[MS-ASMS]:
Exchange ActiveSync:
Short Message Service (SMS) Protocol

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Exchange ActiveSync: Short Message Service (SMS) Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
04/10/2009	0.1.0	Major	Initial Availability.
07/15/2009	1.0.0	Major	Revised and edited for technical content.
11/04/2009	2.0.0	Major	Updated and revised the technical content.
02/10/2010	3.0.0	Major	Updated and revised the technical content.
05/05/2010	4.0.0	Major	Updated and revised the technical content.
08/04/2010	5.0	Major	Significantly changed the technical content.
11/03/2010	5.0	No change	No changes to the meaning, language, or formatting of the technical content.
03/18/2011	5.1	Minor	Clarified the meaning of the technical content.
08/05/2011	6.0	Major	Significantly changed the technical content.
10/07/2011	6.0	No change	No changes to the meaning, language, or formatting of the technical content.
01/20/2012	7.0	Major	Significantly changed the technical content.
04/27/2012	7.0	No change	No changes to the meaning, language, or formatting of the technical content.
07/16/2012	7.0	No change	No changes to the meaning, language, or formatting of the technical content.
10/08/2012	8.0	Major	Significantly changed the technical content.
02/11/2013	8.0	No change	No changes to the meaning, language, or formatting of the technical content.
07/26/2013	9.0	Major	Significantly changed the technical content.
11/18/2013	9.0	No change	No changes to the meaning, language, or formatting of the technical content.
02/10/2014	9.0	No change	No changes to the meaning, language, or formatting of the technical content.
04/30/2014	10.0	Major	Significantly changed the technical content.
07/31/2014	10.0	No change	No changes to the meaning, language, or formatting of the technical content.
10/30/2014	10.1	Minor	Clarified the meaning of the technical content.

Table of Contents

1 Introduction

The Exchange ActiveSync: Short Message Service (SMS) Protocol describes an **XML**-based format that provides the mechanisms for a mobile device to synchronize **SMS** messages with the server and for the server to send SMS messages through the mobile device.

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

1.1 Glossary

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

code page
conversation
conversation ID
conversation index
Inbox folder
non-delivery report
Outbox folder
Sent Items folder
Short Message Service (SMS)
Wireless Application Protocol (WAP) Binary XML (WBXML)
XML
XML namespace
XML schema

The following terms are specific to this document:

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

1.2 References

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

1.2.1 Normative References

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

[MS-ASAIRS] Microsoft Corporation, "Exchange ActiveSync: AirSyncBase Namespace Protocol".

[MS-ASCMD] Microsoft Corporation, "Exchange ActiveSync: Command Reference Protocol".

[MS-ASCON] Microsoft Corporation, "Exchange ActiveSync: Conversations Protocol".

[MS-ASDTYPE] Microsoft Corporation, "Exchange ActiveSync: Data Types".

[MS-ASEMAIL] Microsoft Corporation, "Exchange ActiveSync: Email Class Protocol".

[MS-ASWBXML] Microsoft Corporation, "Exchange ActiveSync: WAP Binary XML (WBXML) Algorithm".

[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

[XML] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Fourth Edition)", W3C Recommendation 16 August 2006, edited in place 29 September 2006, http://www.w3.org/TR/2006/REC-xml-20060816/

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, December 2009, http://www.w3.org/TR/2009/REC-xml-names-20091208/

[XMLSCHEMA1] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/

1.2.2   Informative References

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

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

1.3   Overview

This protocol is an XML-based format that is used to do the following:

▪ Enable a mobile device to synchronize SMS messages with the server.

▪ Provision the server to send outgoing SMS messages through the mobile device.

This protocol also includes XML elements to represent SMS message data. The SMS data is included in protocol command requests when SMS data is being sent from the client to the server, and is included in protocol command responses when SMS data is retrieved from the server. SMS data includes some of the same header information as e-mail data such as to and from, as well as body, flag, and importance.

