

[MS-ASWBXML]: ActiveSync WAP Binary XML (WBXML) Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
12/03/2008	1.0.0	Major	Initial Release.
04/10/2009	2.0.0	Major	Updated technical content and applicable product releases.
07/15/2009	3.0.0	Major	Revised and edited for technical content.
11/04/2009	4.0.0	Major	Updated and revised the technical content.
02/10/2010	5.0.0	Major	Updated and revised the technical content.
05/05/2010	6.0.0	Major	Updated and revised the technical content.
08/04/2010	7.0	Major	Significantly changed the technical content.

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1 Introduction

This document specifies a protocol for the **Wireless Application Protocol (WAP) Binary XML (WBXML)** features utilized by the ActiveSync protocols. This document specifies which WBXML functionality is used by the protocol and which is not. It also specifies the **token** codes and **code pages** used by the ActiveSync protocols.

1.1 Glossary

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

Charset
contacts
Secure Sockets Layer (SSL)
Wireless Application Protocol (WAP)
Wireless Application Protocol (WAP) Binary XML (WBXML)
XML

The following terms are specific to this document:

code page: A numeric encoding specifier used to tokenize **XML** tags.

token: A single-byte code that represents a specific **XML** tag.

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-ASCAL] Microsoft Corporation, "[ActiveSync Calendar Class Protocol Specification](#)", December 2008.

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

[MS-ASCNTC] Microsoft Corporation, "[ActiveSync Contact Class Protocol Specification](#)", December 2008.

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

[MS-ASHTTP] Microsoft Corporation, "[ActiveSync HTTP Protocol Specification](#)", December 2008.

[MS-ASNOTE] Microsoft Corporation, "[ActiveSync Notes Class Protocol Specification](#)", April 2009.

[MS-ASPROV] Microsoft Corporation, "[ActiveSync Provisioning Protocol Specification](#)", December 2008.

[MS-ASRM] Microsoft Corporation, "[ActiveSync Rights Management Protocol Specification](#)", August 2010.

[MS-ASTASK] Microsoft Corporation, "[ActiveSync Tasks Class Protocol Specification](#)", December 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>

[WBXML1.2] Martin, B., and Jano, B., Eds., "WAP Binary XML Content Format", W3C Note, June 1999, <http://www.w3.org/TR/wbxml/>

1.2.2 Informative References

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

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, <http://www.ietf.org/rfc/rfc2616.txt>

1.3 Overview

This document specifies how WBXML functionality is utilized by the ActiveSync protocols. This document also specifies the tokens and code pages used to perform the WBXML encoding.

1.4 Relationship to Other Protocols

The WBXML tokens and code pages specified in this protocol are used to compress the **XML** tags in request and response messages. The following table defines the ActiveSync protocol that specifies the XML namespace that corresponds to each of the code pages. Code pages are hard-coded on the server and cannot be changed by the client.

The code page numbers below are listed in decimal format.

Code page	Specification
Code page 0: AirSync	[MS-ASCMD] section 2.2.2.19
Code page 1: Contacts	[MS-ASCNTC]
Code page 2: Email	[MS-ASEMAIL]
Code page 3: Air Notify (not used)	(no longer used)
Code page 4: Calendar	[MS-ASCAL]
Code page 5: Move	[MS-ASCMD] section 2.2.2.10
Code page 6: ItemEstimate	[MS-ASCMD] section 2.2.2.7
Code page 7: FolderHierarchy	[MS-ASCMD] sections 2.2.2.2 , 2.2.2.3 , 2.2.2.4 , and 2.2.2.5
Code page 8: MeetingResponse	[MS-ASCMD] section 2.2.2.9
Code page 9: Tasks	[MS-ASTASK]

Code page	Specification
Code page 10: ResolveRecipients	[MS-ASCMD] section 2.2.2.13
Code page 11: ValidateCert	[MS-ASCMD] section 2.2.2.20
Code page 12: Contacts2	[MS-ASCNTC]
Code page 13: Ping	[MS-ASCMD] section 2.2.2.11
Code page 14: Provision	[MS-ASPROV]
Code page 15: Search	[MS-ASCMD] section 2.2.2.14
Code page 16: GAL	[MS-ASCMD] sections 2.2.2.13 and 2.2.2.14
Code page 17: AirSyncBase	[MS-ASAIRS]
Code page 18: Settings	[MS-ASCMD] section 2.2.2.16
Code page 19: DocumentLibrary	[MS-ASCMD] sections 2.2.2.8 and 2.2.2.14
Code page 20: ItemOperations	[MS-ASCMD] section 2.2.2.8
Code page 21: ComposeMail	[MS-ASCMD] sections 2.2.2.15 , 2.2.2.17 , and 2.2.2.18
Code page 22: Email2	[MS-ASEMAIL]
Code page 23: Notes	[MS-ASNOTE]
Code page 24: Rights Management	[MS-ASRM]

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

WBXML encoding of XML tags is appropriate for all messages sent and received by the ActiveSync protocol. This specification assumes that the reader is familiar with the WBXML standard. For more information about WBXML, see [\[WBXML1.2\]](#).

