[MS-OXOSMMS]: SMS and MMS Object Protocol Specification

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Revision Summary			
Author	Date	Version	Comments
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1 Introduction

This document specifies the SMS and MMS Object protocol, which defines **properties** of objects that model **SMS** and **MMS** messages.

1.1 Glossary

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

Coordinated Universal Time (UTC)
Folder object
GUID
handle
Message object
named property
NameID
property
property ID
remote operation (ROP)
special folder
store
Unicode

The following terms are specific to this document:

SMS: Short Message Service, a communications protocol designed for text messages to be sent between mobile phones.

SMS object: A **Message object** that represents an **SMS** message in a messaging **store** and that adheres to the relevant **property** specifications in this document.

MMS: Multimedia Messaging Service, a communications protocol designed for messages containing text, images, and other multimedia content sent between mobile phones.

MMS object: A **Message object** that represents an **MMS** message in a messaging **store** and that adheres to the relevant **property** specifications in this document.

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

1.2 References

1.2.1 Normative References

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

[MS-OXCMAIL] Microsoft Corporation, "RFC2822 and MIME to E-mail Object Conversion Protocol Specification", April 2008.

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

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

[MS-OXGLOS] Microsoft Corporation, "Office Exchange Protocols Master Glossary", April 2008.

[MS-OXOMSG] Microsoft Corporation, "E-mail Object Protocol Specification", April 2008.

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

[MS-OXPROPS] Microsoft Corporation, "Office Exchange Protocols Master Property List Specification", April 2008.

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

1.2.2 Informative References

[SMIL] W3C, Michel, T., "Synchronized Multimedia", March 2008, http://www.w3.org/AudioVideo/.

1.3 Protocol Overview

The SMS and MMS Object protocol specifies the representation of **SMS** text messages and **MMS** multimedia messages in a messaging **store**. This protocol extends the Message and Attachment Object protocol in that it defines new **properties** and adds restrictions to the properties that are specified in [MS-OXCMSG].

This document specifies the properties that are unique to **SMS objects** and **MMS objects**. An SMS object is characterized by a short unformatted text body. An MMS object is characterized by text and multimedia components. SMS and MMS objects are stored in **Folder objects**. The SMS and MMS Object protocol also specifies how an SMS or MMS object is created and manipulated.

1.4 Relationship to Other Protocols

The SMS and MMS Object protocol has the same dependencies as the Message and Attachment Object protocol, which it extends. For more details about the Message and Attachment Object protocol, see [MS-OXCMSG].

The SMS and MMS Object protocol is a peer of the E-mail Object protocol, and uses a subset of the **properties** specified in [MS-OXOMSG].

1.5 Prerequisites/Preconditions

The SMS and MMS Object protocol has the same prerequisites and preconditions as the Message and Attachment Object protocol, as specified in [MS-OXOMSG].

1.6 Applicability Statement

None.

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

The SMS and MMS Object protocol uses the protocols defined in [MS-OXCPRPT] and [MS-OXCMSG] as its primary transport mechanism.

2.2 Message Syntax

SMS and **MMS objects** can be created and modified by clients and servers. Except where noted below, this section defines constraints under which both clients and servers operate.

Clients operate on SMS and MMS objects using the Message and Attachment Object protocol, as specified in [MS-OXCMSG]. How a server operates on SMS and MMS objects is implementation-dependent. The results of any such operations are exposed to clients in a manner that is consistent with the SMS and MMS Object protocol.

Unless otherwise specified below, SMS and MMS objects adhere to all **property** constraints specified in [MS-OXPROPS] and [MS-OXCMSG]. SMS and MMS objects MAY also contain other properties, which are specified in [MS-OXPROPS], but these properties have no impact on the SMS and MMS Object protocol.

2.2.1 Common SMS and MMS object properties

2.2.1.1 PidNameOMSAccountGuid

Type: **PtypString**

Encodes the **GUID** of the **SMS** account used to deliver the message in the following format (including the braces): {DWORD-WORD-WORD-WORD-WORD.DWORD}; for example, "{c200e360-38c5-11ce-ae62-08002b2b79ef}".

2.2.1.2 PidNameOMSScheduleTime

Type: **PtypTime**, in **UTC**

The time at which the client requested that the service provider send the **SMS** or **MMS** message.

2.2.1.3 PidNameOMSServiceType

Type: **PtypInteger32**

Indicates the type of service used to send the **SMS** or **MMS** message; MUST be one of the following.

Value	Meaning
0x00000001	SMS
0x00000004	MMS

2.2.1.4 PidNameOMSSourceType

Type: **PtypInteger32**

Indicates the source of the **SMS** or **MMS** message; MUST be one of the following.