1.4   Relationship to Other Protocols

This protocol consists of a series of XML elements that are embedded inside a command request or a command response. For information about command requests and responses, see [MS-ASCMD]. The **Wireless Application Protocol (WAP) Binary XML (WBXML)**, described in [MS-ASWBXML], is used to transmit the XML markup that constitutes the request body and the response body.

This protocol defines elements according to the data type definitions that are described in [MS-ASDTYPE].

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

1.5   Prerequisites/Preconditions

None.

1.6 Applicability Statement

This protocol is applicable for synchronizing SMS messages from mobile devices to the server and relaying outbound SMS messages from the server to the mobile device.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

This protocol consists of a series of XML elements that are embedded inside a command request or a command response. The XML markup that constitutes the request body or the response body is transmitted between client and server by using WBXML, as specified in [MS-ASWBXML].

The mobile device uses standard mobile network protocols, such as GSM and CDMA, to send outbound SMS messages.

2.2 Message Syntax

The **XML schemas** for the **Email**, **Email2**, and **AirSyncBase** namespaces are described in section 6.

The markup that is used by this protocol MUST be well-formed XML, as specified in [XML].

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS]. Although this specification associates a specific XML namespace prefix for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and is not significant for interoperability.

Prefix	Namespace URI	Reference
airsync	AirSync	[MS-ASCMD] section 2.2.2.20
airsycnbase	AirSyncBase	[MS-ASAIRS]
email	Email	[MS-ASEMAIL]
email2	Email2	[MS-ASEMAIL]
settings	Settings	[MS-ASCMD] section 2.2.2.17
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]

2.2.2 Elements

Elements of the **SMS** class are defined in three namespaces: **Email**, **Email2**, and **AirSyncBase**. The namespace in which an element is defined is indicated by the presence of a namespace prefix, as defined in section 2.2.1.

The XML schema elements that are specific to the **SMS** class are specified in section 2.2.2.1. Additional XML schema elements that are used for the **SMS** class are specified in section 2.2.2.2. Elements that are specific to a particular operation are specified further in sections 3.1.4, 3.1.5, and 3.2.5.

Protocol Versions

The **SMS** class is supported only by protocol versions 14.0 and 14.1. Therefore, the elements that are defined by this specification MUST be used with protocol version 14.0 or 14.1 for any operation involving the **SMS** class.

When protocol version 14.0 is used, operations on SMS items are supported only for certain folders. For details, see section 3.1.4.1 and section 3.1.4.2.

2.2.2.1 SMS Class Elements

This section specifies elements that constitute the **SMS** class. The **SMS** class represents an SMS message. The **SMS** class elements are children of the **airsync:ApplicationData** element in the **Sync** command.

For details about the **airsync:ApplicationData** element, see [MS-ASCMD] section 2.2.3.11.

2.2.2.1.1 Body

The **airsyncbase:Body** element (as specified in [MS-ASAIRS] section 2.2.2.4) is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element). It contains details about the body of the SMS message. This element is part of the **AirSyncBase** namespace, as specified in [MS-ASAIRS].

2.2.2.1.2 ConversationId

The **email2:ConversationId** element (as specified in [MS-ASCON] section 2.2.2.3.3) is a required child element of the **SMS** class (represented by the **airsync:ApplicationData** element) in **Sync** command responses. It specifies a unique identifier for a **conversation**.

2.2.2.1.3 ConversationIndex

The **email2:ConversationIndex** element (as specified in [MS-ASCON] section 2.2.2.4) is a required child element of the **SMS** class (represented by the **airsync:ApplicationData** element) in **Sync** command responses. It specifies a set of timestamps that is used by a client to generate a tree view of a conversation.

2.2.2.1.4 DateReceived

The **email:DateReceived** element is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element) in **Sync** command requests and responses. The **DateReceived** element specifies the date and time when the SMS message was either received by the device or sent by the device. If the SMS message is in the **Sent Items folder**, this element specifies the date and time when the SMS message was sent; otherwise, this element specifies the date and time when the SMS message was received.