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

Token Name	Token	Reference
SWITCH_PAGE	0	[WBXML1.2]
END	1	[WBXML1.2]

Token Name	Token	Reference
ENTITY	2	[WBXML1.2]
STR_I	3	[WBXML1.2]
LITERAL	4	[WBXML1.2]
EXT_I_0	40	[WBXML1.2]
EXT_I_1	41	[WBXML1.2]
EXT_I_2	42	[WBXML1.2]
PI	43	[WBXML1.2]
LITERAL_C	44	[WBXML1.2]
EXT_T_0	80	[WBXML1.2]
EXT_T_1	81	[WBXML1.2]
EXT_T_2	82	[WBXML1.2]
STR_T	83	[WBXML1.2]
LITERAL_A	84	[WBXML1.2]
EXT_0	C0	[WBXML1.2]
EXT_1	C1	[WBXML1.2]
EXT_2	C2	[WBXML1.2]
OPAQUE	C3	[WBXML1.2]
LITERAL_AC	C4	[WBXML1.2]

2 Messages

2.1 Transport

ActiveSync messages are transported as HTTP POST messages, where the body of the message contains WBXML formatted data. The HTTP POST message header is specified in [\[MS-ASHTTP\]](#). The body of the HTTP message contains the XML required by the command being communicated in the message. The ActiveSync commands are specified in [\[MS-ASCMD\]](#).

2.2 Message Syntax

2.2.1 Namespaces

None.

2.2.2 WBXML

The XML tags in both request and response messages are encoded by using WBXML tokenization. WBXML is a standard for compressing an XML data stream for efficient transmission over a low bandwidth connection, such as wireless. The format used by the ActiveSync protocol is a subset of the WBXML standard.

2.2.2.1 WBXML Features Used in the Protocol

The XML format that is used by the ActiveSync protocol is a subset of the WBXML standard, as specified in [\[WBXML1.2\]](#). However, not all of the WBXML features specified in [\[WBXML1.2\]](#) are used by this specification.

The ActiveSync protocol uses the following [\[WBXML1.2\]](#) features:

- Tokens to encode XML tags
- Code pages to support multiple XML namespaces
- Inline strings

The ActiveSync protocol notifications use the following [\[WBXML1.2\]](#) features:

- Attribute encoding
- Opaque data

The ActiveSync protocols do not use the following [\[WBXML1.2\]](#) features:

- String tables
- Entities
- Processing instructions

2.2.2.2 Code Pages

The ActiveSync protocol supports the following code pages.

Code page	XML Namespace
0x0	AirSync
0x1	Contacts
0x2	Email
0x3	AirNotify
0x4	Calendar
0x5	Move
0x6	ItemEstimate
0x7	FolderHierarchy
0x8	MeetingResponse
0x9	Tasks
0xA	ResolveRecipients
0xB	ValidateCert
0xC	Contacts2
0xD	Ping
0xE	Provision
0xF	Search
0x10	Gal
0x11	AirSyncBase
0x12	Settings
0x13	DocumentLibrary
0x14	ItemOperations
0x15	ComposeMail
0x16	Email2
0x17	Notes

2.2.2.2.1 Code Page 0: AirSync

The following table lists the tags in code page 0.

Tag	Token
Sync	05
Responses	06

Tag	Token
Add	07
Change	08
Delete	09
Fetch	0A
SyncKey	0B
ClientId	0C
ServerId	0D
Status	0E
Collection	0F
Class	10
CollectionId	12
GetChanges	13
MoreAvailable	14
WindowSize	15
Commands	16
Options	17
FilterType	18
Conflict	1B
Collections	1C
ApplicationData	1D
DeletesAsMoves	1E
Supported	20
SoftDelete	21
MIMESupport	22
MIMETruncation	23
Wait	24
Limit	25
Partial	26
ConversationMode	27<1>
MaxItems	28<2>

Tag	Token
HeartbeatInterval	29<3>

2.2.2.2.2 Code Page 1: Contacts

The following table lists the tags in code page 1.

