[MS-ASRM]:
Exchange ActiveSync:
Rights Management Protocol

Revision Summary

Date	Revision History	Revision Class	Comments
08/04/2010	0.1	New	Released new document.
11/03/2010	0.2	Minor	Clarified the meaning of the technical content.
03/18/2011	0.3	Minor	Clarified the meaning of the technical content.
08/05/2011	1.0	Major	Significantly changed the technical content.
10/07/2011	1.1	Minor	Clarified the meaning of the technical content.
01/20/2012	2.0	Major	Significantly changed the technical content.
04/27/2012	2.1	Minor	Clarified the meaning of the technical content.
07/16/2012	2.2	Minor	Clarified the meaning of the technical content.
10/08/2012	2.3	Minor	Clarified the meaning of the technical content.
02/11/2013	2.3	No change	No changes to the meaning, language, or formatting of the technical content.
07/26/2013	3.0	Major	Significantly changed the technical content.
11/18/2013	3.0	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1   Introduction

The Exchange ActiveSync: Rights Management Protocol is used by a client, typically a mobile device, to create and consume **rights-managed e-mail messages**. A rights-managed e-mail message is used to protect e-mail content from inappropriate access, use, and distribution.

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 RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

1.1   Glossary

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

Hypertext Transfer Protocol (HTTP)
Secure Sockets Layer (SSL)
XML
XML namespace

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

Information Rights Management (IRM)
recipient
rights policy template
rights-managed email message
Wireless Application Protocol (WAP) Binary XML (WBXML)
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

References to Microsoft Open Specifications documentation 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. 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, "Exchange ActiveSync: AirSyncBase Namespace Protocol".

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

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

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

[MS-ASHTTP] Microsoft Corporation, "Exchange ActiveSync: HTTP Protocol".

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

[MS-OXORMMS] Microsoft Corporation, "Rights-Managed Email Object Protocol".

[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

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

1.2.2 Informative References

[MSFT-ARPTC] Microsoft Corporation, "AD RMS Policy Template Considerations", http://technet.microsoft.com/en-us/library/dd996658(WS.10).aspx

[MSFT-IRMEAS] Microsoft Corporation, "Understanding Information Rights Management in Exchange ActiveSync", http://technet.microsoft.com/en-us/library/ff657743(EXCHG.141).aspx

[MS-GLOS] Microsoft Corporation, "Windows Protocols Master Glossary".

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

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

1.3 Overview

This protocol defines a set of **XML** elements used by a client to create and consume rights-managed e-mail messages. A rights-managed e-mail message is used to protect e-mail content from inappropriate access, use and distribution. Each rights-managed e-mail message has an associated **rights policy template**, which controls the usage policy applied to each rights-managed e-mail message.

A rights policy template specifies whether a user can edit, forward, reply, reply all, print, extract (copy), export (remove protection), or programmatically access the content in the rights-managed e-mail message. When a user creates a rights-managed e-mail message, the user chooses and applies the rights policy template that has the protection settings they require. For example, a manager can send an employee confidential information using a template that prohibits forwarding or printing the e-mail, but does allow the user to respond to the e-mail. Or, a public relations manager can send confidential company information to users inside their organization, and select a template that only allows the protected content to be viewed, replied to, and forwarded within the organization, but not viewed outside the organization.

The creation of rights policy templates is external to this protocol. For more information about deployment and distribution of rights policy templates, see [MSFT-ARPTC].

The XML elements specified in this protocol enable the client to:

- Retrieve the rights policy templates available to the client for composing rights-managed e-mail message.

- Compose new e-mail by using rights policy templates.

- Retrieve rights-managed e-mail messages.

- Request that the server decompress and decrypt rights-managed e-mail messages before sending them to the client.

- Perform actions on a rights-managed e-mail message in accordance with the rights policy template applied to the e-mail message.

It is the responsibility of the client to enforce the rights specified by the rights policy template to the rights-managed e-mail message.

1.4   Relationship to Other Protocols

This protocol consists of a series of XML elements that are embedded inside an XML-formatted command request or a command response. Command requests and responses are described in [MS-ASCMD]. Command requests and responses are transmitted using **Wireless Application Protocol (WAP) Binary XML (WBXML)**, as described in [MS-ASWBXML].

The protected content contained in rights-managed e-mail messages are synchronized between the client and the server by using the E-mail class elements defined in [MS-ASEMAIL].

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

This protocol requires a secure connection between the client and server, as described in section 5.1.

This protocol assumes that the client has been approved to consume and compose **IRM** content by the server. For more information about client-side and server-side IRM requirements, see [MSFT-IRMEAS].

1.6   Applicability Statement

This protocol is designed for the creation and consumption of rights-managed e-mail messages on a client, which is typically a 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 Wireless Application Protocol (WAP) Binary XML (WBXML), as specified in [MS-ASWBXML].

2.2 Message Syntax

The XML schema for the **RightsManagement** namespace is described in section 6.

For more information about how the RightsManagement namespace elements are used in command requests and responses, see sections 3.1.4 and 3.2.4.

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
None	RightsManagement	
airsync	AirSync	[MS-ASCMD] section 2.2.2.19
airsycnbase	AirSyncBase	[MS-ASAIRS]
composemail	ComposeMail	[MS-ASCMD] sections 2.2.2.15, 2.2.2.17, and 2.2.2.18
email	Email	[MS-ASEMAIL]
email2	Email2	[MS-ASEMAIL]
itemoperations	ItemOperations	[MS-ASCMD] section 2.2.2.8
search	Search	[MS-ASCMD] section 2.2.2.14
settings	Settings	[MS-ASCMD] section 2.2.2.16
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]

2.2.2 Elements

2.2.2.1 ContentExpiryDate

The **ContentExpiryDate** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies the expiration date for the license. The **ContentExpiryDate** element is set to "9999-12-30T23:59:59.999Z" if the rights management license has no expiration date set. The client MUST purge the body and attachments of the e-mail message when the **ContentExpiryDate** has passed. The client can then use the **ItemOperations** command ([MS-

ASCMD] section 2.2.2.8) to fetch the content again from the server. If the rights management license allows it, the content can be provided once more with a new **ContentExpiryDate**.

The value of this element is a **dateTime** ([MS-ASDTYPE] section 2.3).

The **ContentExpiryDate** element has no child elements.

2.2.2.2 ContentOwner

The **ContentOwner** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies the e-mail address of the content owner. The **Owner** element is set to **TRUE** for the user specified by the **ContentOwner** element.

The value of this element is a **NonEmptyStringType**, as specified in section 2.2.

The **ContentOwner** element has no child elements.

The maximum length of the **ContentOwner** value is 320 characters.

2.2.2.3 EditAllowed

The **EditAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the content of the original email can be modified by the user when the user forwards, replies, or replies all to the email message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the e-mail can be modified by the user; otherwise, **FALSE** (0).

A value of **FALSE** requires that the client MUST exclude the original rights-managed email message from the **SmartForward** or **SmartReply** request. Consequently, inline replies are not allowed if the **EditAllowed** element is set to **FALSE**. When **EditAllowed** is set to **FALSE** and **composemail:ReplaceMime** ([MS-ASCMD] section 2.2.3.135) is not present in a **SmartForward** or **SmartReply** request, the server will add the original rights-managed email message as an attachment to the new message. Conversely, if **composemail:ReplaceMime** is present, the server will not attach the original rights-managed email message as an attachment.

The **EditAllowed** element has no child elements.

2.2.2.4 ExportAllowed

The **ExportAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the IRM protection on the e-mail message can be removed by the user.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the user can remove the IRM protection when the user forwards, replies, or replies all to the e-mail message; otherwise, **FALSE** (0).