The value of this element is a **dateTime** data type, as specified in [MS-ASDTYPE] section 2.3.

2.2.2.1.5 Flag

The **email:Flag** element (as specified in [MS-ASEMAIL] section 2.2.2.33) is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element). It specifies the flag that is associated with the SMS message, along with the current status of the SMS message.

2.2.2.1.6 From

The **email:From** element is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element) in **Sync** command requests and responses. It specifies the telephone number of the individual who sent the SMS message.

The value of this element is a **string** data type, as specified in [MS-ASDTYPE] section 2.6. The format of the string is as follows, including the quotes and square brackets:

"*Sender's Name*" [MOBILE:*Sender's phone number*]

Sender's Name specifies the name of the sender and is optional. *Sender's phone number* specifies the mobile telephone number of the sender.

2.2.2.1.7   Importance

The **email:Importance** element (as specified in [MS-ASEMAIL] section 2.2.2.37) is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element). It specifies the importance of the SMS message, as determined by the sender.

2.2.2.1.8   InternetCPID

The **email:InternetCPID** element (as specified in [MS-ASEMAIL] section 2.2.2.39) is a required child element of the **SMS** class (represented by the **airsync:ApplicationData** element). It specifies the **code page** ID of the SMS message.

2.2.2.1.9   Read

The **email:Read** element (as specified in [MS-ASEMAIL] section 2.2.2.56) is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element). It specifies whether the SMS message has been viewed by the current recipient.

2.2.2.1.10   To

The **email:To** element is an optional child element of the **SMS** class (represented by the **airsync:ApplicationData** element) in **Sync** command requests and responses. It specifies the list of primary recipients.

The value of this element is a **string** data type, as specified in [MS-ASDTYPE] section 2.6. The value comprises the name and phone number of one or more recipients. Multiple recipients are separated by commas. The format of each recipient-entry is as follows, including the quotes and square brackets:

"*Recipient's Name*" [MOBILE: *Recipient's phone number*]

Recipient's Name specifies the name of the recipient and is optional. *Recipient's phone number* specifies the mobile telephone number of the recipient.

2.2.2.2   Additional Elements

This section specifies elements that are used in ActiveSync commands involving SMS items.

2.2.2.2.1   Class

The **airsync:Class** element is used in the following command requests and responses:

▪ **GetItemEstimate** command requests

▪ **Sync** command requests

▪ **Sync** command responses

The definition of the **airsync:Class** element differs according to the context in which it is used. For more details, see section 2.2.2.2.1.1 and section 2.2.2.2.1.2.

2.2.2.2.1.1   Class (GetItemEstimate)

The **airsync:Class** element is an optional child element of the **airsync:Options** element in the **GetItemEstimate** command request. It specifies the class to which the options apply.

The value of this element is a **string**, as specified in [MS-ASDTYPE] section 2.6. For SMS messages, the value of this element is "SMS".

2.2.2.2.1.2   Class (Sync)

For options: The **airsync:Class** element is an optional child element of the **airsync:Options** element in the **Sync** command request. It specifies the class to which the options apply.

For adding, changing, and deleting: The **airsync:Class** element is an optional child element of the **airsync:Add**, **airsync:Change**, and **airsync:Delete** elements in the **Sync** command response, but the **airsync:Class** element is not present in the **Sync** response for an SMS deletion when protocol version 14.0 is used. The **airsync:Class** element is an optional child element of the **airsync:Add** element in the **Sync** command request. The **airsync:Class** element specifies the class of the item that is being added, changed, or deleted.

The value of this element is a **string**, as specified in [MS-ASDTYPE] section 2.6. For SMS messages, the value is "SMS".

2.2.2.2.2   EnableOutboundSMS

The **settings:EnableOutboundSMS** element is an optional child element of the **settings:Set** element in the **Settings** command request. It is used to provision the server for sending outbound SMS messages through the mobile device. (Outbound SMS messages are sent only through mobile devices that enable it.)