Tag	Token
Anniversary	05
AssistantName	06
AssistantTelephoneNumber	07
Birthday	08
Business2PhoneNumber	0C
BusinessCity	0D
BusinessCountry	0E
BusinessPostalCode	0F
BusinessState	10
BusinessStreet	11
BusinessFaxNumber	12
BusinessPhoneNumber	13
CarPhoneNumber	14
Categories	15
Category	16
Children	17
Child	18
CompanyName	19
Department	1A
Email1Address	1B
Email2Address	1C
Email3Address	1D
FileAs	1E
FirstName	1F
Home2PhoneNumber	20

Tag	Token
HomeCity	21
HomeCountry	22
HomePostalCode	23
HomeState	24
HomeStreet	25
HomeFaxNumber	26
HomePhoneNumber	27
JobTitle	28
LastName	29
MiddleName	2A
MobilePhoneNumber	2B
OfficeLocation	2C
OtherCity	2D
OtherCountry	2E
OtherPostalCode	2F
OtherState	30
OtherStreet	31
PagerNumber	32
RadioPhoneNumber	33
Spouse	34
Suffix	35
Title	36
Webpage	37
YomiCompanyName	38
YomiFirstName	39
YomiLastName	3A
Picture	3C
Alias	3D<4>
WeightedRank	3E<5>

2.2.2.2.3 Code Page 2: Email

The following table lists the tags in code page 2.

Tag	Token
DateReceived	0F
DisplayTo	11
Importance	12
MessageClass	13
Subject	14
Read	15
To	16
CC	17
From	18
ReplyTo	19
AllDayEvent	1A
Categories	1B<6>
Category	1C<7>
DTStamp	1D
EndTime	1E
InstanceType	1F
BusyStatus	20
Location	21
MeetingRequest	22
Organizer	23
RecurrenceId	24
Reminder	25
ResponseRequested	26
Recurrences	27
Recurrence	28
Recurrence_Type	29
Recurrence_Until	2A

Tag	Token
Recurrence_Occurrences	2B
Recurrence_Interval	2C
Recurrence_DayOfWeek	2D
Recurrence_DayOfMonth	2E
Recurrence_WeekOfMonth	2F
Recurrence_MonthOfYear	30
StartTime	31
Sensitivity	32
TimeZone	33
GlobalObjId	34
ThreadTopic	35
InternetCPID	39
Flag	3A
FlagStatus	3B
ContentClass	3C
FlagType	3D
CompleteTime	3E
DisallowNewTimeProposal	3F<8>

2.2.2.2.4 Code Page 3: AirNotify

Code page 3 is no longer in use, however, tokens 05 through 17 have been defined.

2.2.2.2.5 Code Page 4: Calendar

The following table lists the tags in code page 4.

Tag	Token
TimeZone	05
AllDayEvent	06
Attendees	07
Attendee	08
Attendee_Email	09
Attendee_Name	0A

Tag	Token
BusyStatus	0D
Categories	0E
Category	0F
DTStamp	11
EndTime	12
Exception	13
Exceptions	14
Exception_Deleted	15
Exception_StartTime	16
Location	17
MeetingStatus	18
Organizer_Email	19
Organizer_Name	1A
Recurrence	1B
Recurrence_Type	1C
Recurrence_Until	1D
Recurrence_Occurrences	1E
Recurrence_Interval	1F
Recurrence_DayOfWeek	20
Recurrence_DayOfMonth	21
Recurrence_WeekOfMonth	22
Recurrence_MonthOfYear	23
Reminder_MinsBefore	24
Sensitivity	25
Subject	26
StartTime	27
UID	28
Attendee_Status	29
Attendee_Type	2A
DisallowNewTimeProposal	33<9>

Tag	Token
ResponseRequested	34< 10 >
AppointmentReplyTime	35< 11 >
ResponseType	36< 12 >
CalendarType	37< 13 >
IsLeapMonth	38< 14 >
FirstDayOfWeek	39< 15 >
OnlineMeetingInternalLink	3A< 16 >

2.2.2.2.6 Code Page 5: Move

The following table lists the tags in code page 5.

Tag	Token
MoveItems	05
Move	06
SrcMsgId	07
SrcFldId	08
DstFldId	09
Response	0A
Status	0B
DstMsgId	0C

2.2.2.2.7 Code Page 6: ItemEstimate

The following table lists the tags in code page 6.

Tag	Token
GetItemEstimate	05
Version	06< 17 >
Collections	07
Collection	08
Class	09< 18 >
CollectionId	0A
DateTime	0B< 19 >

Tag	Token
Estimate	0C
Response	0D
Status	0E

2.2.2.2.8 Code Page 7: FolderHierarchy

The following table lists the tags in code page 7.

Tag	Token
DisplayName	07
ServerId	08
ParentId	09
Type	0A
Status	0C
Changes	0E
Add	0F
Delete	10
Update	11
SyncKey	12
FolderCreate	13
FolderDelete	14
FolderUpdate	15
FolderSync	16
Count	17

2.2.2.2.9 Code Page 8: MeetingResponse

The following table lists the tags in code page 8.