If a rights-managed email message is forwarded or replied to using the **SmartForward** or **SmartReply** command, the following conditions are evaluated:

- The original rights policy template has the **ExportAllowed** element set to **TRUE**

- The **TemplateID** on the new message is set to the "No Restriction" template (**TemplateID** value "00000000-0000-0000-0000-000000000000")

If both of the conditions are true, the IRM protection is removed from the outgoing message. The original message retains its IRM protection.

The **ExportAllowed** element has no child elements.

2.2.2.5   ExtractAllowed

The **ExtractAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the user can copy content out of the e-mail message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the content of the e-mail message can be cut, copied, or a screen capture can be taken of the content; otherwise, **FALSE** (0).

The **ExtractAllowed** element has no child elements.

2.2.2.6   ForwardAllowed

The **ForwardAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the user can forward the e-mail message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the user can forward the e-mail message; otherwise, **FALSE** (0).

The **ForwardAllowed** element has no child elements.

2.2.2.7   ModifyRecipientsAllowed

The **ModifyRecipientsAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the user can modify the **recipient (1)** list when the user forwards, or replies to the e-mail message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the user can modify the recipient (1) list; otherwise, **FALSE** (0).

The **ModifyRecipientsAllowed** element has no child elements.

2.2.2.8   Owner

The **Owner** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the user is the owner of the e-mail message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the user is the owner of the e-mail message; otherwise, **FALSE** (0). A value of **TRUE** indicates that the authenticated user has owner rights on this message. This element is used for information presentation purposes only. The **Allowed** elements (**EditAllowed**, **ReplyAllowed**, etc.) are used to evaluate whether a particular action is permitted or restricted.

The **Owner** element has no child elements.

2.2.2.9   PrintAllowed

The **PrintAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the e-mail can be printed by the user. This element does not

indicate client support for printing an e-mail message; it only specifies whether the e-mail message can be printed if the client supports printing.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the e-mail can be printed by the user; otherwise, **FALSE** (0).

The **PrintAllowed** element has no child elements.

2.2.2.10 ProgrammaticAccessAllowed

The **ProgrammaticAccessAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the contents of the e-mail message can be accessed programmatically by third party applications.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if third party applications can access the content of the e-mail message programmatically; otherwise, **FALSE** (0). A value of **TRUE** indicates whether the protected content is accessible by other applications. Protected content consists of the message body and attachments.

The **ProgrammaticAccessAllowed** element has no child elements.

2.2.2.11 RemoveRightsManagementProtection

The **RemoveRightsManagementProtection** element is an optional child element of the **Fetch** element ([MS-ASCMD] section 2.2.3.63.1) used in **ItemOperations** commands. If present, it indicates that the client is removing the IRM protection from the e-mail.

The **RemoveRightsManagementProtection** element is an empty tag element, meaning it has no value or data type.

IRM protection can only be removed from e-mail messages when the **ExportAllowed** element is set to **TRUE**.

The **RemoveRightsManagementProtection** element has no child elements.

2.2.2.12 ReplyAllAllowed

The **ReplyAllAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the user can reply to all of the recipients (1) of the original e-mail message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the user can reply to all of the recipients (1) of the e-mail message; otherwise, **FALSE** (0).

The **ReplyAllAllowed** element has no child elements.

2.2.2.13 ReplyAllowed

The **ReplyAllowed** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies whether the user is allowed to reply to the e-mail message.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). The value is **TRUE** (1) if the user can reply to the e-mail message; otherwise, **FALSE** (0).

The **ReplyAllowed** element has no child elements.

2.2.2.14   RightsManagementLicense

The **RightsManagementLicense** element is an optional child element of the **ApplicationData** element ([MS-ASCMD] section 2.2.3.11). It contains the rights policy template settings for the template applied to the e-mail message being synchronized.

The value of this element is a **container** ([MS-ASDTYPE] section 2.2).

The **RightsManagementLicense** element can only have the following child elements:

- **ContentExpiryDate** (section 2.2.2.1). This element is required.

- **ContentOwner** (section 2.2.2.2). This element is required.

- **EditAllowed** (section 2.2.2.3). This element is required.

- **ExportAllowed** (section 2.2.2.4). This element is required.

- **ExtractAllowed** (section 2.2.2.5). This element is required.

- **ForwardAllowed** (section 2.2.2.6). This element is required.

- **ModifyRecipientsAllowed** (section 2.2.2.7). This element is required.

- **Owner** (section 2.2.2.8). This element is required.

- **PrintAllowed** (section 2.2.2.9). This element is required.

- **ProgrammaticAccessAllowed** (section 2.2.2.10). This element is required.

- **ReplyAllAllowed** (section 2.2.2.12). This element is required.

- **ReplyAllowed** (section 2.2.2.13). This element is required.

- **TemplateDescription** (section 2.2.2.18.1). This element is required.

- **TemplateID** (section 2.2.2.19.1). This element is required.

- **TemplateName** (section 2.2.2.20.1). This element is required.

2.2.2.15   RightsManagementSupport

The **RightsManagementSupport** element is an optional child element of the **sync:Options** element ([MS-ASCMD] section 2.2.3.115.5), the **itemoperations:Options** element ([MS-ASCMD] section 2.2.3.115.2), and the **search:Options** element ([MS-ASCMD] section 2.2.3.115.4). It specifies how the server returns rights-managed email messages to the client.

The value of this element is a **boolean** ([MS-ASDTYPE] section 2.1). If the value of this element is **TRUE** (1), the server will decompress and decrypt rights-managed email messages before sending them to the client, as specified in section 3.2.4.3. If the value is **FALSE** (0), the server will not decompress or decrypt rights-managed email messages before sending them to the client. If the **RightsManagementSupport** element is not included in a request message, a default value of **FALSE** is assumed.

The **RightsManagementSupport** element has no child elements.

2.2.2.16   RightsManagementTemplate

The **RightsManagementTemplate** element is an optional child element of the **RightsManagementTemplates** element (section 2.2.2.17). It contains the template identifier, name, and description of a rights policy template available on the client.

The value of this element is a **container** ([MS-ASDTYPE] section 2.2).

The **RightsManagementTemplate** element can have only one of each of the following child elements:

- **TemplateDescription** (section 2.2.2.18.2). This element is required.

- **TemplateID** (section 2.2.2.19.2). This element is required.

- **TemplateName** (section 2.2.2.20.2). This element is required.

2.2.2.17   RightsManagementTemplates

The **RightsManagementTemplates** element is an optional child element of the **Get** element ([MS-ASCMD] section 2.2.3.75) that contains the rights policy templates available to the client.

The value of this element is a **container** ([MS-ASDTYPE] section 2.2).

The **RightsManagementTemplates** element can only have the following child element

- **RightsManagementTemplate** (section 2.2.2.16). This element is optional. A maximum of 20 **RightsManagementTemplate** elements can be returned to the client.

2.2.2.18   TemplateDescription

The **TemplateDescription** element is a child element of the **RightsManagementLicense** element (section 2.2.2.14) and the **RightsManagementTemplate** element (section 2.2.2.16).

The value of this element is a **NonEmptyStringType**, as specified in section 2.2.

2.2.2.18.1   TemplateDescription (RightsManagementLicense)

The **TemplateDescription** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It contains a description of the rights policy template represented by the parent **RightsManagementLicense** element. This element is used for informational presentation purposes only.

The **TemplateDescription** element has no child elements.

The maximum length of the **TemplateDescription** element is 10240 characters.