Value	Source type
0x00000000	XMS Inspector
0x00000001	Reminder
0x00000002	Calendar Summary
0x00000003	Rule
0x00000004	Unknown

2.2.1.5 PidNameContentClass

Type: **PtypString**

Set on an **SMS** or **MMS object** according to [MS-OXCMAIL].

Value	Meaning
MS-OMS-SMS	SMS
MS-OMS-MMS	MMS

2.2.1.6 PidNameOMSMobileModel

A string that indicates the model of the mobile device used to send the **SMS** or **MMS** message.

2.2.2 Additional Property Constraints

This protocol specifies additional constraints on the following **properties** beyond what is specified in [MS-OXCMSG] and [MS-OXOMSG].

2.2.2.1 PidTagIconIndex

Type: **PtypInteger32**

Specifies which icon is to be used by a user interface when displaying a group of **SMS** and/or **MMS objects**; SHOULD be set <1>; if set, MUST be "0xFFFFFFFF".

2.2.2.2 PidTagMessageClass

Type: **PtypString8**, case-insensitive

Specifies the type of the **Message object**. In addition to meeting the criteria specified in [MS-OXCMSG]; MUST be "IPM.Note.Mobile.SMS" or begin with "IPM.Note.Mobile.SMS." for **SMS objects**; MUST be "IPM.Note.Mobile.MMS" or begin with "IPM.Note.Mobile.MMS." for **MMS objects**.

2.2.2.3 Body Properties

The contents of **SMS Message objects** are stored and retrieved following the plain text body specification in [MS-OXCMSG] <2>.

The contents of **MMS Message objects** are stored and retrieved following the HTML body specification in [MS-OXCMSG] <3>.

2.2.2.4 PidTagNormalizedSubject

Type: **PtypString**

Contains an abbreviated version of the contents of the message suitable for displaying groups of **SMS objects** to a user. For **MMS objects**, only the constraints in [MS-OXCMSG] apply.

3 Protocol Details

General protocol details apply, as specified in [MS-OXPROPS] and [MS-OXCMSG].

3.1 Common Details

The client and server roles are to create and operate on **SMS** and **MMS objects**, and otherwise operate in their roles 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 document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

3.1.1.1 Folders

An **SMS** or **MMS object** is created in the Drafts, Inbox or Sent Items **special folder**, as specified in [MS-OXOSFLD], unless the end user or user agent explicitly specifies another **Folder object**.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

3.1.4.1 Creation of an SMS or MMS Object

To create an **SMS** or **MMS object**, the server or client sets **properties** in accordance with the requirements in section 2 and [MS-OXCPRPT], and saves the resulting **Message object** as specified in [MS-OXCMSG].

3.1.4.2 Modification of an SMS or MMS Object

When modifying an **SMS** or **MMS object**, the client or server modifies any of the **properties** in accordance with the requirements in section 2 and [MS-OXCPRPT], and saves the **Message object** as specified in [MS-OXCMSG].

3.1.4.3 Deletion of an SMS or MMS Object

An **SMS** or **MMS object** has no special deletion semantics beyond what is specified in [MS-OXCFOLD].

3.1.5 Message Processing Events and Sequencing Rules

None.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

4 Protocol Examples

4.1 Sample SMS Object

Joe creates an **SMS object**, types in some text, and sends it. The following is a description of what a client might do to accomplish Joe's intentions and the responses a server might return. For more details about **ROP**s, see [MS-OXCPRPT] and [MS-OXCMSG].

Before manipulating SMS objects, the client needs to ask the server to perform a mapping from **named properties** to **property IDs**, using **RopGetPropertyIDsFromNames**.

Property	Property set GUID	NameID
PidNameOMSMobileModel	{00020329-0000-0000-C00000000046}	OMSMobileModel
PidNameOMSAccountGuid	{00020329-0000-0000-C00000000046}	OMSAccountGuid
PidNameOMSServiceType	{00020329-0000-0000-C00000000046}	OMSServiceType
PidNameOMSSourceType	{00020329-0000-0000-C00000000046}	OMSSourceType

The server might respond with the following identifiers, which will be used in the example that follows. (The actual identifiers are at the discretion of the server.)

Property	Property ID
PidNameOMSMobileModel	0x84c3
PidNameOMSAccountGuid	0x84c4
PidNameOMSServiceType	0x84c5
PidNameOMSSourceType	0x84c6

To create an SMS object, the client uses **RopCreateMessage**. The server returns a success code and a **handle** to a **Message object**.