Tag	Token
CalendarId	05
CollectionId	06
MeetingResponse	07
RequestId	08

Tag	Token
Request	09
Result	0A
Status	0B
UserResponse	0C
InstanceId	0E

2.2.2.2.10 Code Page 9: Tasks

The following table lists the tags in code page 9.

Tag	Token
Categories	08
Category	09
Complete	0A
DateCompleted	0B
DueDate	0C
UTCDueDate	0D
Importance	0E
Recurrence	0F
Recurrence_Type	10
Recurrence_Start	11
Recurrence_Until	12
Recurrence_Occurrences	13
Recurrence_Interval	14
Recurrence_DayOfMonth	15
Recurrence_DayOfWeek	16
Recurrence_WeekOfMonth	17
Recurrence_MonthOfYear	18
Recurrence_Regenerate	19
Recurrence_DeadOccur	1A
ReminderSet	1B
ReminderTime	1C

Tag	Token
Sensitivity	1D
StartDate	1E
UTCStartDate	1F
Subject	20
OrdinalDate	22
SubOrdinalDate	23
CalendarType	24<20>
IsLeapMonth	25<21>
FirstDayOfWeek	26<22>

2.2.2.2.11 Code Page 10: ResolveRecipients

The following table lists the tags in code page 10.

Tag	Token
ResolveRecipients	05
Response	06
Status	07
Type	08
Recipient	09
DisplayName	0A
EmailAddress	0B
Certificates	0C
Certificate	0D
MiniCertificate	0E
Options	0F
To	10
CertificateRetrieval	11
RecipientCount	12
MaxCertificates	13
MaxAmbiguousRecipients	14
CertificateCount	15

Tag	Token
Availability	16< 23 >
StartTime	17< 24 >
EndTime	18< 25 >
MergedFreeBusy	19< 26 >
Picture	1A< 27 >
MaxSize	1B< 28 >
Data	1C< 29 >
MaxPictures	1D< 30 >

2.2.2.2.12 Code Page 11: ValidateCert

The following table lists the tags in code page 11.

Tag	Token
ValidateCert	05
Certificates	06
Certificate	07
CertificateChain	08
CheckCRL	09
Status	0A

2.2.2.2.13 Code Page 12: Contacts2

The following table lists the tags in code page 12.

Tag	Token
CustomerId	05
GovernmentId	06
IMAddress	07
IMAddress2	08
IMAddress3	09
ManagerName	0A
CompanyMainPhone	0B
AccountName	0C

Tag	Token
NickName	0D
MMS	0E

2.2.2.2.14 Code Page 13: Ping

The following table lists the tags in code page 13.

Tag	Token
Ping	05
AutdState (Not used by protocol)	06
Status	07
HeartbeatInterval	08
Folders	09
Folder	0A
Id	0B
Class	0C
MaxFolders	0D

2.2.2.2.15 Code Page 14: Provision

The following table lists the tags in code page 14.

Tag	Token
Provision	05
Policies	06
Policy	07
PolicyType	08
PolicyKey	09
Data	0A
Status	0B
RemoteWipe	0C
EASProvisionDoc	0D
DevicePasswordEnabled	0E
AlphanumericDevicePasswordRequired	0F

Tag	Token
DeviceEncryptionEnabled	10
RequireStorageCardEncryption (equivalent to DeviceEncryptionEnabled)	10
PasswordRecoveryEnabled	11
AttachmentsEnabled	13
MinDevicePasswordLength	14
MaxInactivityTimeDeviceLock	15
MaxDevicePasswordFailedAttempts	16
MaxAttachmentSize	17
AllowSimpleDevicePassword	18
DevicePasswordExpiration	19
DevicePasswordHistory	1A
AllowStorageCard	1B
AllowCamera	1C
RequireDeviceEncryption	1D
AllowUnsignedApplications	1E
AllowUnsignedInstallationPackages	1F
MinDevicePasswordComplexCharacters	20
AllowWiFi	21
AllowTextMessaging	22
AllowPOPIMAPEmail	23
AllowBluetooth	24
AllowIrDA	25
RequireManualSyncWhenRoaming	26
AllowDesktopSync	27
MaxCalendarAgeFilter	28
AllowHTMLEmail	29
MaxEmailAgeFilter	2A
MaxEmailBodyTruncationSize	2B
MaxEmailHTMLBodyTruncationSize	2C
RequireSignedSMIMEMessages	2D

Tag	Token
RequireEncryptedSMIMEMessages	2E
RequireSignedSMIMEAlgorithm	2F
RequireEncryptionSMIMEAlgorithm	30
AllowSMIMEEncryptionAlgorithmNegotiation	31
AllowSMIMESoftCerts	32
AllowBrowser	33
AllowConsumerEmail	34
AllowRemoteDesktop	35
AllowInternetSharing	36
UnapprovedInROMApplicationList	37
ApplicationName	38
ApprovedApplicationList	39
Hash	3A

2.2.2.2.16 Code Page 15: Search

The following table lists the tags in code page 15.

