

[MS-ASCON]: ActiveSync Conversations Protocol Specification

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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	2.1.0	Minor	Updated the technical content.
05/05/2010	3.0.0	Major	Updated and revised the technical content.
08/04/2010	3.0.0	No change	No changes to the meaning, language, or formatting of the technical content.
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03/18/2011	3.1	Minor	Clarified the meaning of the technical content.

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1 Introduction

This document specifies the ActiveSync Conversations protocol, which is an **XML**-based format that is used to improve the ways in which e-mail messages are triaged when they are displayed in **conversation** view.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

class
XML

The following terms are defined in [\[MS-OXGLOS\]](#):

conversation
conversation ID
conversation index
Hypertext Markup Language (HTML)
message part
Wireless Application Protocol (WAP) Binary XML (WBXML)
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 described in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

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. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-ASAIRS] Microsoft Corporation, "[ActiveSync AirSyncBase Namespace Protocol Specification](#)", December 2008.

[MS-ASCMD] Microsoft Corporation, "[ActiveSync Command Reference Protocol Specification](#)", December 2008.

[MS-ASDTYPE] Microsoft Corporation, "[ActiveSync Data Types](#)", December 2008.

[MS-ASEMAIL] Microsoft Corporation, "[ActiveSync E-Mail Class Protocol Specification](#)", December 2008.

[MS-ASWBXML] Microsoft Corporation, "[ActiveSync WAP Binary XML \(WBXML\) Protocol Specification](#)", December 2008.

[MS-DTYP] Microsoft Corporation, "[Windows Data Types](#)", January 2007.

[MS-OXOSFLD] Microsoft Corporation, "[Special Folders Protocol Specification](#)", June 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>

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

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation 8 December 2009, <http://www.w3.org/TR/REC-xml-names/>

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

[MS-OXGLOS] Microsoft Corporation, "[Exchange Server Protocols Master Glossary](#)", April 2008.

1.3 Overview

The ActiveSync Conversations protocol is an XML-based format that is used to improve the ways in which e-mail messages are triaged, allowing a user to view a series of send-response e-mail messages as a single representation, called a conversation.

A conversation appears in a message folder as one unit and allows the user to read the series of related e-mail messages in a single effort. Each e-mail message is assigned a **conversation ID** that is used to identify the conversation to which the e-mail message belongs.

1.4 Relationship to Other Protocols

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

The ActiveSync Conversations protocol defines elements according to the data type definitions that are specified in [\[MS-ASDTYPE\]](#).

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

This protocol is applicable in scenarios in which a client needs to synchronize its e-mail message and files with a server and wants to present a view in which e-mail message are grouped by conversation rather than listed serially.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The ActiveSync Conversations 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 WAP Binary XML (WBXML), as specified in [\[MS-ASWBXML\]](#).

2.2 Message Syntax

The XML markup that is used by the ActiveSync Conversations protocol MUST be well-formed XML, as specified in [\[XML\]](#).

The XML elements that are used by the ActiveSync Conversations protocol are embedded inside a request or response for the following commands:

- **GetItemEstimate**
- **ItemOperations**
- **MoveItems**
- **Search**
- **Sync**

For details about the requests and responses for these commands, see [\[MS-ASCMD\]](#).

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 not significant for interoperability.

Prefix	Namespace URI	Reference
airsync	AirSync	[MS-ASCMD] section 2.2.2.19
airsyncbase	AirSyncBase	[MS-ASAIRS]
email	Email	[MS-AEMAIL]
email2	Email2	[MS-AEMAIL]
getitemestimate	GetItemEstimate	[MS-ASCMD] section 2.2.2.7
itemoperations	ItemOperations	[MS-ASCMD] section 2.2.2.8
search	Search	[MS-ASCMD] section 2.2.2.14

2.2.2 Elements

The following tables summarize the set of common **XML schema** elements that are defined by this specification for the Email **class**, **GetItemEstimate** command, **ItemOperations** command,

Search command, and **Sync** command. For details about the Email class, see [\[MS-ASEMAIL\]](#). For details about the commands, see [\[MS-ASCMD\]](#) sections , , , and .

Elements MUST NOT have child elements in either the command request or command response.

