<b>ULONG</b>	4	70 74 C3 0C	0x0CC37470 == February 22, 2008, at 12:00 P.M.
<b>Original Start Time</b>	<b>ULONG</b>	4	70 74 C3 0C	0x0CC37470 == February 22, 2008, at 12:00 P.M.
<b>OverrideFlags</b>	<b>WORD</b>	2	08 00	0x0008 corresponds to the <b>fReminderSet</b> flag, meaning just that field is specified for this exception.
<b>fReminderSet</b>	<b>ULONG</b>	4	00 00 00 00	0x00000000 == FALSE, meaning ReminderSet is overridden with the value FALSE for this exception.
<b>ReservedBlock1Size</b>	<b>ULONG</b>	4	00 00 00 00	There is no data in the reserved block.
ExtendedException block for exception 1:				
<b>ChangeHighlight</b>	<b>Byte Array</b>	Varies	04 00 00 00 00 00 00 00	The size of the <b>ChangeHighlight</b> field is 4 bytes. The value of the <b>PidLidChangeHighlight</b> property ([MS-OXOCAL] section 2.2.6.2) is zero for this exception.
<b>ReservedBlockEE1Size</b>	<b>ULONG</b>	4	00 00 00 00	There is no data in the reserved block.
<b>ReservedBlock2Size</b>	<b>ULONG</b>	4	00 00 00 00	There is no data in the reserved block.

## 5 Security

### 5.1 Security Considerations for Implementers

There are no special security considerations specific to the Reminder Settings Protocol. General security considerations pertaining to the underlying transport apply, as specified in [\[MS-OXCMMSG\]](#) and [\[MS-OXCPRPT\]](#).

### 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 Exchange Server 2016 Preview
- Microsoft Office Outlook 2003
- Microsoft Office Outlook 2007
- Microsoft Outlook 2010
- Microsoft Outlook 2013
- Microsoft Outlook 2016 Preview

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

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

<1> [Section 2.2.1.7](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview support whatever the Microsoft Windows API WINMM!PlaySound is able to play.

<2> [Section 2.2.1.9](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview preserve the value if already set.

<3> [Section 2.2.2.3.1](#): Office Outlook 2003 does not set the **PidLidTaskDueDate** property ([[MS-OXOTASK](#)] section 2.2.2.2.5) for Message objects other than Task objects, so when a reminder signals for a Message object that can be flagged, the "due in" time is calculated based on the value of the **PidLidReminderTime** property (section [2.2.1.4](#)). Microsoft Office Outlook 2007 Service Pack 1 does set the **PidLidTaskDueDate** property for Message objects that can be flagged and so has a more intuitive "due in" time when the reminder signals. Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview do not set the **PidLidTaskDueDate** property for tasks when the user only specifies a reminder on a Task object without also specifying a due date. In other words, this property can be set on a Task object in the context of setting a due date. The task due date is independent of the signal time. For more information about the conditions under which the **PidLidTaskDueDate** property is set on a Task object, see [MS-OXOTASK].

<4> [Section 3.1.3.1](#): Office Outlook 2003 follows the minimal reminder domain scope strategy.

<5> [Section 3.1.3.1](#): Office Outlook 2003 does not set the **piReminderUpgradeTime** property (section [2.2.3.1](#)). Under normal operation, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview do not change the **piReminderUpgradeTime** property after the value is initialized. However, when the "cleanreminders" feature is invoked via command-line parameter,

Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview set the **piReminderUpgradeTime** property to 0 to clean the reminders search folder (1), after which all reminders would be eligible to signal again.

<6> [Section 3.1.4.1.2](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview set the **PidTagReplyTime** property ([\[MS-OXOFLAG\]](#) section 2.2.3.1) when setting a reminder on a Message object that is already flagged. Setting the **PidTagReplyTime** property is not required for reminders to signal locally, but this property is used to transmit a reminder on a sent message.