Tag	Token
Search	05
Store	07
Name	08
Query	09
Options	0A
Range	0B
Status	0C
Response	0D
Result	0E
Properties	0F
Total	10
EqualTo	11
Value	12

Tag	Token
And	13
Or	14< 31 >
FreeText	15
DeepTraversal	17
LongId	18
RebuildResults	19
LessThan	1A
GreaterThan	1B
UserName	1E
Password	1F
ConversationId	20
Picture	21< 32 >
MaxSize	22< 33 >
MaxPictures	23< 34 >

Note that tokens 06 and 16 are not supported.

2.2.2.2.17 Code Page 16: GAL

The following table lists the tags in code page 16.

Tag	Token
DisplayName	05
Phone	06
Office	07
Title	08
Company	09
Alias	0A
FirstName	0B
LastName	0C
HomePhone	0D
MobilePhone	0E
EmailAddress	0F

Tag	Token
Picture	10< 35 >
Status	11< 36 >
Data	12< 37 >

2.2.2.2.18 Code Page 17: AirSyncBase

The following table lists the tags in code page 17.

Tag	Token
BodyPreference	05
Type	06
TruncationSize	07
AllOrNone	08
Body	0A
Data	0B
EstimatedDataSize	0C
Truncated	0D
Attachments	0E
Attachment	0F
DisplayName	10
FileReference	11
Method	12
ContentId	13
ContentLocation	14 (not used)
IsInline	15
NativeBodyType	16
ContentType	17
Preview	18< 38 >
BodyPartPreference	19< 39 >
BodyPart	1A< 40 >
Status	1B< 41 >

2.2.2.2.19 Code Page 18: Settings

The following table lists the tags in code page 18.

Tag	Token
Settings	05
Status	06
Get	07
Set	08
Oof	09
OofState	0A
StartTime	0B
EndTime	0C
OofMessage	0D
AppliesToInternal	0E
AppliesToExternalKnown	0F
AppliesToExternalUnknown	10
Enabled	11
ReplyMessage	12
BodyType	13
DevicePassword	14
Password	15
DeviceInformaton	16
Model	17
IMEI	18
FriendlyName	19
OS	1A
OSLanguage	1B
PhoneNumber	1C
UserInfoation	1D
EmailAddresses	1E
SmtpAddress	1F

Tag	Token
UserAgent	20
EnableOutboundSMS	21< 42 >
MobileOperator	22< 43 >
PrimarySmtpAddress	23< 44 >
Accounts	24< 45 >
Account	25< 46 >
AccountId	26< 47 >
AccountName	27< 48 >
UserDisplayName	28< 49 >
SendDisabled	29< 50 >
ihsManagementInformation	2B< 51 >

2.2.2.2.20 Code Page 19: DocumentLibrary

The following table lists the tags in code page 19.

Tag	Token
LinkId	05
DisplayName	06
IsFolder	07
CreationDate	08
LastModifiedDate	09
IsHidden	0A
ContentLength	0B
ContentType	0C

2.2.2.2.21 Code Page 20: ItemOperations

The following table lists the tags in code page 20.

Tag	Token
ItemOperations	05
Fetch	06
Store	07

Tag	Token
Options	08
Range	09
Total	0A
Properties	0B
Data	0C
Status	0D
Response	0E
Version	0F
Schema	10
Part	11
EmptyFolderContents	12
DeleteSubFolders	13
UserName	14
Password	15
Move	16 <52>
DstFldId	17 <53>
ConversationId	18 <54>
MoveAlways	19 <55>

2.2.2.2.22 Code Page 21: ComposeMail

The following table lists the tags in code page 21.[<56>](#)

Tag	Token
SendMail	05
SmartForward	06
SmartReply	07
SaveInSentItems	08
ReplaceMime	09
Source	0B
FolderId	0C
ItemId	0D

Tag	Token
LongId	0E
InstanceId	0F
MIME	10
ClientId	11
Status	12
AccountId	13<57>

2.2.2.2.23 Code Page 22: Email2

The following table lists the tags in code page 22.<58>

Tag	Token
UmCallerID	05
UmUserNotes	06
UmAttDuration	07
UmAttOrder	08
ConversationId	09
ConversationIndex	0A
LastVerbExecuted	0B
LastVerbExecutionTime	0C
ReceivedAsBcc	0D
Sender	0E
CalendarType	0F
IsLeapMonth	10
AccountId	11<59>
FirstDayOfWeek	12<60>
MeetingMessageType	13<61>