The value of this element is an integer, as specified in [MS-ASDTYPE] section 2.5. If this element is set to 1, then the mobile device can be used to send outbound SMS messages. If this element is set to 0, then the mobile device will not be used to send outbound SMS messages. Devices that were previously enabled, but no longer want to act as SMS transport agents for the server, can reset the property to zero on the server by sending a **Settings** command request with the **settings:EnableOutboundSMS** element set to 0. The default value of this element is 0.

2.2.2.2.3   PhoneNumber

The **settings:PhoneNumber** element is an optional child element of the **settings:Set** element in the **Settings** command request. It specifies the telephone number that identifies the mobile device.

The value of this element is a **string**, as specified in [MS-ASDTYPE] section 2.6.

The telephone number facilitates troubleshooting and device management by providing a well-known, unique identifier for the device. The value of the **settings:PhoneNumber** element can be up to 1024 characters in length. The server does not validate the value of the **settings:PhoneNumber** element.<1>

3 Protocol Details

3.1 Client Details

3.1.1 Abstract Data Model

None.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

3.1.4.1 Synchronizing SMS Items

A client initiates synchronization of data with the server by sending a **Sync** command request to the server. The **Sync** command request synchronizes the client's data with the data currently stored by the server.

When protocol version 14.0 is used, synchronization of SMS items is supported only for the **Inbox folder**, the **Outbox folder**, and the Sent Items folder. Protocol version 14.1 supports synchronization of SMS items on any folder that contains email messages. Other protocol versions do not support synchronization of SMS items.

The **Sync** command request is further specified in [MS-ASCMD] section 2.2.2.20.

3.1.4.1.1 Options

If the client wants to synchronize SMS messages for a given folder, the **airsync:Options** block of the **Sync** command request includes the **airsync:Class** element set to the value "SMS". If the **airsync:Class** element is not included in the **airsync:Options** block, that set of options applies to the default class of the given folder, in which case, only the items of the default class for the given folder are synchronized. If no **airsync:Options** block is included in the **Sync** command request, only items of the default class for the given folder are synchronized.

A maximum of two **airsync:Options** blocks are allowed within a **airsync:Collection** block, namely one for the default class of the given folder and one for SMS messages. The **airsync:Class** element MUST be set to "SMS" to indicate that the options apply to SMS messages. An SMS **airsync:Options** block can be included within any **airsync:Collection** block that specifies an e-mail folder.

For more details about the **airsync:Class** element as a child of the **airsync:Options** element, see section 2.2.2.2.1.2.

3.1.4.1.1.1 Sticky Options

Sticky options allow a client to send a **Sync** command request that does not include an **airsync:Options** block. In this case, the server uses the previous set of options.

Sticky options require that the client send all sets of options if any option has changed. For example, if the truncation limit has increased for SMS items and the client is synchronizing both SMS items and e-mail items for a given folder, the **Sync** request will include two **airsync:Options** blocks. If one set of options is omitted from the request, the server presumes that the item class that corresponds to the missing set of options is no longer desired. The server removes items of that item class from the synchronization by including an **airsync:SoftDelete** element in the **Sync** response, as specified in [MS-ASCMD] section 2.2.3.157.

3.1.4.1.1.2 Filtering

A filter can be applied to the synchronization of SMS items. The **airsync:FilterType** element specifies a time window. When synchronizing SMS items, the time-window restricts the items that the server sends to the client. The same filter values (0 through 5) that are used to filter e-mail items are also used to filter SMS items. For more details about filtering and the **airsync:FilterType** element, see [MS-ASCMD] section 2.2.3.64.2.

3.1.4.1.2 Making Changes Involving SMS Items

SMS items can be changed (updated) or deleted the same way that e-mail items are changed or deleted. SMS items can also be added. When an SMS item is added, changed, or deleted, the client sends a **Sync** command request that includes the **airsync:Add** ([MS-ASCMD] section 2.2.3.7.2), **airsync:Change** ([MS-ASCMD] section 2.2.3.24), and **airsync:Delete** ([MS-ASCMD] section 2.2.3.42.2) elements, respectively.