Element	Description
airsyncbase:BodyPart	Used in ItemOperations , Search , and Sync command responses to encapsulate a message part and its meta-data.
airsyncbase:BodyPartPreference	Used in ItemOperations , Search , and Sync command requests to specify preferences for receiving a message part from the server.
email2:ConversationId	Used by the Email class to specify the conversation ID for an e-mail message.
email2:ConversationIndex	Used by the Email class to specify the conversation index for an e-mail message.
airsync:ConversationMode	Used by the GetItemEstimate command to enable conversation-based filtering of item estimates.
itemoperations:Move	Used in an ItemOperations command request to indicate that a conversation is to be moved.
itemoperations:ConversationId	Used by the ItemOperations command to specify the conversation ID of the conversation that is to be moved.
itemoperations:DstFldId	Used by the ItemOperations command to specify the destination folder, which is the folder to which the conversation is moved.
itemoperations:Options	Used in an ItemOperations command request to specify the options for moving a conversation.
itemoperations:MoveAlways	Used by the ItemOperations command to set up the conversation to be always moved.
itemoperations:Move	Used in an ItemOperations command response to specify the results of the attempt to move a conversation.
itemoperations:Status	Used by the ItemOperations command to specify the status of the move action.
itemoperations:ConversationId	Used by the ItemOperations command to specify the conversation ID of the conversation that is moved.
search:ConversationId	Used by the Search command to specify the conversation ID of the conversation for which to search.
airsync:ConversationMode	Used by the Sync command to enable conversation-based filtering and synchronization of conversation-based properties.

2.2.2.1 AirSyncBase Namespace Elements

The following elements are defined in the **AirSyncBase** namespace. For more details about the AirSyncBase namespace, see [\[MS-ASAIRS\]](#).

2.2.2.1.1 **airsyncbase:BodyPart**

The **airsyncbase:BodyPart** element [<1>](#) encapsulates a message part and its meta-data in a **Sync**, **ItemOperations**, or **Search** command response. The **airsyncbase:BodyPart** element is a child of the **airsync:ApplicationData** element in a **Sync** command response, a child of the **itemoperations:Properties** element in an **ItemOperations** command response, and a child of the **search:Properties** element in a **Search** command response.

The **airsyncbase:BodyPart** element is a **container** element. It has the following child elements:

- **airsyncbase:Status**
- **airsyncbase:Type**
- **airsyncbase:EstimatedDataSize**
- **airsyncbase:Truncated**
- **airsyncbase:Data**
- **airsyncbase:Preview**

The **airsyncbase:BodyPart** element and its child elements are further specified in [\[MS-ASAIRS\]](#). The **container** data type is specified in [\[MS-ASDTYPE\]](#) section 2.2.

2.2.2.1.2 **airsyncbase:BodyPartPreference**

The **airsyncbase:BodyPartPreference** element [<2>](#) specifies the client's preferences for receiving a message part from the server. The **airsyncbase:BodyPartPreference** element is a child of the **itemoperations:Options**, **search:Options**, or **airsync:Options** element in an **ItemOperations**, **Search**, or **Sync** command request.

The **airsyncbase:BodyPartPreference** element is a **container** element. It has the following child elements:

- **airsyncbase:Type**
- **airsyncbase:TruncationSize**
- **airsyncbase:AllOrNone**
- **airsyncbase:Preview**

The **airsyncbase:BodyPartPreference** element and its child elements are further specified in [\[MS-ASAIRS\]](#). The **container** data type is specified in [\[MS-ASDTYPE\]](#) section 2.2.

2.2.2.2 **Email Class Elements**

The following elements are defined in the **Email2** namespace.

2.2.2.2.1 **email2:ConversationId**

The **email2:ConversationId** element specifies a unique identifier for a conversation. This element is a required child element of the **airsync:ApplicationData** element in the **Sync** command response, as specified in [\[MS-ASEMAIL\]](#) section 2.2.

The value of this element is a **byte array**, as specified in [\[MS-ASDTYPE\]](#) section 2.6.1. The **email2:ConversationId** element is not present if there is no conversation ID associated with the message.

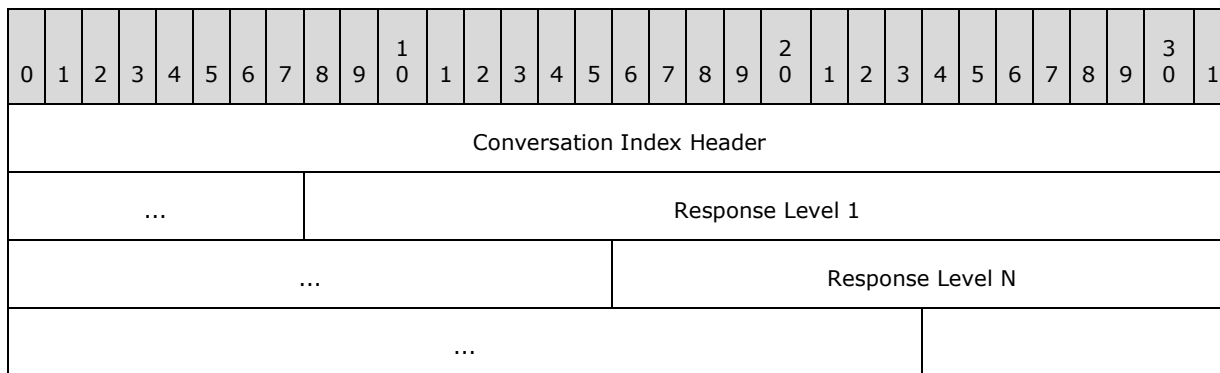
The client MUST NOT change the **email2:ConversationId** value.