<7> [Section 3.1.4.1.2](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview do not set all the specified properties when the reminder is created, because some of the properties were set in a previous operation (such as Message object creation or flagging for follow-up), or are set independent of the reminder itself (such as for Task objects), and the values did not change during the reminder creation process. Because Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview do not expose UI to just set a reminder on an e-mail message without also flagging, some properties, such as the **PidLidFlagRequest** property ([\[MS-OXOFLAG\]](#) section 2.2.1.9), happen to get set by Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview when a reminder is added to an e-mail message. These properties are not required for the reminder to function but are listed for completeness.

<8> [Section 3.1.4.1.3](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview set the **PidLidReminderTime** property (section 2.2.1.4) to the start time of the first instance. They set the property only when creating the Recurring Calendar object or modifying the series such that the series start date changes. Therefore the **PidLidReminderTime** property cannot be assumed to have a specific value for Recurring Calendar objects.

<9> [Section 3.1.4.4.1](#): In addition to the properties specified, Office Outlook 2003 deletes the **PidTagReplyTime** property ([\[MS-OXOFLAG\]](#) section 2.2.3.1) for a Message object that is neither a Calendar object nor a Task object. Office Outlook 2007 deletes the **PidLidReminderTime** (section 2.2.1.4), **PidLidReminderSignalTime** (section [2.2.1.2](#)), and **PidTagReplyTime** properties when removing the reminder from a Message object that is neither a Calendar object nor a Task object. For the remaining cases, Office Outlook 2003 and Office Outlook 2007 do not delete the **PidLidReminderTime** or **PidLidReminderSignalTime** properties when removing the reminder for Calendar objects or Task objects; this is for user convenience to persist the signal time values even when the reminder is disabled.

<10> [Section 3.1.4.5.1](#): Office Outlook 2003 does not ignore Message objects that have the **PidTagSwappedToDoStore** property ([\[MS-OXOFLAG\]](#) section 2.2.1.8) set. Office Outlook 2003 also does not ignore meeting-related Message objects, but this is not a problem because it uses the minimal reminder domain, which does not include special folders such as the **Sent Items folder**.

<11> [Section 3.1.4.5.3](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview use the **PidTagNormalizedSubject** ([\[MS-OXCMMSG\]](#) section 2.2.1.10), **PidLidFlagRequest** ([\[MS-OXOFLAG\]](#) section 2.2.1.9), and **PidLidLocation** ([\[MS-OXOCAL\]](#) section 2.2.1.4) properties. Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview use the **PidLidTaskDueDate** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.5).

<12> [Section 3.1.4.5.3](#): Office Outlook 2003 displays DueIn "Now" when first signaling a reminder for a Task object or flagged Message object; Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview display a more intuitive time-until-DueDate value for these Message object types. Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview use the **PidLidTaskDueDate** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.5) and the "end of workday" value to determine the due time. Office Outlook 2003 uses the value of the **PidLidReminderTime** property (section 2.2.1.4) as the due time.

<13> [Section 3.1.4.5.3](#): Office Outlook 2003 uses the signal time as the due time.



<14> [Section 3.1.4.5.3.1](#): The **PidLidAutoStartCheck** property ([\[MS-OXPROPS\]](#) section 2.41) is deprecated and SHOULD NOT be used. Office Outlook 2003 reads and writes this property. This property is not read by Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview.

<15> [Section 3.1.4.6.3](#): Office Outlook 2003, Office Outlook 2007, Outlook 2010, Outlook 2013, and Outlook 2016 Preview set the **PidLidTaskResetReminder** property ([\[MS-OXOTASK\]](#) section 2.2.2.2.6).

Preliminary

## 7 Change Tracking

This section identifies changes that were made to this document since the last release. 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.
- The 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 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 changes were introduced. Minor editorial and formatting changes may have been made, but the technical content of the document is identical to the last released version.

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.
- Obsolete document removed.

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

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

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

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

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
<a href="#">2</a> Messages	Updated product behavior notes for the "Messages" section to include behavior of Outlook 2016.	Y	Product behavior note updated.
<a href="#">3</a> Protocol Details	Updated product behavior notes for the "Protocol Details" section to include behavior of Outlook 2016.	Y	Product behavior note updated.
<a href="#">6</a> Appendix A: Product Behavior	Added Exchange 2016 and Outlook 2016 to the list of applicable products.	Y	Content update.

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