2.2.2.18.2   TemplateDescription (RightsManagementTemplate)

The **TemplateDescription** element is a required child element of the **RightsManagementTemplate** element (section 2.2.2.16). It contains a description of the rights policy template represented by the parent **RightsManagementTemplate** element. This element is used for informational presentation purposes only.

The **TemplateDescription** element has no child elements.

The maximum length of the **TemplateDescription** element is 10240 characters.

2.2.2.19   TemplateID

The **TemplateID** element is a child element of the following elements:

- **SendMail** ([MS-ASCMD] section 2.2.3.148)

- **SmartForward** ([MS-ASCMD] section 2.2.3.154)

- **SmartReply** ([MS-ASCMD] section 2.2.3.155)

- **RightsManagementLicense** (section 2.2.2.14)

- **RightsManagementTemplate** (section 2.2.2.16)

The value of this element is a **NonEmptyStringType**, as specified in section 2.2.

2.2.2.19.1   TemplateID (RightsManagementLicense)

The **TemplateID** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It contains a string that identifies the rights policy template represented by the parent **RightsManagementLicense** element.

The **TemplateID** element has no child elements.

2.2.2.19.2   TemplateID (RightsManagementTemplate)

The **TemplateID** element is a required child element of the **RightsManagementTemplate** element (section 2.2.2.16). It contains a string that identifies the rights policy template represented by the parent **RightsManagementTempalte** element.

The **TemplateID** element has no child elements.

2.2.2.19.3   TemplateID (SendMail, SmartForward, SmartReply)

The **TemplateID** element is an optional child element of the **SendMail** element ([MS-ASCMD] section 2.2.3.148), the **SmartForward** element ([MS-ASCMD] section 2.2.3.154), and the **SmartReply** element ([MS-ASCMD] section 2.2.3.155). It contains a string that identifies a particular rights policy template to be applied to the outgoing message.

If a rights-managed e-mail message is forwarded or replied to using the **SmartForward** or **SmartReply** command, the IRM protection is removed from the outgoing message if the following conditions are true:

- The original rights policy template has the **ExportAllowed** element set to **TRUE**.

- The **TemplateID** on the new message is set to the "No Restriction" template (**TemplateID** value "00000000-0000-0000-0000-000000000000").

The original message retains its IRM protection.

The **TemplateID** element has no child elements.

2.2.2.20   TemplateName

The **TemplateName** element is a child element of the **RightsManagementLicense** element (section 2.2.2.14) and the **RightsManagementTemplate** element (section 2.2.2.16).

The value of this element is a **NonEmptyStringType**, as specified in section 2.2.

2.2.2.20.1   TemplateName (RightsManagementLicense)

The **TemplateName** element is a required child element of the **RightsManagementLicense** element (section 2.2.2.14). It specifies the name of the rights policy template represented by the parent **RightsManagementLicense** element. This element is used for informational presentation purposes only.

The **TemplateName** element has no child elements.

The maximum length of the **TemplateName** element is 256 characters.

2.2.2.20.2   TemplateName (RightsManagementTemplate)

The **TemplateName** element is a required child element of the **RightsManagementTemplate** element (section 2.2.2.16). It specifies the name of the rights policy template represented by the parent **RightsManagementTemplate** element. This element is used for informational presentation purposes only.

The **TemplateName** element has no child elements.

The maximum length of the **TemplateName** element is 256 characters.

3   Protocol Details

3.1   Client Details

3.1.1   Abstract Data Model

None.

3.1.2   Timers

None.

3.1.3   Initialization

When sending command requests that contain elements defined in this protocol, the client MUST set the MS-ASProtocolVersion header, as specified in [MS-ASHTTP] section 2.2.1.1.2.4, to "14.1" or set the **Protocol version** field in the **Base64 Encoded Query Value**, as specified in [MS-ASHTTP] section 2.2.1.1.1.1, to 141.

3.1.4   Higher-Layer Triggered Events

The user triggers the client to create request messages when they synchronize, search, fetch, reply, or forward rights-managed e-mail messages from their mobile device.

3.1.4.1   Requesting Server-Side Decompression and Decryption of Rights-Managed E-mail Messages

When the client sends a **Sync** ([MS-ASCMD] section 2.2.2.19), **ItemOperations** ([MS-ASCMD] section 2.2.2.8), or **Search** ([MS-ASCMD] section 2.2.2.14) command request, the client can request that the server decompress and decrypt rights-managed email messages by including the **RightsManagementSupport** element set to **TRUE** (1). Clients MUST enforce the restrictions on the message as indicated by the **RightsManagementLicense** element (section 2.2.2.14) included in the response. If a client cannot enforce the restrictions on the message, it SHOULD NOT include the **RightsManagementSupport** element set to **TRUE** (1) in requests.

In a **Sync** request, the **RightsManagementSupport** element is included as the child of the **sync:Options** element ([MS-ASCMD] section 2.2.3.115.5).

In an **ItemOperations** command request, the **RightsManagementSupport** element is included as the child of the **itemoperations:Options** element ([MS-ASCMD] section 2.2.3.115.2).

In a **Search** command request, the **RightsManagementSupport** element is included as the child of the **search:Options** element ([MS-ASCMD] section 2.2.3.115.4).

3.1.4.2   Getting Rights Policy Templates

The client obtains the details about the available rights policy templates by sending a **Settings** command request that includes the **settings:RightsManagementInformation** element ([MS-ASCMD] section 2.2.3.143) with a **settings:Get** child element. The server returns the rights policy template settings in the response, as defined in section 3.2.4.2. Once the server returns the templates, the client stores the templates locally for future use within the **SendMail**, **SmartReply** or **SmartForward** commands. Because the templates can change, it is recommended that the client caches the templates for no longer than 24 hours.

3.1.4.3 Sending Protected E-mail

The client protects an e-mail message by including the **TemplateID** element in the **SendMail** ([MS-ASCMD] section 2.2.2.15), **SmartReply** ([MS-ASCMD] section 2.2.2.18), or **SmartForward** ([MS-ASCMD] section 2.2.2.17) command requests. If the command request does not include the **TemplateID** element, the e-mail message is sent without rights management.

3.1.5 Processing Events and Sequencing Rules

The client creates request messages as specified in [MS-ASCMD].

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

The client triggers the server to create response messages when it receives request messages that contain IRM-protected data or settings.

3.2.4.1 Enforcing Rights Policy Template Settings

The server returns **Status** ([MS-ASCMD] section 2.2.3.162) value 168 if IRM is disabled on the server. For an example, see section 4.1.

The server returns **Status** value 169 if a transient failure was encountered. The client SHOULD retry the request in a few minutes if **Status** value 169 is returned.

The server returns **Status** value 170 if a permanent failure or multiple transient failures were encountered.

The server returns **Status** value 171 in a **SmartReply** or **SmartForward** command response if the request included an invalid **TemplateID** value.

The server returns **Status** value 172 if the client tries to perform an action on a rights-managed e-mail message that is prohibited by the rights policy template.

3.2.4.2   Sending Rights Policy Templates

The **settings:RightsManagementInformation** element that is included in the **Settings** response contains all the rights policy templates that are available to the client. The **RightsManagementTemplate** element contains the specific settings for each template.

The string values in the **TemplateDescription** and **TemplateName** elements SHOULD be returned to the client in the language specified in the request (either by the **Locale** field in the **Base64 Encoded Query Value** as specified in [MS-ASHTTP] section 2.2.1.1.1.1, or by the Accept-Language header if the request line is not encoded) if available on the server. If the requested language is not available, the server SHOULD return the strings in the closest possible match to the requested language. The method of determining a closest possible match is implementation-specific. If no language is specified in the request, the string values SHOULD be returned in English.

