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

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Revision Summary			
Author	Date	Version	Comments
Microsoft Corporation	April 4, 2008	0.1	Initial Availability.
Microsoft Corporation	April 25, 2008	0.2	Revised and updated property names and other technical content.

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1 Introduction

This document specifies the SMS and MMS Object Protocol, which defines properties of objects that model Short Message Service (SMS) text messages and Multimedia Messaging Service (MMS) messages. SMS and MMS messages are delivered to other users via messaging protocols not specified in this document.

1.1 Glossary

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

folder object
GUID
handle
message object
named property
name ID or name identifier
property
property ID
special folder
Unicode
UTC

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.

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[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 (Synopsis)

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 defined 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 details about the Message and Attachment Object Protocol, see [MS-OXCMSG].

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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.

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 all property constraints specified in [MS-OXCMSG]. SMS and MMS objects MAY also contain other properties, which are defined in [MS-OXPROPS], but these properties have no impact on the SMS and MMS Object Protocol.

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2.2.1 Common SMS and MMS object properties

2.2.1.1 PidNameOMSAccountGuid

Type: PtypString.

Encodes the GUID of the OMS 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 that the client requested 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].

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Value	Meaning
“MS-OMS-SMS”	SMS
“MS-OMS-MMS”	MMS

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

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].

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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 defined 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 defined in [MS-OXCFOLD].

3.1.5 Message Processing Events and Sequencing Rules

None.

3.1.6 Timer Events

None.

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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. See [MS-OXCPRPT] and [MS-OXCMSG] for details on ROPs.

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

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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. See [MS-OXCPRPT] and [MS-OXCMSG] for details on ROPs.

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

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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"

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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 detailed 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.

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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 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 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: "Microsoft Office Outlook 2007" does not always set the PidTagIconIndex property on SMS or MMS objects.

<2> Section 2.2.2.3: "Microsoft Office Outlook 2007" sets both PidTagBody and PidTagHtml on SMS objects.

<3> Section 2.2.2.3: "Microsoft Office Outlook 2007" sets both PidTagBody and PidTagHtml on MMS objects.

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