The SMS data is specified in the **SMS** class elements, which MUST be children of the **airsync:ApplicationData** element, as specified in [MS-ASCMD] section 2.2.3.11. The following restrictions apply:

- **Sync** request with **airsync:Add**: The **conversation ID** and **conversation index** cannot be sent to the server by clients when adding an SMS item to the server; the conversation ID and conversation index, specified in the **email2:ConversationId** ([MS-ASEMAIL] section 2.2.2.20) and **email2:ConversationIndex** ([MS-ASEMAIL] section 2.2.2.21) elements, respectively, are returned by the server in the **Sync** command response, along with the server ID specified in the **airsync:ServerId** element ([MS-ASCMD] section 2.2.3.151.7) for the SMS item that was added.

- **Sync** request with **airsync:Change**: The client is allowed to update only the read status and the flags of an SMS item. Therefore, only the **email:Read** element ([MS-ASEMAIL] section 2.2.2.56) and child elements of the **email:Flag** element ([MS-ASEMAIL] section 2.2.2.33) can be specified as part of the **airsync:Change** element in the **Sync** command request.

For more details about the **SMS** class elements, see section 2.2.2.1.

3.1.4.1.3 Special Case for Synchronization of Outbox

When a mobile device is enabled to send an outbound SMS message, the mobile device MUST synchronize the SMS items in the user's Outbox folder. It SHOULD do so at regular, short intervals (about every 15 minutes) or use the **Sync** command with the **Wait** element or the **HeartbeatInterval** element, as specified in [MS-ASCMD] section 3.1.5.4, to provide the user with the best experience in sending SMS items.

3.1.4.2 Estimating the Number of Changes

The client sends a **GetItemEstimate** command request to the server to get an estimate of the number of changes to SMS items for a given email folder. (An email folder is one that contains email messages.)

This operation on SMS items is supported only for the Inbox folder, the Outbox folder, and the Sent Items folder when protocol version 14.0 is used; it is supported for all email folders when protocol version 14.1 is used. Other protocol versions do not support this operation on SMS items.

The estimate of changes will include changes to SMS items for an email folder only if the request includes an **airsync:Options** block with the **airsync:Class** element set to "SMS". A maximum of two **airsync:Options** blocks are allowed within a **getitemestimate:Collection** block, namely one for the default class of the given email folder and one for SMS items. The **airsync:Class** element MUST be set to "SMS" to indicate that the options apply to SMS items.

The **GetItemEstimate** command request is further specified in [MS-ASCMD] section 2.2.2.8.

3.1.4.3   Provisioning for Relay of Outbound SMS Messages

The client sends a **Settings** command request to provision the server for sending outbound SMS messages through the mobile device. Outbound SMS messages are sent only through mobile devices that enable it. To enable outbound SMS messages, the following elements are included as children of the **settings:Set** element in the **settings:DeviceInformation** block of the **Settings** command request:

- **settings:EnableOutboundSMS**, set to 1. See section 2.2.2.2.2.

- **settings:PhoneNumber**, specifying the mobile device's telephone number.

To disable outbound SMS, the **settings:EnableOutboundSMS** element is set to 0. In this case, the **settings:PhoneNumber** element is not needed.

For more details about the **Settings** command request, see [MS-ASCMD] section 2.2.2.17.

3.1.5   Message Processing Events and Sequencing Rules

3.1.5.1   Sending Outbound SMS Messages

The mobile device performs the following tasks to send an outgoing SMS message:

1. The client MUST synchronize the SMS items in the user's Outbox folder. See section 3.1.4.1 for details about synchronizing SMS items. Any SMS items that the server adds to the Outbox folder are outgoing SMS messages. It is important that the client synchronize the Outbox folder as specified in section 3.1.4.1.3. Doing so allows the client to send SMS items in the shortest possible interval.