2.2.2.2.2 email2:ConversationIndex

The **email2:ConversationIndex** element specifies the conversation index for an e-mail message. This element is a required child element of the **airsync:ApplicationData** element in the **Sync** command response, as specified in [\[MS-AEMAIL\]](#) section 2.2.

The value of this element is a **byte array**, as specified in [\[MS-ASDTYPE\]](#) section 2.6.1. The value comprises a set of timestamps, which can be used by a client to generate a tree-view of a conversation. The first timestamp identifies the date and time when the message was originally sent by the server. Each additional timestamp specifies the difference between the current time and the time specified by the first timestamp. Additional timestamps are added when the message is forwarded or replied to.

The **email2:ConversationIndex** value is set according to the description in the following diagram.



Conversation Index Header (5 bytes): A **Conversation Index Header** that identifies the date and time when the message was originally sent by the server, as specified in section [2.2.2.2.2.1](#).

Response Level 1 (5 bytes): A **Response Level** that contains information about the time the message was forwarded or replied to, as specified in section [2.2.2.2.2.2](#). Additional **Response Level** fields are added to the **email2:ConversationIndex** each time the message is forwarded or replied to.

Response Level N (5 bytes): Additional **Response Level** fields for each time the message is forwarded or replied to. This field is set according to the description for the **Response Level 1** field.

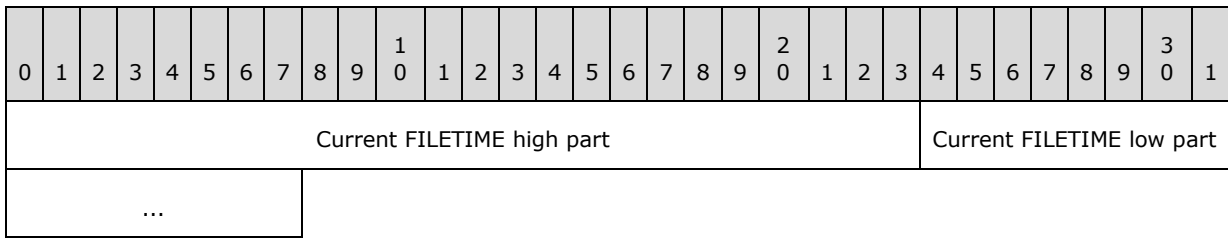
The content of the **email2:ConversationIndex** element is transferred as a **byte array** within the WBXML tags.

The client MUST NOT change the conversation index.

2.2.2.2.2.1 Conversation Index Header

The **Conversation Index Header** identifies the date and time when the message was originally sent by the server.

The **Conversation Index Header** value is set according to the description in the following diagram.



Current FILETIME high part (3 bytes): The 24 low bits of the high part of the included **FILETIME** value ([\[MS-DTYP\]](#)), as shown in the following table.

FILETIME expressed in UTC		
Eight most significant bits	40 bits	16 least significant bits
Excluded	Included	Excluded

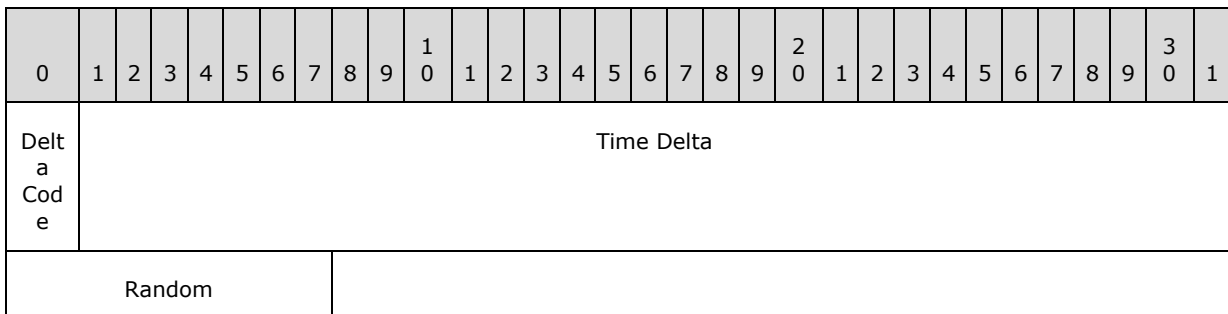
Current FILETIME low part (2 bytes): The 16 high bits of the low part of the included **FILETIME** value, as shown in the **Current FILETIME high part** field table.

The data is stored in big-endian format – the five bytes of the time are written from most significant byte to least significant byte.

2.2.2.2.2 Response Level

The **Response Level** field contains information about the time the message was forwarded or replied to.

The **Response Level** value is set according to the description in the following diagram.



Delta Code (1 bit): A 1-bit flag calculated on the difference between the current time and the time stored in the **Conversation Index Header** (section [2.2.2.2.1](#)).