3.2.4.3   Sending Rights-Managed E-Mail Messages to the Client

To respond to a **Sync**, **ItemOperations**, or **Search** command request message that includes the **RightsManagementSupport** element, the server includes the **RightsManagementLicense** element and its child elements in the **Sync**, **ItemOperations**, or **Search** command response message.

In a **Sync** command response, the **RightsManagementLicense** element is included as a child of the **sync:ApplicationData** element ([MS-ASCMD] section 2.2.3.11).

In an **ItemOperations** command response, the **RightsManagementLicense** element is included as a child of the **itemoperations:Properties** element ([MS-ASCMD] section 2.2.3.128.1).

In a **Search** command response, the **RightsManagementLicense** element is included as a child of the **search:Properties** element ([MS-ASCMD] section 2.2.3.128.2).

The string values in the **TemplateDescription** and **TemplateName** elements SHOULD be returned to the client in the language specified in the request (either by the **Locale** field in the **Base64 Encoded Query Value** as specified in [MS-ASHTTP] section 2.2.1.1.1.1, or by the Accept-Language header if the request line is not encoded) if available on the server. If the requested language is not available, the server SHOULD return the strings in the closest possible match to the requested language. The method of determining a closest possible match is implementation-specific. If no language is specified in the request, the string values SHOULD be returned in English.

3.2.5   Processing Events and Sequencing Rules

The server processes request messages as specified in [MS-ASCMD]. If the protocol version specified by in the command request is not 14.1, as specified in section 3.1.3, the server SHOULD consider the XML body of the command request to be invalid.

3.2.5.1   Handling SmartForward and SmartReply Requests

When the client sends the server a **SmartForward** or **SmartReply** command request for a message with a rights policy template, the server MUST do the following to enforce the rights policy template:

1. If no **TemplateID** element is included in the command request, the server proceeds as follows:

   ▪ If the original message being forwarded or replied to has no rights management restrictions, the server proceeds to step 6.

- If the original message had rights management restrictions, the server replaces the body of the message with boilerplate text and the rights-managed e-mail message is added as an .rpmsg attachment as specified in [MS-OXORMMS].

2. If any of the following are true, the server fails the request and returns composemail:Status value 168:

   - The **RightsManagementSupport** element was set to **FALSE** or was not included in previous command requests. See section 3.1.4.1 for more details.

   - The connection to the server does not use SSL.

   - The server does not support IRM features. See section 1.5 for more details.

3. If the **TemplateID** element is included in the command request, the server does the following:

   - If the original message is not protected, the server proceeds to step 5. If the template does not exist on the server, the server fails the request and returns a **composemail:Status** value of 171.

   - If the original message is protected and the specified **TemplateID** value is the same as the **TemplateID** value on the original message, the server proceeds to step 4.

   - If the original message is protected and the specified **TemplateID** value is different than the **TemplateID** value on the original message, the server verifies that the new **TemplateID** value exists on the server. If the **TemplateID** value does not correspond to a template on the server, the server fails the request and returns a **composemail:Status** value of 171; otherwise, the server proceeds to step 4.

4. The server compares the recipients (1) on the original message to the recipients (1) sent by the client within the new message. The server verifies that the recipient (1) list on the new message aligns with the granted permissions, as specified in the following table. If permissions allow it, the server creates the reply or forwarded message; otherwise, a **composemail:Status** value of 171 is returned by the server.

5. If the message has a **TemplateID** element, the server protects the new outgoing message with the specified rights policy template.

6. The server sends the new message.

The following table describes the reply, reply all, and forward enforcement that is performed by the server.

ReplyAllowed	ReplyAllAllowed	ForwardAllowed	Server-side enforcement
ModifyRecipientsAllowed = **TRUE**		**TRUE***	There are no restrictions.
ModifyRecipientsAllowed = **FALSE**		**TRUE***	For reply and reply all, refer to the last four rows in this table. For forwarding, attach the original message and send it.*
TRUE	**TRUE**	**FALSE**	Reply to exactly one recipient (1) or all original recipients (1). Whether the sender chooses to include themselves in the reply message is optional. All other **SmartReply** command requests are restricted and error

ReplyAllowed	ReplyAllAllowed	ForwardAllowed	Server-side enforcement
			out with a **composemail:Status** value of 172. **SmartForward** requests are restricted and return a **composemail:Status** value of 172.
TRUE	FALSE	FALSE	Reply to exactly one recipient (1), the sender of the original message. All other **SmartReply** command requests are restricted and error out with a **composemail:Status** value of 172. **SmartForward** command requests are restricted and return a **composemail:Status** value of 172.
FALSE	TRUE	FALSE	Reply to exactly all original recipients (1). Whether the sender chooses to include themselves in the reply message is optional All other **SmartReply** command requests are restricted and error out with a **composemail:Status** value of 172. **SmartForward** command requests are restricted and return a **composemail:Status** value of 172.
FALSE	FALSE	FALSE	All **SmartReply** and **SmartForward** command requests error out with a **composemail:Status** value of 172.

*The server does not enforce the lack of reply and reply all rights.

The following table describes the edit and export enforcement that is performed by the server.

ExportAllowed value	EditAllowed value	composemail:ReplaceMime value	New message uses the same TemplateID value	New message uses a different TemplateID value
TRUE	TRUE	TRUE	Send the message.	Send the message.
TRUE	FALSE	TRUE	Send the message.*	Send the message.*
FALSE	TRUE	TRUE	Send the message.	Send the message.*
FALSE	FALSE	TRUE	Send the message.*	Send the message.*
TRUE	TRUE	FALSE	Send the message, including the original message as inline content.	Send the message, including the original message as inline content.

ExportAllowed value	EditAllowed value	composemail:ReplaceMime value	New message uses the same TemplateID value	New message uses a different TemplateID value
TRUE	FALSE	FALSE	Send the message, including the original message as an attachment.*	Send the message, including the original message as an attachment.*
FALSE	TRUE	FALSE	Send the message, including the original message as inline content.	Send the message, including the original message as an attachment.*
FALSE	FALSE	FALSE	Send the message, including the original message as an attachment.*	Send the message, including the original message as an attachment.*

*In these cases, the client MUST NOT include the original message inline in the new message due to the possible breach of IRM protection.

3.2.6   Timer Events

None.

3.2.7   Other Local Events

None.

4 Protocol Examples

4.1 Retrieve Rights Policy Templates by Using the Settings Command

To retrieve the rights policy templates available to the user, the client sends the **Settings** command to the server. The request message includes the **settings:RightsManagementInformation** and **settings:Get** elements, which instruct the server to include the rights policy template in the response. In this scenario, the successful response includes two rights policy templates, each specified in its own **RightsManagementTemplate** element. The unsuccessful response includes **settings:Status** value 168, which indicates that IRM protection is disabled on the server. Other error values are possible and are specified in section 3.2.4.1.