2. The client MUST send the outgoing SMS items via the mobile device's wireless network. The client sends the given SMS item to all of the mobile recipients provided by the server. The client MUST logically split the item's body as necessary to comply with its network and MUST enable the reassembling of the body on the receiver's phone.

3. If a problem occurs with the message delivery, the client SHOULD generate a **non-delivery report** and post it in the user's Inbox folder by sending a **Sync** request that includes the **airsync:Add** element. See section 3.1.4.1.2 for details about adding SMS items to a folder.

4. The client MUST delete the outgoing SMS items by sending a **Sync** request that includes the **airsync:Delete** element. For more details about deleting SMS items from a folder, see section 3.1.4.1.2.

For more details about synchronization processing and sequencing, see [MS-ASCMD] section 3.1.5.3 and [MS-ASCMD] section 3.1.5.4.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

3.2 Server Details

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

3.2.5.1 Processing a Sync Request

Synchronization of SMS items is initiated by the client, as specified in section 3.1.4.1. The server responds with a **Sync** command response. To send **SMS** class data back to the client, the server includes an **airsync:ApplicationData** element in the **Sync** command response. The **SMS** class data is contained in the **SMS** class elements, as specified in section 2.2.2.1, which MUST be children of the **airsync:ApplicationData** element.

The server MUST NOT send SMS items to the client if the client did not request them.

The server returns status code 4 (protocol error) in the **Sync** command response for the following situations:

- The **Sync** command request specifies a filter value that is not in the allowed range of values (0 through 5). For more details about filtering, see section 3.1.4.1.1.2.

- The **Sync** command request includes more than two **airsync:Options** blocks.

- The **Sync** command request includes an **airsync:Options** block that specifies a class other than "SMS" or "Email" for a collection containing e-mail items.

- The **Sync** command request includes an **airsync:Options** block that specifies the "SMS" or "Email" class for a collection that does not contain e-mail items.

The **Sync** command response is further specified in [MS-ASCMD] section 2.2.2.20. For more details about synchronization processing and sequencing, see [MS-ASCMD] section 3.1.5.3 and [MS-ASCMD] section 3.1.5.4.

3.2.5.2 Processing a GetItemEstimate Request

The client sends a **GetItemEstimate** command request, as specified in section 3.1.4.2. The server sends a **GetItemEstimate** command response with an estimate of the total number of changes for a given folder. The estimate includes the changes to items of the classes specified in the request. The estimate includes changes to SMS items for the specified e-mail folders only if the request includes an **airsync:Options** block with the **airsync:Class** element set to "SMS".

The server returns status code 4 (protocol error) in the **GetItemEstimate** command response for the following situations:

- The **GetItemEstimate** command request includes more than two **airsync:Options** blocks.

- The **GetItemEstimate** command request includes an **airsync:Options** block that specifies a class other than the **SMS** or Email class for a collection containing e-mail items.

- The **GetItemEstimate** command request includes an **airsync:Options** block that specifies the **SMS** or Email class for a collection that does not contain e-mail items.

The **GetItemEstimate** command response is further specified in [MS-ASCMD] section 2.2.2.7.2.

3.2.5.3 Processing a Settings Request

The client sends a **Settings** command request, as specified in section 3.1.4.3. If the **Settings** command request includes the **settings:EnableOutboundSMS** element set to 1 and no telephone number is specified for the mobile device, the server returns status code 5 (invalid arguments) in the **Settings** command response.

If the **Settings** command request indicates that the mobile device can be used to send outbound SMS messages, the server SHOULD propagate the mobile device's outbound SMS state to all clients of the server, allowing any of these clients to send SMS items via the given mobile device.

The **Settings** command response is further specified in [MS-ASCMD] section 2.2.2.17.

3.2.6 Timer Events

None.

3.2.7 Other Local Events

None.