- If the difference is less than 625 days (high order part of the delta **FILETIME** bitwise AND with "0x00FE0000" resulting in "0"), the **Delta Code** is "0".
- If the difference is greater than or equal to 625 days (high order part of the delta **FILETIME** bitwise AND with "0x00FE0000" resulting nonzero), the **Delta Code** is 1.

Time Delta (31 bits): A 31-bit value calculated using the difference between the current time and the time stored in the **Conversation Index Header** (section [2.2.2.2.1](#))

- If the difference is less than 625 days (high order part of the delta **FILETIME** bitwise AND with "0x00FE0000" resulting in "0"), the **Time Delta** is the least significant 31 bits of the difference remaining after the 18 least significant bits are excluded.
- If the difference is greater than or equal to 625 days (high order part of the delta **FILETIME** bitwise AND with "0x00FE0000" resulting nonzero), the **Time Delta** is the least significant 31 bits of the difference remaining after the 23 least significant bits are excluded.

Random (1 byte): A random value generated by using an implementation-specific algorithm.

2.2.2.3 GetItemEstimate Command Elements

The following elements are defined in the **AirSync** namespace.

2.2.2.3.1 airsync:ConversationMode

The **airsync:ConversationMode** element enables or disables conversation-based filtering of item estimates. This element is an optional child element of the **getitemestimate:Collection** element in the **GetItemEstimate** command request. For details about the **getitemestimate:Collection** element, see [\[MS-ASCMD\]](#) section 2.2.3.28.1.

The value of this element is a **Boolean**, as specified in [\[MS-ASDTYPE\]](#) section 2.1. The value 1 enables conversation-based filtering of item estimates; the value zero disables it. If this element is present without a value, the default is 1.

2.2.2.4 ItemOperations Command Elements

The following elements are defined in the **ItemOperations** namespace.

2.2.2.4.1 Request

The following elements are used in **ItemOperations** request messages.

2.2.2.4.1.1 itemoperations:Move

The **itemoperations:Move** element indicates that a conversation is to be moved from all folders to a destination folder. The **itemoperations:Move** element is a required **container** element in an **ItemOperations** command request. It contains the following child elements:

- **itemoperations:ConversationId** element — see section [2.2.2.4.1.1.1](#)
- **itemoperations:DstFldId** element — see section [2.2.2.4.1.1.2](#)
- **itemoperations:Options** element — see section [2.2.2.4.1.1.3](#)

The **container** data type is specified in [\[MS-ASDTYPE\]](#) section 2.2.

2.2.2.4.1.1.1 itemoperations:ConversationId

The **itemoperations:ConversationId** element specifies the conversation ID of the conversation that is to be moved. This element is a required child element of the **itemoperations:Move** element in the **ItemOperations** command request.

The value of this element is a **byte array**, as specified in [\[MS-ASDTYPE\]](#) section 2.6.1.

2.2.2.4.1.1.2 **itemoperations:DstFldId**

The **itemoperations:DstFldId** element specifies the destination folder, which is the folder to which the conversation is moved. This element is a required child element of the **itemoperations:Move** element in the **ItemOperations** command request.

The value of this element is a **string**, as specified in [\[MS-ASDTYPE\]](#) section 2.6. The destination folder MUST be of type "IPF.Note". For more details about folder types, see [\[MS-OXOSFLD\]](#) section 2.2.5.

2.2.2.4.1.1.3 **itemoperations:Options**

The **itemoperations:Options** element specifies the options for the **itemoperations:Move** element. The **itemoperations:Options** element is an optional **container** element in an **ItemOperations** command request. It contains the following child element:

- **itemoperations:MoveAlways** element — see section [2.2.2.4.1.1.3.1](#)

The **container** data type is specified in [\[MS-ASDTYPE\]](#) section 2.2.

2.2.2.4.1.1.3.1 **itemoperations:MoveAlways**

The **itemoperations:MoveAlways** element indicates whether a conversation is to be always moved. When a conversation is set to be moved always, all e-mail messages in the conversation, including all future e-mail messages for that conversation, are moved from all folders to a destination folder. This element is an optional child element of the **itemoperations:Options** element in the **ItemOperations** command request.

This element is a flag, which does not have a value. If this element is present, the conversation is set to be moved always.

2.2.2.4.2 **Response**

The following elements are used in **ItemOperations** response messages.

2.2.2.4.2.1 **itemoperations:Move**

The **itemoperations:Move** element specifies the results of the attempt to move a conversation. The **itemoperations:Move** element is a required **container** element in an **ItemOperations** command response. It contains the following child elements:

- **itemoperations:ConversationId** element — see section [2.2.2.4.2.1.2](#)
- **itemoperations:Status** element — see section [2.2.2.4.2.1.1](#)

The **container** type is specified in [\[MS-ASDTYPE\]](#) section 2.2.

2.2.2.4.2.1.1 **itemoperations:Status**

The **itemoperations:Status** element specifies the status of the move action. This element is a required child element of the **itemoperations:Move** element in the **ItemOperations** command response.