Request

```
<?xml version="1.0" encoding="utf-8"?>
<Settings xmlns="Settings:">
  <RightsManagementInformation>
    <Get/>
  </RightsManagementInformation>
</Settings>
```

Successful Response

```
<?xml version="1.0" encoding="utf-8"?>
<Settings xmlns:rm="RightsManagement:" xmlns="Settings:">
  <Status>1</Status>
  <RightsManagementInformation>
    <Status>1</Status>
    <Get>
      <rm:RightsManagementTemplates>
        <rm:RightsManagementTemplate>
          <rm:TemplateID>cf5cf348-a8d7-40d5-91ef-a600b88a395d</rm:TemplateID>
          <rm:TemplateName>Do Not Forward</rm:TemplateName>
          <rm:TemplateDescription>Recipients can read this message, but they can't forward,
print, or copy content. The conversation owner has full permission to their message and all
replies.</rm:TemplateDescription>
        </rm:RightsManagementTemplate>
        <rm:RightsManagementTemplate>
          <rm:TemplateID>abfafb18-80a0-4763-ac37-48deb93e51e4</rm:TemplateID>
          <rm:TemplateName>DoNotReplyAll</rm:TemplateName>
          <rm:TemplateDescription>Description for template
'DoNotReplyAll'</rm:TemplateDescription>
        </rm:RightsManagementTemplate>
      </rm:RightsManagementTemplates>
    </Get>
  </RightsManagementInformation>
</Settings>
```

Unsuccessful Response

```
<?xml version="1.0" encoding="utf-8"?>
<Settings xmlns:rm="RightsManagement:" xmlns="Settings:">
  <Status>1</Status>
  <RightsManagementInformation>
    <Status>168</Status>
```

```
    <Get>
      <rm:RightsManagementTemplates />
    </Get>
  </RightsManagementInformation>
</Settings>
```

4.2 Request That the Server Decompress and Decrypt Rights-Managed E-mail Messages

To retrieve a new email message from the server and request that the server decompress and decrypt rights-managed email messages, the client sends the **Sync** command and sets the **RightsManagementSupport** element to **TRUE**. The response includes a new rights-managed email message, which has the rights policy template included in the **RightsManagementLicense** element.

Request

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns:airsyncbase="AirSyncBase:" xmlns:rm="RightsManagement:" xmlns="AirSync:">
  <Collections>
    <Collection>
      <SyncKey>624199877</SyncKey>
      <CollectionId>5</CollectionId>
      <GetChanges>1</GetChanges>
      <Options>
        <rm:RightsManagementSupport>1</rm:RightsManagementSupport>
        <airsyncbase:BodyPreference>
          <airsyncbase:Type>1</airsyncbase:Type>
          <airsyncbase:TruncationSize>1024</airsyncbase:TruncationSize>
        </airsyncbase:BodyPreference>
        <airsyncbase:BodyPartPreference>
          <airsyncbase:Type>2</airsyncbase:Type>
        </airsyncbase:BodyPartPreference>
      </Options>
    </Collection>
  </Collections>
</Sync>
```

Response

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns:email="Email:" xmlns:airsyncbase="AirSyncBase:" xmlns:email2="Email2:"
xmlns:rm="RightsManagement:" xmlns="AirSync:">
  <Collections>
    <Collection>
      <SyncKey>1556727147</SyncKey>
      <CollectionId>5</CollectionId>
      <Status>1</Status>
      <Commands>
        <Add>
          <ServerId>5:1</ServerId>
          <ApplicationData>
            <email:To>"T0SyncUser3" &lt;T0SyncUser3@contoso.com;</email:To>
            <email:From>"T0SyncUser1" &lt;T0SyncUser1@contoso.com&gt;</email:From>
            <email:Subject>DoNotForward</email:Subject>
```

```
              <email:DateReceived>2010-07-01T00:23:24.232Z</email:DateReceived>
              <email:DisplayTo>T0SyncUser3</email:DisplayTo>
              <email:ThreadTopic>DoNotForward</email:ThreadTopic>
              <email:Importance>1</email:Importance>
              <email:Read>0</email:Read>
              <airsyncbase:Body>
                <airsyncbase:Type>1</airsyncbase:Type>
                <airsyncbase:EstimatedDataSize>64</airsyncbase:EstimatedDataSize>
                <airsyncbase:Data>This is a test message that we want to
  use.</airsyncbase:Data>
              </airsyncbase:Body>
              <email:MessageClass>IPM.Note</email:MessageClass>
              <email:InternetCPID>28591</email:InternetCPID>
              <email:Flag />
              <email:ContentClass>urn:content-classes:message</email:ContentClass>
              <airsyncbase:NativeBodyType>1</airsyncbase:NativeBodyType>
              <email2:ConversationId>…</email2:ConversationId>
              <email2:ConversationIndex>…</email2:ConversationIndex>
              <email:Categories />
              <airsyncbase:BodyPart>
                <airsyncbase:Status>1</airsyncbase:Status>
                <airsyncbase:Type>2</airsyncbase:Type>
                <airsyncbase:EstimatedDataSize>90</airsyncbase:EstimatedDataSize>
                <airsyncbase:Data>&lt;div&gt;
  &lt;div&gt;This is a test message that we want to use.&lt;/div&gt;
  &lt;/div&gt;
  </airsyncbase:Data>
              </airsyncbase:BodyPart>
              <rm:RightsManagementLicense>
                <rm:Owner>0</rm:Owner>
                <rm:ContentOwner>T0SyncUser1@contoso.com</rm:ContentOwner>
                <rm:ReplyAllAllowed>1</rm:ReplyAllAllowed>
                <rm:EditAllowed>1</rm:EditAllowed>
                <rm:ReplyAllowed>1</rm:ReplyAllowed>
                <rm:ForwardAllowed>0</rm:ForwardAllowed>
                <rm:ExportAllowed>0</rm:ExportAllowed>
                <rm:ModifyRecipientsAllowed>0</rm:ModifyRecipientsAllowed>
                <rm:TemplateID>cf5cf348-a8d7-40d5-91ef-a600b88a395d</rm:TemplateID>
                <rm:ExtractAllowed>0</rm:ExtractAllowed>
                <rm:TemplateDescription>Recipients can read this message, but they can't
  forward, print, or copy content. The conversation owner has full permission to their message
  and all replies.</rm:TemplateDescription>
                <rm:ContentExpiryDate>9999-12-30T23:59:59.999Z</rm:ContentExpiryDate>
                <rm:TemplateName>Do Not Forward</rm:TemplateName>
                <rm:PrintAllowed>0</rm:PrintAllowed>
                <rm:ProgrammaticAccessAllowed>0</rm:ProgrammaticAccessAllowed>
              </rm:RightsManagementLicense>
            </ApplicationData>
          </Add>
        </Commands>
      </Collection>
    </Collections>
  </Sync>
```

4.3   Request That the Server Not Decompress and Decrypt Rights-Managed E-mail Messages

When the client does not request that the server decompress and decrypt rights-managed email messages, the server sends the content as a message.rpmsg attachment, as described in [MS-OXORMMS] section 2.2.4.5. In this scenario, the **RightsManagementSupport** element is not included in the **Sync** command request, and a default value of **FALSE** is assumed on the server.

The response message includes the file message.rpmsg as an attachment to the e-mail message. The message.rpmsg file includes the protected content, which cannot be opened on a client that does not support IRM natively.