4 Protocol Examples

4.1 Synchronizing E-Mail Items and SMS Items

The following is an example of how the options are specified when the client synchronizes e-mail items and SMS items.

Client's **Sync** command request:

```xml
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns="AirSync:" xmlns:airsyncbase="AirSyncBase:">
  <Collections>
    <Collection>
      <SyncKey>601771687</SyncKey>
      <CollectionId>15</CollectionId>
      <DeletesAsMoves/>
      <GetChanges/>
      <WindowSize>100</WindowSize>
      <Options>
        <Class>SMS</Class>
        <FilterType>0</FilterType>
        <airsyncbase:BodyPreference>
          <airsyncbase:Type>1</airsyncbase:Type>
          <airsyncbase:TruncationSize>102400</airsyncbase:TruncationSize>
        </airsyncbase:BodyPreference>
      </Options>
      <Options>
        <FilterType>2</FilterType>

<airsyncbase:BodyPreference><airsyncbase:Type>1</airsyncbase:Type></airsyncbase:BodyPreferenc
e>

<airsyncbase:BodyPreference><airsyncbase:Type>2</airsyncbase:Type></airsyncbase:BodyPreferenc
e>
        <airsyncbase:BodyPreference>
          <airsyncbase:Type>4</airsyncbase:Type>
          <airsyncbase:TruncationSize>102400</airsyncbase:TruncationSize>
        </airsyncbase:BodyPreference>
        <MIMESupport>0</MIMESupport>
        <Conflict>1</Conflict>
      </Options>
      <Commands>
          ...
      </Commands>
    </Collection>
  </Collections>
</Sync>
```

4.2 Synchronizing Only SMS Items

The following is an example of how the options are specified when the client synchronizes only SMS items.

Client's **Sync** command request:

```xml
<?xml version="1.0" encoding="utf-8"?>
```

```
<Sync xmlns="AirSync:" xmlns:airsyncbase="AirSyncBase:">
  <Collections>
    <Collection>
      <SyncKey>601771687</SyncKey>
      <CollectionId>15</CollectionId>
      <DeletesAsMoves/>
      <GetChanges/>
      <WindowSize>100</WindowSize>
      <Options>
        <Class>SMS</Class>
        <FilterType>0</FilterType>
        <airsyncbase:BodyPreference>
          <airsyncbase:Type>1</airsyncbase:Type>
          <airsyncbase:TruncationSize>102400</airsyncbase:TruncationSize>
        </airsyncbase:BodyPreference>
      </Options>
      <Commands>
          ...
      </Commands>
    </Collection>
  </Collections>
</Sync>
```

4.3   SMS Message Added by the Server

The following is an example of an SMS item being added by the server to the client. Note that the **SMS** class data is included within the **ApplicationData** element, whereas the class of the item is specified by the **Class** element in the **Add** element.

Server's **Sync** command response:

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns="AirSync:" xmlns:airsyncbase="AirSyncBase:" xmlns:email="Email:"
xmlns:email2="Email2:" >
  <Collections>
    <Collection>
      <SyncKey>525665452</SyncKey>
      <CollectionId>55</CollectionId>
      <Status>1</Status>
      <Commands>
        <Add>
          <Class>SMS</Class>
          <ServerId>55:11</ServerId>
          <ApplicationData>
            <email:To>"14255550143" [MOBILE:14255550143]</email:To>
            <email:From>"+14255550123" [MOBILE:+14255550123]</email:From>
            <email:DateReceived>2009-01-08T00:14:36.000Z</email:DateReceived>
            <email:Importance>1</email:Importance>
            <email:Read>0</email:Read>
            <airsyncbase:Body>
              <airsyncbase:Type>1</airsyncbase:Type>
              <airsyncbase:EstimatedDataSize>29</airsyncbase:EstimatedDataSize>
              <airsyncbase:Data>Make sure you get some rest!
</airsyncbase:Data>
            </airsyncbase:Body>
            <email:InternetCPID>1252</email:InternetCPID>
            <email:Flag/>
```