After Joe has input his content for the SMS object, the client uses **RopSetProperties** to transmit his data to the server.

Property	Property ID	Data type	Value
PidNameOMSAccountGuid	0x84c4	0x001f (**PtypString**)	{01234567-0123-0123-0123-0123456789ab}
PidNameOMSMobileModel	0x84c3	0x001f (**PtypString**)	(null)
PidNameOMSServiceType	0x84c5	0x0003 (**PtypInteger32**)	0x00000001
PidNameOMSSourceType	0x84c6	0x0003 (**PtypInteger32**)	0x00000000
PidTagBody	0x1000	0x001f (**PtypString**)	What time is the meeting?
PidTagInternetCodepage	0x3fde	0x0003 (**PtypInteger32**)	0x0000FDE9
PidTagMessageClass	0x001a	0x001e (**PtypString8**)	IPM.Note.Mobile.SMS
PidTagNormalizedSubject	0x0e1d	0x001f (**PtypString**)	What time is the meeting?
PidTagSubjectPrefix	0x003d	0x001f (**PtypString**)	(null)

When Joe is ready to send his message, the client uses **RopSaveChangesMessage** to commit the **properties** on the server, and then **RopRelease** to release the SMS object. The client then submits the message to an **SMS** provider using an appropriate messaging protocol.

The values of some properties will change during the execution of **RopSaveChangesMessage**, but the **properties** specified in [MS-OXOSMMS] will not change.

4.2 Sample MMS Object

Joe creates an **MMS object**, gives it a subject, types in some text, attaches a picture, and sends it. The following is a description of what a client might do to accomplish Joe's intentions and the responses a server might return. For more details about **ROP**s, see [MS-OXCPRPT] and [MS-OXCMSG].

Before manipulating an MMS object, the client needs to ask the server to perform a mapping from **named properties** to **property IDs**, using **RopGetPropertyIDsFromNames**.

Property	Property set GUID	NameID
PidNameOMSMobileModel	{00020329-0000-0000-C00000000046}	OMSMobileModel
PidNameOMSAccountGuid	{00020329-0000-0000-C00000000046}	OMSAccountGuid
PidNameOMSServiceType	{00020329-0000-0000-C00000000046}	OMSServiceType
PidNameOMSSourceType	{00020329-0000-0000-C00000000046}	OMSSourceType

The server might respond with the following identifiers, which will be used in the example that follows. (The actual identifiers are at the discretion of the server.)

Property	Property ID
PidNameOMSMobileModel	0x84ce
PidNameOMSAccountGuid	0x84cf
PidNameOMSServiceType	0x84d0
PidNameOMSSourceType	0x84d1

To create an MMS object, the client uses **RopCreateMessage**. The server returns a success code and a **handle** to an object.

After Joe has input his content for the MMS object, the client uses **RopSetProperties** to transmit his data to the server.

Property	Property ID	Data type	Value
PidNameOMSAccountGuid	0x84cf	0x001f (**PtypString**)	{01234567-0123-0123-0123456789abc}
PidNameOMSMobileModel	0x84ce	0x001f (**PtypString**)	(empty)
PidNameOMSServiceType	0x84d0	0x0003 (**PtypInteger32**)	0x00000004
PidNameOMSSourceType	0x84d1	0x0003 (**PtypInteger32**)	0x00000000
PidTagInternetCodepage	0x3fde	0x0003 (**PtypInteger32**)	0x0000FDE9
PidTagHtml	0x1013	0x0102 (**PtypBinary**)	See below
PidTagIconIndex	0x1080	0x0003 (**PtypInteger32**)	0xFFFFFFFFFF
PidTagMessageClass	0x001a	0x001e (**PtypString8**)	IPM.Note.Mobile.MMS
PidTagMessageFlags	0x0e07	0x0003 (**PtypInteger32**)	Flags: 0x00000018 MSGFLAG_UNSENT MSGFLAG_HASATTACH
PidTagNormalizedSubject	0x0e1d	0x001f (**PtypString**)	Here's the photo.
PidTagSubjectPrefix	0x003d	0x001f (**PtypString**)	(empty)

PidTagHtml is a binary **property** containing the following text.

```
<HTML>
<BODY>
<IMG SRC="cid:Att1.jpg@AB1B43B2B0594564.B94EF7ABB12B49BA"
border="0">
<BR>
This is the photo you asked for.
<BR>
<A HREF="cid:Att0.txt@AB1B43B2B0594564.B94EF7ABB12B49BA"></A>
</BODY>
</HTML>
```

The client uses **RopCreateAttachment** to allocate space for a data file in the message. The server returns a success code and a handle to an **Attachment object**. The client then uses this handle with **RopSetProperties** to transmit data about the attachment to the server.