Request

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns:airsyncbase="AirSyncBase:" xmlns="AirSync:">
  <Collections>
    <Collection>
      <SyncKey>408238195</SyncKey>
      <CollectionId>5</CollectionId>
      <GetChanges>1</GetChanges>
      <Options>
        <airsyncbase:BodyPreference>
          <airsyncbase:Type>1</airsyncbase:Type>
        </airsyncbase:BodyPreference>
      </Options>
    </Collection>
  </Collections>
</Sync>
```

Response

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns:email="Email:" xmlns:airsyncbase="AirSyncBase:" xmlns:email2="Email2:"
xmlns:rm="RightsManagement:" xmlns="AirSync:">
  <Collections>
    <Collection>
      <SyncKey>334913177</SyncKey>
      <CollectionId>5</CollectionId>
      <Status>1</Status>
      <Commands>
        <Add>
          <ServerId>5:1</ServerId>
          <ApplicationData>
            <email:To>"T0SyncUser3" &lt;T0SyncUser3@contoso.com&gt;</email:To>
            <email:From>"T0SyncUser1" &lt;T0SyncUser1@contoso.com&gt;</email:From>
            <email:Subject> ReplyReplyAllForward</email:Subject>
            <email:DateReceived>2010-07-01T02:14:43.245Z</email:DateReceived>
            <email:DisplayTo>T0SyncUser3</email:DisplayTo>
            <email:ThreadTopic>ReplyReplyAllForward</email:ThreadTopic>
            <email:Importance>1</email:Importance>
            <email:Read>0</email:Read>
            <airsyncbase:Attachments>
              <airsyncbase:Attachment>
                <airsyncbase:DisplayName>message.rpmsg</airsyncbase:DisplayName>
                <airsyncbase:FileReference>5%3a1%3a0</airsyncbase:FileReference>
                <airsyncbase:Method>1</airsyncbase:Method>
```

```
            <airsyncbase:EstimatedDataSize>9915</airsyncbase:EstimatedDataSize>
          </airsyncbase:Attachment>
        </airsyncbase:Attachments>
        <airsyncbase:Body>
          <airsyncbase:Type>1</airsyncbase:Type>
          <airsyncbase:EstimatedDataSize>289</airsyncbase:EstimatedDataSize>
          <airsyncbase:Data>The message you tried to open is protected with Information
Rights Management.</airsyncbase:Data>
        </airsyncbase:Body>
        <email:MessageClass>IPM.Note</email:MessageClass>
        <email:InternetCPID>28591</email:InternetCPID>
        <email:Flag />
        <email:ContentClass>rpmsg.message</email:ContentClass>
        <airsyncbase:NativeBodyType>1</airsyncbase:NativeBodyType>
        <email2:ConversationId>…</email2:ConversationId>
        <email2:ConversationIndex>…</email2:ConversationIndex>
        <email:Categories />
      </ApplicationData>
    </Add>
  </Commands>
  </Collection>
  </Collections>
</Sync>
```

4.4 Reply to a Rights-Managed E-Mail Message by Using the SmartReply Command

To reply to a rights-managed email message, the client sends a **SmartReply** command message and includes the **TemplateID** element. In this scenario, the client retrieves the **TemplateID** from the local store, because it is responding to a message that it sent originally.

Request

```
<?xml version="1.0" encoding="utf-8"?>
<SmartReply xmlns:rm="RightsManagement:" xmlns="ComposeMail:">
  <ClientId>634135220584105742</ClientId>
  <Source>
    <FolderId>5</FolderId>
    <ItemId>5:1</ItemId>
  </Source>
  <Mime>From: T0SyncUser2@contoso.com
To: T0SyncUser1@contoso.com
Subject: Message
MIME-Version: 1.0
Content-Type: text/plain; Charset= us-ascii
Content-Transfer-Encoding: 7bit
X-MimeOLE: Produced By Microsoft MimeOLE V6.00.2800.1441

Message contents. </Mime>
  <rm:TemplateID>CF5CF348-A8D7-40D5-91EF-A600B88A395D</rm:TemplateID>
</SmartReply>
```

Response

```
HTTP/1.1 200 OK
Date: Thu, 01 Jul 2010 02:14:20 GMT
```

```
    Content-Length: 0
```

4.5   Search for a Rights-Managed E-Mail Message by Using the Search Command

To search for a rights-managed e-mail message, the client sends the **Search** command and sets the
RightsManagementSupport element to **TRUE**.

The response includes the rights-managed e-mail message.

Request

```
<?xml version="1.0" encoding="utf-8"?>
<Search xmlns:airsyncbase="AirSync:" xmlns:airsyncbase="AirSyncBase:"
xmlns:rm="RightsManagement:" xmlns="Search:">
  <Store>
    <Name>Mailbox</Name>
    <Query>
      <And>
        <airsyncbase:CollectionId>5</airsyncbase:CollectionId>
        <FreeText>IRMEAS</FreeText>
        <airsyncbase:Class>Email</airsyncbase:Class>
      </And>
    </Query>
    <Options>
      <Range>0-0</Range>
      <RebuildResults/>
      <DeepTraversal/>
      <airsyncbase:BodyPreference>
        <airsyncbase:Type>1</airsyncbase:Type>
        <airsyncbase:TruncationSize>512</airsyncbase:TruncationSize>
      </airsyncbase:BodyPreference>
      <rm:RightsManagementSupport>1</rm:RightsManagementSupport>
    </Options>
  </Store>
</Search>
```

Response

```
<?xml version="1.0" encoding="utf-8"?>
<Search xmlns:airsyncbase="AirSync:" xmlns:email="Email:" xmlns:airsyncbase="AirSyncBase:"
xmlns:email2="Email2:" xmlns:rm="RightsManagement:" xmlns="Search:">
  <Status>1</Status>
  <Response>
    <Store>
      <Status>1</Status>
      <Result>
        <airsyncbase:Class>Email</airsyncbase:Class>

<LongId>RgAAAAC56adCCdvKRYRrNA1IgBolBwB%2bSy6NhndsQ7ldDXB%2fCAqQAAAAbHbTAAB%2bSy6NhndsQ7ldDXB
%2fCAqQAAAAbJ5XAAAJ</LongId>
        <airsyncbase:CollectionId>5</airsyncbase:CollectionId>
        <Properties>
          <email:To>"T0SyncUser3" &lt;T0SyncUser3@contoso.com&gt;</email:To>
          <email:From>"T0SyncUser1" &lt;T0SyncUser1@contoso.com&gt;</email:From>
          <email:Subject>DoNotForward</email:Subject>
          <email:DateReceived>2010-06-30T23:52:51.908Z</email:DateReceived>
```

```
          <email:DisplayTo>T0SyncUser3</email:DisplayTo>
          <email:ThreadTopic>DoNotForward</email:ThreadTopic>
          <email:Importance>1</email:Importance>
          <email:Read>0</email:Read>
          <airsyncbase:Body>
            <airsyncbase:Type>1</airsyncbase:Type>
            <airsyncbase:EstimatedDataSize>64</airsyncbase:EstimatedDataSize>
            <airsyncbase:Data>This is a test message that we want to use.</airsyncbase:Data>
          </airsyncbase:Body>
          <email:MessageClass>IPM.Note</email:MessageClass>
          <email:InternetCPID>28591</email:InternetCPID>
          <email:Flag />
          <email:ContentClass>urn:content-classes:message</email:ContentClass>
          <airsyncbase:NativeBodyType>1</airsyncbase:NativeBodyType>
          <email2:ConversationId>…</email2:ConversationId>
          <email2:ConversationIndex>…</email2:ConversationIndex>
          <email:Categories />
          <rm:RightsManagementLicense>
            <rm:Owner>0</rm:Owner>
            <rm:ContentOwner>T0SyncUser1@contoso.com</rm:ContentOwner>
            <rm:ReplyAllAllowed>1</rm:ReplyAllAllowed>
            <rm:EditAllowed>1</rm:EditAllowed>
            <rm:ReplyAllowed>1</rm:ReplyAllowed>
            <rm:ForwardAllowed>0</rm:ForwardAllowed>
            <rm:ExportAllowed>0</rm:ExportAllowed>
            <rm:ModifyRecipientsAllowed>0</rm:ModifyRecipientsAllowed>
            <rm:TemplateID>cf5cf348-a8d7-40d5-91ef-a600b88a395d</rm:TemplateID>
            <rm:ExtractAllowed>0</rm:ExtractAllowed>
            <rm:TemplateDescription>Recipients can read this message, but they can't forward,
print, or copy content. The conversation owner has full permission to their message and all
replies.</rm:TemplateDescription>
            <rm:ContentExpiryDate>9999-12-30T23:59:59.999Z</rm:ContentExpiryDate>
            <rm:TemplateName>Do Not Forward</rm:TemplateName>
            <rm:PrintAllowed>0</rm:PrintAllowed>
            <rm:ProgrammaticAccessAllowed>0</rm:ProgrammaticAccessAllowed>
          </rm:RightsManagementLicense>
        </Properties>
      </Result>
      <Range>0-0</Range>
      <Total>1</Total>
    </Store>
  </Response>
</Search>
```

4.6   Fetch a Rights-Managed E-Mail Message by Using the ItemOperations Command

To fetch a rights-managed e-mail message, the client sends the **ItemOperations** command and sets the **RightsManagementSupport** element to **TRUE**.