2.2.2.2.24 Code Page 23: Notes

The following table lists the tags in code page 23.<62>

Tag	Token
Subject	05

Tag	Token
MessageClass	06
LastModifiedDate	07
Categories	08
Category	09

2.2.2.2.25 Code Page 24: RightsManagement

The following table lists the tags in code page 24. [<63>](#)

Tag	Value
RightsManagementSupport	05
RightsManagementTemplates	06
RightsManagementTemplate	07
RightsManagementLicense	08
EditAllowed	09
ReplyAllowed	0A
ReplyAllAllowed	0B
ForwardAllowed	0C
ModifyRecipientsAllowed	0D
ExtractAllowed	0E
PrintAllowed	0F
ExportAllowed	10
ProgrammaticAccessAllowed	11
RMOwner	12
ContentExpiryDate	13
TemplateID	14
TemplateName	15
TemplateDescription	16
ContentOwner	17
RemoveRightsManagementDistribution	18

3 Protocol Details

3.1 Common 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.

The abstract data model follows what is specified in [\[WBXML1.2\]](#).

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

Message processing is specified in [\[WBXML1.2\]](#), in the Document Tokenisation section.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

4 Protocol Examples

The following examples show the WBXML encoding of the messages, and provide a byte-by-byte description of the encoding.

4.1 Example 1

The following example shows the WBXML encoding of a server response that contains a new **contact**.

4.1.1 XML Message

```
<?xml version="1.0" encoding="utf-8"?>
<Sync xmlns="AirSync:" xmlns:airsyncbase="AirSyncBase:" xmlns:contacts="Contacts:">
  <Collections>
    <Collection>
      <Class>Contacts</Class>
      <SyncKey>2</SyncKey>
      <CollectionId>2</CollectionId>
      <Status>1</Status>
      <Commands>
        <Add>
          <ServerId>2:1</ServerId>
          <ApplicationData>
            <airsyncbase:Body>
              <airsyncbase:Type>1</airsyncbase:Type>
              <airsyncbase:EstimatedDataSize>0</airsyncbase:EstimatedDataSize>
              <airsyncbase:Truncated>1</airsyncbase:Truncated>
            </airsyncbase:Body>
            <contacts:FileAs>Hall, Don</contacts:FileAs>
            <contacts:FirstName>Don</contacts:FirstName>
            <contacts:LastName>Hall</contacts:LastName>
            <airsyncbase:NativeBodyType>1</airsyncbase:NativeBodyType>
          </ApplicationData>
        </Add>
      </Commands>
    </Collection>
  </Collections>
</Sync>
```

4.1.2 WBXML Encoding

```
03 01 6A 00 45 5C 4F 50 03 43 6F 6E 74 61 63 74 73 00 01 4B 03 32 00 01 52 03 32 00 01 4E 03
31 00 01 56 47 4D 03 32 3A 31 00 01 5D 00 11 4A 46 03 31 00 01 4C 03 30 00 01 4D 03 31 00 01
01 00 01 5E 03 48 61 6C 6C 2C 20 44 6F 6E 00 01 5F 03 44 6F 6E 00 01 69 03 48 61 6C 6C 00 01
00 11 56 03 31 00 01 01 01 01 01 01 01
```

```
..j.E\OP.Contacts..K.2..R.2..N.1..VGM.2:1..]..JF.1..L.0..M.1.....^..Hall,
Don.._..Don..i.Hall....V.1.....
```

4.1.3 Byte Encoding

Bytes	Description
03	Version number – WBXML version 1.3

Bytes	Description
01	Unknown public identifier
6A	Charset = UTF-8
00	String table length
45	<airsync:Sync>, with content (0x05 + 0x40)
5C	<airsync:Collections>, with content
4F	<airsync:Collection>, with content
50	<airsync:Class>, with content
03	Inline string follows
43 6F 6E 74 61 63 74 73 00	"contacts" (the 00 is the end of the string)
01	</airsync:Class>
4B	<airsync:SyncKey>, with content
03	Inline string follows
32 00	"2"
01	</airsync:SyncKey>
52	<airsync:CollectionID>, with content
03	Inline string follows
32 00	"2"
01	</airsync:CollectionID>
4E	<airsync:Status>, with content
03	Inline string follows
31 00	"1"
01	</airsync:Status>
56	<airsync:Commands>, with content
47	<airsync:Add>, with content
4D	<airsync:ServerId>, with content
03	Inline string follows
32 3A 31 00	"2:1"
01	</airsync:ServerId>
5D	<airsync:ApplicationData>, with content
00 11	Select code page 17 (AirSyncBase)