The value of this element is an **integer**, as specified in [\[MS-ASDTYPE\]](#) section 2.5. The following table lists some of the status values and their meanings.

Value	Meaning
1	Success. The server successfully completed the operation.
2	Protocol error. The XML is not valid.
3	Server error. There was a complete or partial failure of the operation.
6	Not Found. The conversation or destination folder does not exist.
105	Invalid Combination of IDs. The destination folder cannot be the Recipient Information Cache.
155	Protocol error. The itemoperations:Options element does not contain a itemoperations:MoveAlways element.
156	Action not supported. The destination folder MUST be of type "IPF.Note". For more details about folder types, see [MS-OXOSFLD] section 2.2.5.

2.2.2.4.2.1.2 **itemoperations:ConversationId**

The **itemoperations:ConversationId** element specifies the conversation ID of the conversation that is moved. This element is a required child element of the **itemoperations:Move** element in the **ItemOperations** command response.

The value of this element is a **byte array**, as specified in [\[MS-ASDTYPE\]](#) section 2.6.1.

2.2.2.5 Search Command Elements

The following elements are defined in the **Search** namespace.

2.2.2.5.1 **search:ConversationId**

The **search:ConversationId** element specifies the conversation ID of the conversation for which to search. This element is an optional child element of the **search:Query** element in the **Search** command request. For details about the **search:Query** element, see [\[MS-ASCMD\]](#) section 2.2.3.119.

The value of this element is a **byte array**, as specified in [\[MS-ASDTYPE\]](#) section 2.6.1.

2.2.2.6 Sync Command Elements

The following elements are defined in the **AirSync** namespace.

2.2.2.6.1 **airsync:ConversationMode**

The **airsync:ConversationMode** element enables or disables conversation-based filtering and synchronization of conversation-based properties. This element is an optional child element of the **airsync:Collection** element in the **Sync** command request. For details about the **airsync:Collection** element, see [\[MS-ASCMD\]](#) section 2.2.3.28.2.

The value of this element is a **Boolean**, as specified in [\[MS-ASDTYPE\]](#) section 2.1. The value 1 enables conversation-based filtering and synchronization of conversation-based properties; the value zero disables it. If this element is present without a value, the default is 1.

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.

Command request: A WBXML-formatted message that adheres to the command schemas specified in [\[MS-ASCMD\]](#).

E-mail messages: Every e-mail message includes the following to support conversations:

- Conversation ID: A unique value that is associated with a conversation. This value is specified by the **email2:ConversationId** element that is included in the Email class. For details about the Email class, see [\[MS-ASEMAIL\]](#).
- Conversation index: An index that is used by clients to generate a conversation tree view. This value is specified by the **email2:ConversationIndex** element that is included in the Email class. For details about the Email class, see [\[MS-ASEMAIL\]](#).

The server creates a conversation ID and a conversation index on the e-mail item when the user sends an e-mail message. The client does not change the conversation ID or the conversation index.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

3.1.4.1 Deleting a Conversation

When a conversation is deleted, all e-mail messages that are in the conversation are moved from the current folder to the Deleted Items folder. Future e-mail messages for the same conversation are not affected.

To delete a conversation, the client sends a **Sync** command request that contains a **airsync:Delete** element for each item in the conversation. For more details about the **airsync:Delete** element in the **Sync** command request, see [\[MS-ASCMD\]](#) section 2.2.3.40.2.

3.1.4.2 Flagging a Conversation for Follow-up

When a conversation is flagged for follow-up, the most recent e-mail message that is in the conversation and that is in the current folder is flagged. Clearing a flag on a conversation will clear flags on all e-mail messages that are in the conversation and that are in the current folder. Marking

a flagged conversation as complete will mark all flagged e-mail messages that are in the conversation and that are in the current folder as complete.

To set a flag on a conversation, clear a flag on a conversation, or mark a flagged conversation as complete, the client sends a **Sync** command request that contains a **airsync:Change** element, as specified in [\[MS-ASCMD\]](#) section 2.2.3.23.

3.1.4.3 Marking a Conversation as Read or Unread

When a conversation is marked as read or unread, all e-mail messages that are in the conversation and that are in the current folder are marked as such.

To mark a conversation as read or unread, the client sends a **Sync** command request that contains a **airsync:Change** element, as specified in [\[MS-ASCMD\]](#) section 2.2.3.23.

3.1.4.4 Ignoring a Conversation

When a conversation is ignored, all e-mail messages in the conversation, including all future e-mail messages for that conversation, are moved from all folders to the Deleted Items folder.

To ignore a conversation, the client sends an **ItemOperations** command request that contains a **itemoperations:Move** element and its child elements, as specified in section [2.2.2.4.1.1](#) of this document. The **itemoperations:MoveAlways** element MUST be present and the **itemoperations:DstFldId** element MUST contain the ID of the Deleted Items folder. Multiple **itemoperations:Move** elements, one for each conversation to be moved, can be included within one **ItemOperations** request. In this case, the **itemoperations:Move** elements are processed in the order specified. For details about the **ItemOperations** command request, see [\[MS-ASCMD\]](#) section 2.2.2.8.2.