The response includes the rights-managed e-mail message.

Request

```
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations xmlns:airsyncbase="AirSync:" xmlns:airsyncbase="AirSyncBase:"
xmlns="ItemOperations:" xmlns:rm="RightsManagement:">
```

```
  <Fetch>
    <Store>Mailbox</Store>
    <airsyncbase:CollectionId>5</airsyncbase:CollectionId>
    <airsyncbase:ServerId>5:1</airsyncbase:ServerId>
    <Options>
      <airsyncbase:BodyPreference>
        <airsyncbase:Type>1</airsyncbase:Type>
        <airsyncbase:TruncationSize>1024</airsyncbase:TruncationSize>
      </airsyncbase:BodyPreference>
      <rm:RightsManagementSupport>1</rm:RightsManagementSupport>
    </Options>
  </Fetch>
</ItemOperations>
```

Response

```
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations xmlns:airsyncbase="AirSync:" xmlns:email="Email:"
xmlns:airsyncbase="AirSyncBase:" xmlns:rm="RightsManagement:" xmlns="ItemOperations:">
  <Status>1</Status>
  <Response>
    <Fetch>
      <Status>1</Status>
      <airsyncbase:CollectionId>5</airsyncbase:CollectionId>
      <airsyncbase:ServerId>5:1</airsyncbase:ServerId>
      <airsyncbase:Class>Email</airsyncbase:Class>
      <Properties>
        <email:To>"T0SyncUser3" &lt;T0SyncUser3@contoso.com&gt;</email:To>
        <email:From>"T0SyncUser1" &lt;T0SyncUser1@contoso.com&gt;</email:From>
        <email:Subject>IRMEAS_Subj_Enc_DoNotForward_V141</email:Subject>
        <email:DateReceived>2010-06-30T23:44:31.053Z</email:DateReceived>
        <email:DisplayTo>T0SyncUser3</email:DisplayTo>
        <email:ThreadTopic>DoNotForward</email:ThreadTopic>
        <email:Importance>1</email:Importance>
        <email:Read>0</email:Read>
        <airsyncbase:Body>
          <airsyncbase:Type>1</airsyncbase:Type>
          <airsyncbase:EstimatedDataSize>64</airsyncbase:EstimatedDataSize>
          <airsyncbase:Data>This is a test message that we want to use.</airsyncbase:Data>
        </airsyncbase:Body>
        <email:MessageClass>IPM.Note</email:MessageClass>
        <email:InternetCPID>28591</email:InternetCPID>
        <email:Flag />
        <email:ContentClass>urn:content-classes:message</email:ContentClass>
        <airsyncbase:NativeBodyType>1</airsyncbase:NativeBodyType>
        <email2:ConversationId>…</email2:ConversationId>
        <email2:ConversationIndex>…</email2:ConversationIndex>
        <rm:RightsManagementLicense>
          <rm:Owner>0</rm:Owner>
          <rm:ContentOwner>T0SyncUser1@contoso.com</rm:ContentOwner>
          <rm:ReplyAllAllowed>1</rm:ReplyAllAllowed>
          <rm:EditAllowed>1</rm:EditAllowed>
          <rm:ReplyAllowed>1</rm:ReplyAllowed>
          <rm:ForwardAllowed>0</rm:ForwardAllowed>
          <rm:ExportAllowed>0</rm:ExportAllowed>
          <rm:ModifyRecipientsAllowed>0</rm:ModifyRecipientsAllowed>
          <rm:TemplateID>cf5cf348-a8d7-40d5-91ef-a600b88a395d</rm:TemplateID>
          <rm:ExtractAllowed>0</rm:ExtractAllowed>
```

```
        <rm:TemplateDescription>Recipients can read this message, but they can't forward,
print, or copy content. The conversation owner has full permission to their message and all
replies.</rm:TemplateDescription>
        <rm:ContentExpiryDate>9999-12-30T23:59:59.999Z</rm:ContentExpiryDate>
        <rm:TemplateName>Do Not Forward</rm:TemplateName>
        <rm:PrintAllowed>0</rm:PrintAllowed>
        <rm:ProgrammaticAccessAllowed>0</rm:ProgrammaticAccessAllowed>
      </rm:RightsManagementLicense>
    </Properties>
  </Fetch>
  </Response>
</ItemOperations>
```

4.7 Remove IRM Protection by Using the ItemOperations Command

To remove IRM protection from a rights-managed e-mail message, the user first uses the **Sync**
command to sync the e-mail message to the client. The client then uses the **ItemOperations**
command to remove rights management protection. This section includes both successful and
unsuccessful **ItemOperations** responses.

ItemOperations Request

The **ItemOperations** command request includes the **RemoveRightsManagementProtection**
element to remove IRM protection from the e-mail message.

```
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations xmlns:airsyncbase="AirSync:" xmlns:airsyncbase="AirSyncBase:"
xmlns="ItemOperations:" xmlns:rm="RightsManagement:">
  <Fetch>
    <Store>Mailbox</Store>
    <airsyncbase:CollectionId>5</airsyncbase:CollectionId>
    <airsyncbase:ServerId>5:1</airsyncbase:ServerId>
    <Options>
      <airsyncbase:BodyPreference>
        <airsyncbase:Type>1</airsyncbase:Type>
        <airsyncbase:TruncationSize>1024</airsyncbase:TruncationSize>
      </airsyncbase:BodyPreference>
      <rm:RightsManagementSupport>1</rm:RightsManagementSupport>
    </Options>
    <rm:RemoveRightsManagementProtection/>
  </Fetch>
</ItemOperations>
```