Bytes	Description
4A	<airsynibase:Body>, with content
46	<airsynibase:Type>, with content
03	Inline string follows
31 00	"1"
01	</airsynibase:Type>
4C	<airsynibase:EstimatedDataSize>, with content
03	Inline string follows
30 00	"0"
01	</airsynibase:EstimatedDataSize>
4d	<airsynibase:Truncated>, with content
03	Inline string follows
31 00	"1"
01	</airsynibase:Truncated>
01	</airsynibase:Body>
00 01	Select code page 1 (Contacts)
5E	<contacts:FileAs>, with content
03	Inline string follows
48 61 6C 6C 2C 20 44 6F 6E 00	"Hall, Don"
01	</contacts:FileAs>
5F	<contacts:FirstName>, with content
03	Inline string follows
44 6F 6E 00	"Don"
01	</contacts:FirstName>
69	<contacts:LastName>, with content
03	Inline string follows
48 61 6C 6C 00	"Hall"
01	</contacts:LastName>
00 11	Select code page 17 (AirSyncBase)
56	<airsynibase:NativeBodyType>, with content
03	Inline string follows

Bytes	Description
31 00	"1"
01	</airsyncbase:NativeBodyType>
01	</airsync:ApplicationData>
01	</airsync:Add>
01	</airsync:Commands>
01	</airsync:Collection>
01	</airsync:Collections>
01	</airsync:Sync>

5 Security

5.1 Security Considerations for Implementers

In most cases, all communication between the client and server happens across an HTTP connection secured by the Secure Sockets Layer (SSL) protocol as specified in [\[RFC2616\]](#). The **SSL** connection is assumed to be secure enough to transmit confidential data, such as user credentials and sensitive e-mail. The SSL certificate on the server is assumed to be trusted by the client application.

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products:

- Microsoft® Exchange Server 2007 Service Pack 3 (SP3)
- Microsoft® Exchange Server 2010
- Microsoft® Exchange Server 2010 Service Pack 1 (SP1)

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. 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 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 product does not follow the prescription.

[<1> Section 2.2.2.2.1:](#) The ConversationMode tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<2> Section 2.2.2.2.1:](#) The MaxItems tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<3> Section 2.2.2.2.1:](#) The HeartbeatInterval tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<4> Section 2.2.2.2.2:](#) The Alias tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<5> Section 2.2.2.2.2:](#) The WeightedRank tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<6> Section 2.2.2.2.3:](#) The Categories tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<7> Section 2.2.2.2.3:](#) The Category tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<8> Section 2.2.2.2.3:](#) The DisallowNewTimeProposal tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<9> Section 2.2.2.2.5:](#) The DisallowNewTimeProposal tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<10> Section 2.2.2.2.5:](#) The ResponseRequested tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<11> Section 2.2.2.2.5:](#) The AppointmentReplyTime tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<12> Section 2.2.2.2.5:](#) The ResponseType tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<13> Section 2.2.2.2.5:](#) The CalendarType tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<14> Section 2.2.2.2.5:](#) The IsLeapMonth tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<15> Section 2.2.2.2.5:](#) The FirstDayOfWeek tag is not supported when the MS-ASProtocolVersion header is set to 14.0 or 12.1.

[<16> Section 2.2.2.2.5:](#) The OnlineMeetingInternalLink tag is not supported when the MS-ASProtocolVersion header is set to 14.0 or 12.1.

[<17> Section 2.2.2.2.7:](#) The Version tag is only supported when the MS-ASProtocolVersion header is set to 12.1.

[<18> Section 2.2.2.2.7:](#) The Class tag is only supported when the MS-ASProtocolVersion header is set to 12.1. The <Class> tag defined in code page 0 should be used in all other instances.

[<19> Section 2.2.2.2.7:](#) The DateTime tag is only supported when the MS-ASProtocolVersion header is set to 12.1.

[<20> Section 2.2.2.2.10:](#) The CalendarType tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<21> Section 2.2.2.2.10:](#) The IsLeapMonth tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<22> Section 2.2.2.2.10:](#) The FirstDayOfWeek tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<23> Section 2.2.2.2.11:](#) The Availability tag is not supported if the MS-ASProtocolVersion header is set to 12.1.

[<24> Section 2.2.2.2.11:](#) The StartTime tag is not supported if the MS-ASProtocolVersion header is set to 12.1.

[<25> Section 2.2.2.2.11:](#) The EndTime tag is not supported if the MS-ASProtocolVersion header is set to 12.1.