3.1.4.5 Moving a Conversation from the Current Folder

When a conversation is moved from the current folder to another folder, all e-mail messages that are in the conversation are moved from the current folder to the destination folder.

To move a conversation from the current folder to a destination folder, the client sends a **MoveItems** command request, as specified in [\[MS-ASCMD\]](#) section 2.2.2.10.1.

3.1.4.6 Setting up a Conversation to Be Moved Always

When a conversation is set to be moved always, all e-mail messages in the conversation, including all future e-mail messages for that conversation, are moved from all folders to a destination folder.

To set a conversation to be moved always, the client sends an **ItemOperations** command request that contains a **itemoperations:Move** element and its child elements, as specified in section [2.2.2.4.1.1](#) of this document. The **itemoperations:MoveAlways** element MUST be present. The client MUST NOT specify the Outbox folder, the Drafts folder, or the Recipient Information Cache as the destination folder. For details about the **ItemOperations** command request, see [\[MS-ASCMD\]](#) section 2.2.2.8.2.

3.1.4.7 Finding a Conversation

Searching for a particular conversation will search across all folders for all e-mail messages that are in the conversation.

To search for a conversation, the client sends a **Search** command request with the **search:ConversationId** element, which is specified in section [2.2.2.5.1](#) of this document. The

search:ConversationId element can be used in conjunction with other child elements of the **search:Query** element. The client MUST scope the query to the Email class by setting the **search:Name** element to "Mailbox".

For details about the **Search** command request, see [\[MS-ASCMD\]](#) section 2.2.2.14.1. For details about the **search:Name** element, see [\[MS-ASCMD\]](#) section 2.2.3.103.2. For details about the **search:Query** element and its child elements, see [\[MS-ASCMD\]](#) section 2.2.3.119.

3.1.4.8 Synchronizing a Conversation

When a conversation is synchronized, all e-mail messages that are part of the conversation and that are in the specified folder are synchronized.

To synchronize a conversation, the client sends a **Sync** command request with a **airsync:ConversationMode** element for the particular collection to be synchronized.

3.1.4.9 Applying a Conversation-based Filter

Conversation-based filtering augments the date-based filtering. For details about date-based filtering, see [\[MS-ASCMD\]](#) section 2.2.3.61.

When a conversation-based filter is applied to a synchronization of the current folder, the complete conversation is retrieved if any e-mail message in the conversation falls within the date-based filter.

To apply a conversation-based filter to a synchronization, the client includes the **airsync:ConversationMode** element in a **Sync** command request. For details about the **Sync** command request, see [\[MS-ASCMD\]](#) section 2.2.2.19.1.

A conversation-based filter can also be applied to the **GetItemEstimate** command to get an estimate of the items that both meet the filter criteria and need to be synchronized. The client can apply the filter by including the **airsync:ConversationMode** element in a **GetItemEstimate** command request. For details about the **GetItemEstimate** command request, see [\[MS-ASCMD\]](#) section 2.2.2.7.1.

3.1.4.10 Requesting a Message Part

When a client synchronizes, searches, or fetches an e-mail message, the client can choose to receive a message part by including the **airsyncbase:BodyPartPreference** element, which is specified in section [2.2.2.1.2](#), in the **Sync**, **Search**, or **ItemOperations** command request. The value of the **airsyncbase:Type** element MUST be 2 to specify **Hypertext Markup Language (HTML)** as the encoding format.

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

3.2.1 Abstract Data Model

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

Command response: A WBXML-formatted message that adheres to the command schemas specified in [\[MS-ASCMD\]](#).

E-mail messages: Every e-mail item includes the following to support conversations:

- Conversation ID: A unique value that is associated with a conversation. This value is specified by the **email2:ConversationId** element that is included in the Email class. For details about the Email class, see [\[MS-AEMAIL\]](#).
- Conversation Index: An index that is used by clients to generate a conversation tree view. This value is specified by the **email2:ConversationIndex** element that is included in the Email class. For details about the Email class, see [\[MS-AEMAIL\]](#).

The server creates a conversation ID and a conversation index on the e-mail item when the user sends an e-mail message. The client does not change the conversation ID or the conversation index.

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Higher-Layer Triggered Events

The server creates a conversation ID and a conversation index on the e-mail item when the user sends an e-mail message.

3.2.5 Message Processing Events and Sequencing Rules

3.2.5.1 Processing a Sync Command

3.2.5.1.1 Deleting a Conversation

The server moves all e-mail messages that are in the conversation from the current folder to the Deleted Items folder. The server does not move future e-mail messages for the conversation.

The server sends a **Sync** response, as specified in [\[MS-ASCMD\]](#) section 2.2.2.19.2.