Successful ItemOperations Response

In this scenario, the **ItemOperations** command was successful because the **ExportAllowed** value
was set to **TRUE** for the rights policy template applied to the e-mail message. The e-mail message
included in the response has no IRM protection and includes the previously protected content in the
body of the message.

```
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations xmlns:airsyncbase="AirSync:" xmlns:email="Email:"
xmlns:airsyncbase="AirSyncBase:" xmlns:email2="Email2:" xmlns="ItemOperations:">
  <Status>1</Status>
  <Response>
    <Fetch>
```

```xml
        <Status>1</Status>
        <airsyncbase:CollectionId>5</airsyncbase:CollectionId>
        <airsyncbase:ServerId>5:1</airsyncbase:ServerId>
        <airsyncbase:Class>Email</airsyncbase:Class>
        <Properties>
          <email:To>"T0SyncUser3" &lt;T0SyncUser3@contoso.com&gt;</email:To>
          <email:From>"T0SyncUser1" &lt;T0SyncUser1@contoso.com&gt;</email:From>
          <email:Subject>Confidential</email:Subject>
          <email:DateReceived>2010-06-30T23:47:06.961Z</email:DateReceived>
          <email:DisplayTo>T0SyncUser3</email:DisplayTo>
          <email:ThreadTopic>Confidential</email:ThreadTopic>
          <email:Importance>1</email:Importance>
          <email:Read>0</email:Read>
          <airsyncbase:Body>
            <airsyncbase:Type>1</airsyncbase:Type>
            <airsyncbase:EstimatedDataSize>64</airsyncbase:EstimatedDataSize>
            <airsyncbase:Data>This is a test message that we want to use.</airsyncbase:Data>
          </airsyncbase:Body>
          <email:MessageClass>IPM.Note</email:MessageClass>
          <email:InternetCPID>28591</email:InternetCPID>
          <email:Flag />
          <email:ContentClass>urn:content-classes:message</email:ContentClass>
          <airsyncbase:NativeBodyType>2</airsyncbase:NativeBodyType>
          <email2:ConversationId>…</email2:ConversationId>
          <email2:ConversationIndex>…</email2:ConversationIndex>
        </Properties>
      </Fetch>
    </Response>
  </ItemOperations>
```

Unsuccessful ItemOperations Response

In this scenario, the **ItemOperations** command to remove rights management protection was not successful because the **ExportAllowed** value was set to **FALSE** for the rights policy template applied to the e-mail message. The **ItemOperations** command response includes the protected content in the body of the message, but the message is still a rights-managed e-mail message and is using the ViewOnly template to restrict editing, forwarding, replying, replying all, exporting, or extracting the content.

```xml
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations xmlns:airsync="AirSync:" xmlns:email="Email:"
xmlns:airsyncbase="AirSyncBase:" xmlns:rm="RightsManagement:" xmlns="ItemOperations:">
  <Status>1</Status>
  <Response>
    <Fetch>
      <Status>1</Status>
      <airsync:CollectionId>5</airsync:CollectionId>
      <airsync:ServerId>5:1</airsync:ServerId>
      <airsync:Class>Email</airsync:Class>
      <Properties>
        <email:To>"T0SyncUser3" &lt;T0SyncUser3@contoso.com&gt;</email:To>
        <email:From>"T0SyncUser1" &lt;T0SyncUser1@contoso.com&gt;</email:From>
        <email:Subject>Confidential</email:Subject>
        <email:DateReceived>2010-06-30T23:47:06.961Z</email:DateReceived>
        <email:DisplayTo>T0SyncUser3</email:DisplayTo>
        <email:ThreadTopic>Confidential</email:ThreadTopic>
        <email:Importance>1</email:Importance>
```

```
<email:Read>0</email:Read>
<airsyncbase:Body>
  <airsyncbase:Type>1</airsyncbase:Type>
  <airsyncbase:EstimatedDataSize>64</airsyncbase:EstimatedDataSize>
  <airsyncbase:Data>This is a test message that we want to use.</airsyncbase:Data>
</airsyncbase:Body>
<email:MessageClass>IPM.Note</email:MessageClass>
<email:InternetCPID>28591</email:InternetCPID>
<email:Flag />
<email:ContentClass>urn:content-classes:message</email:ContentClass>
<airsyncbase:NativeBodyType>2</airsyncbase:NativeBodyType>
<email2:ConversationId>…</email2:ConversationId>
<email2:ConversationIndex>…</email2:ConversationIndex>
<rm:RightsManagementLicense>
  <rm:Owner>0</rm:Owner>
  <rm:ContentOwner>T0SyncUser1v14.1@contoso.com</rm:ContentOwner>
  <rm:ReplyAllAllowed>0</rm:ReplyAllAllowed>
  <rm:EditAllowed>0</rm:EditAllowed>
  <rm:ReplyAllowed>0</rm:ReplyAllowed>
  <rm:ForwardAllowed>0</rm:ForwardAllowed>
  <rm:ExportAllowed>0</rm:ExportAllowed>
  <rm:ModifyRecipientsAllowed>0</rm:ModifyRecipientsAllowed>
  <rm:TemplateID>e9225d21-a80e-4642-81eb-d5e9afe3f33a</rm:TemplateID>
  <rm:ExtractAllowed>0</rm:ExtractAllowed>
  <rm:TemplateDescription>Description for template
'ViewOnly'</rm:TemplateDescription>
  <rm:ContentExpiryDate>9999-12-30T23:59:59.999Z</rm:ContentExpiryDate>
  <rm:TemplateName>ViewOnly</rm:TemplateName>
  <rm:PrintAllowed>0</rm:PrintAllowed>
  <rm:ProgrammaticAccessAllowed>0</rm:ProgrammaticAccessAllowed>
</rm:RightsManagementLicense>
</Properties>
</Fetch>
</Response>
</ItemOperations>
```

5 Security

5.1 Security Considerations for Implementers

This protocol requires that communication between the client and server occurs over an **HTTP** connection that uses **Secure Sockets Layer (SSL)**, as described in [MS-ASHTTP] section 1.5, 2.2.1.1.2.1, and 5.1.

5.2 Index of Security Parameters

None.

Release: November 18, 2013

6   Appendix A: Full XML Schema

For ease of implementation, this section contains the contents of the RightsManagement.xsd file, which represents the full **XML schema** for this protocol. The additional file that this schema file requires to operate correctly is listed in the following table.

File name	Defining specification
AirSyncBase.xsd	[MS-ASAIRS] section 6

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:airsyncbase=
    "AirSyncBase" xmlns="RightsManagement" targetNamespace="RightsManagement"
    elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:import namespace="AirSyncBase" schemaLocation="AirSyncBase.xsd"/>
  <xs:simpleType name="NonEmptyStringType">
    <xs:restriction base="xs:string">
      <xs:minLength value="1"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:element name="RightsManagementSupport" type="xs:boolean"/>
  <xs:element name="TemplateID" type="NonEmptyStringType"/>
  <xs:element name="RemoveRightsManagementProtection"
      type="airsyncbase:EmptyTag"/>
  <xs:element name="RightsManagementTemplates">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="RightsManagementTemplate" maxOccurs="20">
          <xs:complexType>
            <xs:sequence>
              <xs:element ref="TemplateID"/>
              <xs:element name="TemplateName" type="NonEmptyStringType"/>
              <xs:element name="TemplateDescription"
                  type="NonEmptyStringType"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="RightsManagementLicense">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Owner" type="xs:boolean"/>
        <xs:element name="ContentOwner" type="NonEmptyStringType"/>
        <xs:element name="ReplyAllAllowed" type="xs:boolean"/>
        <xs:element name="EditAllowed" type="xs:boolean"/>
        <xs:element name="ReplyAllowed" type="xs:boolean"/>
        <xs:element name="ForwardAllowed" type="xs:boolean"/>
        <xs:element name="ExportAllowed" type="xs:boolean"/>
        <xs:element name="ModifyRecipientsAllowed" type="xs:boolean"/>
        <xs:element ref="TemplateID"/>
        <xs:element name="ExtractAllowed" type="xs:boolean"/>
        <xs:element name="TemplateDescription" type="NonEmptyStringType"/>
        <xs:element name="ContentExpiryDate" type="xs:dateTime"/>
        <xs:element name="TemplateName" type="NonEmptyStringType"/>
        <xs:element name="PrintAllowed" type="xs:boolean"/>
        <xs:element name="ProgrammaticAccessAllowed" type="xs:boolean"/>
```

```
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </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 Service Pack 1 (SP1)

- 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.

8 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

9 Index

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