```xml
            <email2:ConversationId>ñòaöÏMDÿ‹döX3&#xF;0&#x0;</email2:ConversationId>
            <email2:ConversationIndex>Éq&amp;HÞ</email2:ConversationIndex>
        </ApplicationData>
      </Add>
    </Commands>
  </Collection>
 </Collections>
</Sync>
```

4.4 Enabling Outbound SMS Messages

The following example shows how a mobile-device client enables the server to use that mobile-device client for relaying outbound SMS messages.

Mobile-device client's **Settings** command request:

```xml
<?xml version="1.0" encoding="utf-8"?>
<Settings xmlns="Settings:">
  <DeviceInformation>
    <Set>
      <Model>Manufacturer-Name-Number</Model>
      <IMEI>123456789012345</IMEI>
      <FriendlyName>My PPC Phone</FriendlyName>
      <OS>PPC</OS>
      <OSLanguage>us-EN</OSLanguage>
      <PhoneNumber>206-555-0112</PhoneNumber>
      <EnableOutboundSMS>1</EnableOutboundSMS>
      <MobileOperator>T-Mojo</MobileOperator>
    </Set>
  </DeviceInformation>
</Settings>
```

5   Security

5.1   Security Considerations for Implementers

None.

5.2   Index of Security Parameters

None.

6   Appendix A: Full XML Schema

For ease of implementation, this section provides the full XML schemas for this protocol. The schema comprises portions of the Email.xsd, Email2.xsd and AirSyncBase.xsd files.

The portion of the Email.xsd file that is used by the **SMS** class is as follows. The complete contents of the Email.xsd file are provided in [MS-ASEMAIL] section 6.1.

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:tns="Email:" xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="Email:" elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:import namespace="AirSyncBase:" schemaLocation="AirSyncBase.xsd"/>
  <xs:element name="To">
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:maxLength value="32768"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
  <xs:element name="From">
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:maxLength value="32768"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
  <xs:element name="DateReceived" type="xs:dateTime"/>
  <xs:element name="Importance" type="xs:unsignedByte"/>
  <xs:element name="Read" type="xs:boolean"/>
  <xs:element name="InternetCPID" type="xs:string"/>
  <xs:element name="Flag"/>
</xs:schema>
```

The portion of the Email2.xsd file that is used by the **SMS** class is as follows. The complete contents of the Email2.xsd file are provided in [MS-ASEMAIL] section 6.2.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:tns="Email2:" xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="Email2:" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="ConversationId" type="xs:string"/>
  <xs:element name="ConversationIndex" type="xs:string"/>
</xs:schema>
```

The portion of the AirSyncBase.xsd file that is used by the **SMS** class is as follows. The complete contents of the AirSyncBase.xsd file are provided in [MS-ASAIRS] section 6.

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:airsyncbase="AirSyncBase:" xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="AirSyncBase:" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="Body"/>
</xs:schema>
```

7 Appendix B: 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 2010

- Microsoft Exchange Server 2013

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

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

<1> Section 2.2.2.2.3: The initial release version of Exchange 2010 requires the **settings:PhoneNumber** element to have a value when the **settings:EnableOutboundSMS** element, as specified in section 2.2.2.2.2, is set to 1. Under these conditions, if the **settings:PhoneNumber** element does not have a value, the server returns a value of 5 in the a **settings:Status** element, as specified in [MS-ASCMD] section 2.2.3.162.14. Exchange 2010 SP1 and Exchange 2013 do not require the **settings:PhoneNumber** element to have a value when the **settings:EnableOutboundSMS** element is set to 1.

8 Change Tracking

This section identifies changes that were made to the [MS-ASMS] protocol document between the July 2014 and October 2014 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.

- 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.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
2.2.2.2.1.2 Class (Sync)	Specified that the airsync:Class element is not present in the Sync response for an SMS deletion when protocol version 14.0 is used.	N	Content updated.

9 Index

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