3.2.5.1.2 Marking a Conversation as Read or Unread

The server marks all e-mails that are in the conversation and that are in the current folder as either read or unread, whichever is specified in the client's request (see section [3.1.4.3](#)).

The server sends a **Sync** response, as specified in [\[MS-ASCMD\]](#) section 2.2.2.19.2.

3.2.5.1.3 Flagging a Conversation for Follow-up

If a conversation is flagged for follow-up, the server flags the most recent e-mail message that is in the conversation and that is in the current folder. If a flag is cleared on a conversation, the server clears flags on all e-mail messages that are in the conversation and that are in the current folder. If a flagged conversation is marked as complete, the server marks all flagged e-mail messages that are in the conversation and that are in the current folder as complete.

The server sends a **Sync** response, as specified in [\[MS-ASCMD\]](#) section 2.2.2.19.2.

3.2.5.2 Processing a GetItemEstimate Command

When a conversation-based filter is applied to the **GetItemEstimate** command, the server sends an estimate of the items that meet the filter criteria and need to be synchronized.

In the event of failure, the server sends the following status code. For details about the **GetItemEstimate** response, see [\[MS-ASCMD\]](#) section 2.2.2.7.2.

Value	Meaning
4	Protocol error. The conversation-based filter cannot be applied to a folder that is not of the Email class.

3.2.5.3 Processing an ItemOperations Command

3.2.5.3.1 Ignoring a Conversation

When a conversation is ignored, the server moves all e-mail messages in the conversation, including all future e-mail messages for that conversation, from all folders to the Deleted Items folder.

The server's response includes the **itemoperations:Status** element, which contains one of the values specified in section [2.2.2.4.2.1.1](#), and the **itemoperations:ConversationId** element.

3.2.5.3.2 Always Moving a Conversation

When a conversation is set to be moved always, the server moves all e-mail messages in the conversation, including all future e-mail messages for that conversation, from all folders to a destination folder.

The server's response includes the **itemoperations:Status** element, which contains one of the values specified in section [2.2.2.4.2.1.1](#), and the **itemoperations:ConversationId** element.

3.2.5.4 Processing a MoveItems Command

The server moves all e-mail messages that are in the conversation from the current folder to the destination folder. The server sends a **MoveItems** response, as specified in [\[MS-ASCMD\]](#) section 2.2.2.10.2.

3.2.5.5 Processing a Search Command

The server searches across all folders for all e-mail messages that are in the conversation and returns this set of e-mail messages. For details about the **Search** command response, see [\[MS-ASCMD\]](#) section 2.2.2.14.2.

3.2.5.6 Filtering

If an individual e-mail message is moved or deleted, and, as a result, the rest of the messages in the conversation fall out of filter, the server SHOULD send soft deletes (**Sync** command response) for those messages only during the aging-off process. The aging-off process is explained in the following paragraph. For details about the **Sync** command and soft deletes, see [\[MS-ASCMD\]](#) sections and [2.2.3.147](#), respectively.

The aging-off process is the process in which the server deletes objects from the client that are older than the given time-window. The time-window is specified by the client in the **airsync:FilterType** element of the **Sync** command request. For more details about this element, see [\[MS-ASCMD\]](#) section 2.2.3.61.2. The server typically performs the aging-off process daily at midnight, but the time and frequency of execution is implementation-dependent. An example of how the aging-off process is applied to conversations is as follows: Suppose that the client specifies a three-day time-window. If any e-mail within a conversation is less than three days old, all e-mails (going back in time to the oldest item in the mailbox) within that conversation will be synchronized to the client. Once the newest e-mail within the conversation becomes older than three days, the server will send soft deletes for all of the e-mails that are within the conversation.

3.2.5.7 Sending a Message Part

If the client's **Sync**, **Search**, or **ItemOperations** command request includes the **airsyncbase:BodyPartPreference** element, then the server uses the **airsyncbase:BodyPart** element to encapsulate the message part in the response. The **airsyncbase:BodyPart** element is not present in the response when the client did not request the message part, as specified in section [3.1.4.10](#).

The client's preferences affect the server's response as follows:

- If the size of the message part exceeds the value specified in the **airsyncbase:TruncationSize** element of the request, then the server truncates the message part. The server includes the **airsyncbase:Truncated** element and the **airsyncbase:EstimatedDataSize** element when it truncates the message part.
- If a value other than 2 is specified in the **airsyncbase:Type** element of the request, then the server returns a status value of 164.
- If the client enables conversation-based filtering (section [3.1.4.9](#)), then the server returns a message part for each of the conversation's e-mails that falls outside of the date-based filter.

The **airsyncbase:BodyPart** element and the **airsyncbase:Body** element can co-exist in the response. The presence or absence of **airsyncbase:BodyPart** or **airsyncbase:Body** in the response depends on the preferences specified in the request, as summarized in the following table.