[<26> Section 2.2.2.2.11:](#) The MergedFreeBusy tag is not supported if the MS-ASProtocolVersion header is set to 12.1.

[<27> Section 2.2.2.2.11:](#) The Picture tag is not supported if the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<28> Section 2.2.2.2.11:](#) The MaxSize tag is not supported if the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<29> Section 2.2.2.2.11:](#) The Data tag is not supported if the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<30> Section 2.2.2.2.11:](#) The MaxPictures tag is not supported if the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<31> Section 2.2.2.2.16:](#) The Or tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<32> Section 2.2.2.2.16:](#) The Picture tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<33> Section 2.2.2.2.16:](#) The MaxSize tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<34> Section 2.2.2.2.16:](#) The MaxPictures tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<35> Section 2.2.2.2.17:](#) The Picture tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<36> Section 2.2.2.2.17:](#) The Status tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<37> Section 2.2.2.2.17:](#) The Data tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<38> Section 2.2.2.2.18:](#) The Preview tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<39> Section 2.2.2.2.18:](#) The BodyPartPreference tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.

[<40> Section 2.2.2.2.18:](#) The BodyPart tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.

[<41> Section 2.2.2.2.18:](#) The Status tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.

[<42> Section 2.2.2.2.19:](#) The EnableOutboundSMS tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<43> Section 2.2.2.2.19:](#) The MobileOperator tag is not supported when the MS-ASProtocolVersion header is set to 12.1.

[<44> Section 2.2.2.2.19:](#) The PrimarySmtpAddress tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<45> Section 2.2.2.2.19:](#) The Accounts tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<46> Section 2.2.2.2.19:](#) The Account tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<47> Section 2.2.2.2.19:](#) The AccountId tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<48> Section 2.2.2.2.19:](#) The AccountName tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<49> Section 2.2.2.2.19:](#) The UserDisplayName tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<50> Section 2.2.2.2.19:](#) The SendDisabled tag is not supported when the MS-ASProtocolVersion header is set to 12.1 or 14.0.

[<51> Section 2.2.2.2.19:](#) The `ihManagementInformation` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1 or 14.0.

[<52> Section 2.2.2.2.21:](#) The `Move` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<53> Section 2.2.2.2.21:](#) The `DstFldId` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<54> Section 2.2.2.2.21:](#) The `ConversationId` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<55> Section 2.2.2.2.21:](#) The `MoveAlways` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<56> Section 2.2.2.2.22:](#) This code page is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<57> Section 2.2.2.2.22:](#) The `AccountId` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1 or 14.0.

[<58> Section 2.2.2.2.23:](#) This code page is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<59> Section 2.2.2.2.23:](#) The `AccountId` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1 or 14.0.

[<60> Section 2.2.2.2.23:](#) The `FirstDayOfWeek` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1 or 14.0.

[<61> Section 2.2.2.2.23:](#) The `MeetingMessageType` tag is not supported when the `MS-ASProtocolVersion` header is set to 12.1 or 14.0.

[<62> Section 2.2.2.2.24:](#) This code page is not supported when the `MS-ASProtocolVersion` header is set to 12.1.

[<63> Section 2.2.2.2.25:](#) This code page 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-ASWBXML] protocol document between the May 2010 and August 2010 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
1.2.1 Normative References	55751 Moved [MS-OXGLOS] from Normative References section to Informative References section.	N	Content update.
1.2.1 Normative References	55164 Added reference to [MS-ASRM].	N	Content update.
1.2.1 Normative References	57647 Added references to [MS-ASAIRS] and [MS-ASNOTE].	N	Content update.
1.4 Relationship to Other Protocols	55164 Added a reference to [MS-ASRM] for code page 24.	N	New content added.
2.2.1 Namespaces	55154 New section.	N	Content update.
2.2.2.2.1 Code Page 0: AirSync	55177 Removed the Version tag since it is no longer supported.	Y	Content removed.
2.2.2.2.6 Code Page 5: Move	57410 Changed name of token 5 from "Moves" to "MoveItems" for uniformity with [MS-ASCMD].	Y	Content update.
2.2.2.2.16 Code Page 15:	54062 Removed the Schema tag since it is not supported	Y	Content removed.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
Search	by the Search command.		
4.1.1 XML Message	57460 Revised namespace prefixes for consistency.	N	Content update.
4.1.3 Byte Encoding	57460 Added namespace prefixes to element names.	N	Content update.
6 Appendix A: Product Behavior	56663 Removed "Beta" from Exchange Server 2010 SP1 product name.	N	Content update.
6 Appendix A: Product Behavior	56981 Changed product behavior note from an RTM version to a service pack.	N	Content update.
Global	55921 Changed reference name from [WBXML] to [WBXML1.2].	N	Content update.

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