Property	Property ID	Data type	Value
PidTagAttachmentHidden	0x7ffe	0x000b (**PtypBoolean**)	0x01
PidTagAttachMethod	0x3705	0x0003 (**PtypInteger32**)	0x00000001 (ATTACH_BY_VALUE)
PidTagAttachContentId	0x3712	0x001f (**PtypString**)	mms.smil@AB1B43B2B0594564.B94EF7ABB12B49BA
PidTagAttachMimeTag	0x370e	0x001f (**PtypString**)	application/smil
PidTagAttachLongFilename	0x3707	0x001f (**PtypString**)	mms.smil

The client sets the contents of the attachment by using the attachment handle with **RopOpenStream**, passing in **PidTagAttachDataBinary** as the property to open. With the handle returned from **RopOpenStream**, the client calls **RopWriteStream**, writing out the contents of the Synchronized Multimedia Integration Language (SMIL) file, the format of which is defined in [SMIL], describing the layout of the **MMS** message. The client follows this with **RopRelease** on the stream handle, then **RopSaveChangesAttachment** to commit the changes, and **RopRelease** to release the handle to the attachment.

The client repeats the process from **RopCreateAttachment** to **RopRelease** with the attachment handle twice more, once for a plain-text version of the body, and once for the image. The attachment containing the body uses the following **properties** and values with **RopSetProperties**.

Property	Property ID	Data type	Value
PidTagAttachmentHidden	0x7ffe	0x000b (**PtypBoolean**)	0x01
PidTagAttachMethod	0x3705	0x0003 (**PtypInteger32**)	0x00000001 (ATTACH_BY_VALUE)
PidTagAttachContentId	0x3712	0x001f (**PtypString**)	Att0.txt@AB1B43B2B0594564.B94EF7ABB12B49BA
PidTagAttachMimeTag	0x370e	0x001f (**PtypString**)	text/plain
PidTagAttachLongFilename	0x3707	0x001f (**PtypString**)	1.txt

The **RopOpenStream** for the plain-text body is also on **PidTagAttachDataBinary**, but the contents written are **Unicode** text. The last attachment the client creates contains the image, and the **RopSetProperties** sends the following data.

Property	Property ID	Data type	Value
PidTagAttachmentHidden	0x7ffe	0x000b (**PtypBoolean**)	0x01
PidTagAttachMethod	0x3705	0x0003 (**PtypInteger32**)	0x00000001 (ATTACH_BY_VALUE)
PidTagAttachContentId	0x3712	0x001f (**PtypString**)	Att1.jpg@AB1B43B2B0594564.B94EF7ABB12B49BA
PidTagAttachMimeTag	0x370e	0x001f (**PtypString**)	image/jpeg
PidTagAttachLongFilename	0x3707	0x001f (**PtypString**)	photo.jpg

The contents of **PidTagAttachDataBinary** on the image attachment are the binary contents of the image file.

When Joe is ready to send his message, the client uses **RopSaveChangesMessage** to commit the properties on the server, and then **RopRelease** to release the MMS object. The client then submits the message to an MMS provider using an appropriate messaging protocol.

The values of some properties will change during the execution of **RopSaveChangesMessage**, but the properties specified in this protocol will not change.

5 Security

5.1 Security Considerations for Implementers

There are no special security considerations specific to the SMS and MMS Object protocol. General security considerations pertaining to the underlying transport apply, as specified in [MS-OXCMSG] and [MS-OXCPRPT].

5.2 Index of Security Parameters

None.

6 Appendix A: Office/Exchange Behavior

The information in this specification is applicable to the following versions of Office/Exchange:

- Microsoft Office 2003 with Service Pack 3 applied
- Microsoft Exchange 2003 with Service Pack 2 applied
- Microsoft Office 2007 with Service Pack 1 applied
- Microsoft Exchange 2007 with Service Pack 1 applied

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies Office/Exchange behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies Office/Exchange does not follow the prescription.

<1> Section 2.2.2.1: Outlook 2007 SP1 does not always set the **PidTagIconIndex property** on **SMS** or **MMS objects**.

<2> Section 2.2.2.3: Outlook 2007 SP1 sets both **PidTagBody** and **PidTagHtml** on **SMS objects**.

<3> Section 2.2.2.3: Outlook 2007 SP1 sets both **PidTagBody** and **PidTagHtml** on **MMS objects**.

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