Request Contains	Response Contains
Neither airsyncbase:BodyPreference nor airsyncbase:BodyPartPreference elements	Only airsyncbase:Body element
Only airsyncbase:BodyPreference element	Only airsyncbase:Body element
Only airsyncbase:BodyPartPreference element	Only airsyncbase:BodyPart element
Both airsyncbase:BodyPreference and airsyncbase:BodyPartPreference element	Both airsyncbase:Body and airsyncbase:BodyPart element

3.2.6 Timer Events

None.

3.2.7 Other Local Events

None.

4 Protocol Examples

4.1 Synchronization From the Server

The following example shows the server returning an e-mail message. Note that the conversation ID and conversation index are included in the **airsync:ApplicationData** node. A server can choose any name for a namespace and then map its chosen name to the actual namespace name. This example shows alternate namespace names being used by the server.

Response from the server:

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns:email="Email:" xmlns:airsyncbase="AirSyncBase:"
xmlns:email2="Email2:" xmlns="AirSync:">
  <Collections>
    <Collection>
      <SyncKey>1601897837</SyncKey>
      <CollectionId>7</CollectionId>
      <Status>1</Status>
      <Commands>
        <Add>
          <ServerId>7:1</ServerId>
          <ApplicationData>
            <email:To>"deviceuser" &lt;someone@example.com&gt;</email:To>
            <email:From>"deviceuser2" &lt;someone2@example.com&gt;</email:From>
            <email:Subject>Test report</email:Subject>
            <email:DateReceived>2009-03-21T07:04:26.948Z</email:DateReceived>
            <email:DisplayTo>deviceuser</email:DisplayTo>
            <email:ThreadTopic>Test report</email:ThreadTopic>
            <email:Importance>1</email:Importance>
            <email:Read>1</email:Read>
            <airsyncbase:Body>
              <airsyncbase:Type>1</airsyncbase:Type>
              <airsyncbase:EstimatedDataSize>100</airsyncbase:EstimatedDataSize>
              <airsyncbase:Truncated>1</airsyncbase:Truncated>
              <airsyncbase:Data>Test data</airsyncbase:Data>
            </airsyncbase:Body>
            <email:MessageClass>IPM.Note</email:MessageClass>
            <email:InternetCPID>20127</email:InternetCPID>
            <email:Flag/>
            <email:ContentClass>urn:content-classes:message</email:ContentClass>
            <airsyncbase:NativeBodyType>2</airsyncbase:NativeBodyType>
            <email2:ConversationId>BBA4726D4399D44C83297D4BD904ED2D</email2:ConversationId>
            <email2:ConversationIndex>01C9A9F345</email2:ConversationIndex>
            <email:Categories/>
          </ApplicationData>
        </Add>
      </Commands>
    </Collection>
  </Collections>
</Sync>
```

4.2 Ignoring a Conversation

The following example shows the client's request to ignore a conversation and the server's response.

Request from the client:

```
<ItemOperations xmlns="ItemOperations:">
  <Move>
    <ConversationId>...</ConversationId>
    <DstFldId>DeletedItems-Folder-ID</DstFldId>
    <Options>
      <MoveAlways/>
    </Options>
  </Move>
</ItemOperations>
```

Response from the server:

```
<ItemOperations xmlns="ItemOperations:">
  <Response>
    <Status>1</Status>
    <Move>
      <Status>1</Status>
      <ConversationId>...</ConversationId>
    </Move>
  </Response>
</ItemOperations>
```


5 Security

5.1 Security Considerations for Implementers

None.

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 2010
- Microsoft® Exchange Server 2010 Service Pack 1 (SP1)

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 2.2.2.1.1:](#) The **airsyncbase:BodyPart** element is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<2> Section 2.2.2.1.2:](#) The **airsyncbase:BodyPartPreference** element is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

7 Change Tracking

This section identifies changes that were made to the [MS-ASCON] protocol document between the November 2010 and March 2011 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.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

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 language and 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 or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

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.
- New content added for template compliance.
- Content updated for template compliance.
- Content removed for template compliance.
- 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 protocol@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
2.2.2.3.1 airsync:ConversationMode	Updated [MS-ASCMD] section reference.	N	Content updated.
2.2.2.5.1 search:ConversationId	Updated [MS-ASCMD] section reference.	N	Content updated.
2.2.2.6.1 airsync:ConversationMode	Updated [MS-ASCMD] section reference.	N	Content updated.
3.1.4.1 Deleting a Conversation	Updated [MS-ASCMD] section reference.	N	Content updated.
3.1.4.2 Flagging a Conversation for Follow-up	Updated [MS-ASCMD] section reference.	N	Content updated.
3.1.4.3 Marking a Conversation as Read or Unread	Updated [MS-ASCMD] section reference.	N	Content updated.
3.1.4.7 Finding a Conversation	Updated [MS-ASCMD] section references.	N	Content updated.
3.1.4.9 Applying a Conversation-based Filter	Updated [MS-ASCMD] section reference.	N	Content updated.
3.2.5.6 Filtering	Updated [MS-ASCMD] section reference.	N	Content updated.

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