

[MS-ASWBXML]:

Exchange ActiveSync: WAP Binary XML (WBXML) Algorithm

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Revision Summary

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12/3/2008	1.0.0	Major	Initial Release.
4/10/2009	2.0.0	Major	Updated technical content and applicable product releases.
7/15/2009	3.0.0	Major	Revised and edited for technical content.
11/4/2009	4.0.0	Major	Updated and revised the technical content.
2/10/2010	5.0.0	Major	Updated and revised the technical content.
5/5/2010	6.0.0	Major	Updated and revised the technical content.
8/4/2010	7.0	Major	Significantly changed the technical content.
11/3/2010	8.0	Major	Significantly changed the technical content.
3/18/2011	8.1	Minor	Clarified the meaning of the technical content.
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1 Introduction

The Exchange ActiveSync: WAP Binary XML (WBXML) Algorithm incorporates **Wireless Application Protocol (WAP) Binary XML (WBXML)** functionality into the ActiveSync protocols by mapping ActiveSync **XML schema** elements to numeric code page values. This enables ActiveSync clients to encode **XML** requests into WBXML for transmission to an ActiveSync server.

Sections 1.6 and 2 of this specification are normative. All other sections and examples in this specification are informative.

1.1 Glossary

This document uses the following terms:

contact: A person, company, or other entity that is stored in a directory and is associated with one or more unique identifiers and attributes, such as an Internet message address or login name.

Hypertext Transfer Protocol (HTTP): An application-level protocol for distributed, collaborative, hypermedia information systems (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.

Secure Sockets Layer (SSL): A security protocol that supports confidentiality and integrity of messages in client and server applications that communicate over open networks. SSL supports server and, optionally, client authentication using X.509 certificates [\[X509\]](#) and [\[RFC5280\]](#). SSL is superseded by Transport Layer Security (TLS). TLS version 1.0 is based on SSL version 3.0 [\[SSL3\]](#).

WBXML code page: A map used to convert XML to Wireless Application Protocol (WAP) Binary XML (WBXML) that specifies the one-to-one relationships between the XML tags of a namespace and the tags' numeric representations called WBXML tokens. Each WBXML code page corresponds to an XML namespace.

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

Wireless Application Protocol (WAP) Binary XML (WBXML): A compact binary representation of **XML** that is designed to reduce the transmission size of XML documents over narrowband communication channels.

XML: The Extensible Markup Language, as described in [\[XML1.0\]](#).

XML namespace: A collection of names that is used to identify elements, types, and attributes in XML documents identified in a URI reference [\[RFC3986\]](#). A combination of XML namespace and local name allows XML documents to use elements, types, and attributes that have the same names but come from different sources. For more information, see [\[XMLNS-2ED\]](#).

XML schema: A description of a type of XML document that is typically expressed in terms of constraints on the structure and content of documents of that type, in addition to the basic syntax constraints that are imposed by **XML** itself. An XML schema provides a view of a document type at a relatively high level of abstraction.

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

1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents

in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

1.2.1 Normative References

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

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

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

[WBXML1.2] Martin, B., and Jano, B., Eds., "WAP Binary XML Content Format", W3C Note, June 1999, <http://www.w3.org/1999/06/NOTE-wbxml-19990624>

1.2.2 Informative References

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

[MS-ASCAL] Microsoft Corporation, "[Exchange ActiveSync: Calendar Class Protocol](#)".

[MS-ASCNTC] Microsoft Corporation, "[Exchange ActiveSync: Contact Class Protocol](#)".

[MS-ASDOC] Microsoft Corporation, "[Exchange ActiveSync: Document Class Protocol](#)".

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

[MS-ASNOTE] Microsoft Corporation, "[Exchange ActiveSync: Notes Class Protocol](#)".

[MS-ASPROV] Microsoft Corporation, "[Exchange ActiveSync: Provisioning Protocol](#)".

[MS-ASRM] Microsoft Corporation, "[Exchange ActiveSync: Rights Management Protocol](#)".

[MS-ASTASK] Microsoft Corporation, "[Exchange ActiveSync: Tasks Class Protocol](#)".

1.3 Overview

This algorithm maps ActiveSync **XML schema** elements to numeric code page values for use by the ActiveSync protocols, enabling ActiveSync clients to encode **WBXML** requests for transmission to an ActiveSync server.

This algorithm provides **WBXML tokens** and **WBXML code pages** that allow clients and servers to compress the **XML** tags in request and response messages. WBXML code pages are hard-coded on the server and cannot be changed by the client. The WBXML code pages correspond to **XML namespaces**.

1.4 Relationship to Protocols and Other Algorithms

The **XML namespaces** that are used by this algorithm are described in the ActiveSync protocol specifications, as shown in the following table.

The **WBXML code page** numbers in the table are listed in decimal format.

WBXML code page	Specification
WBXML code page 0: AirSync	[MS-ASCMD] section 2.2.1.21
WBXML code page 1: Contacts	[MS-ASCNTC]
WBXML code page 2: Email	[MS-AEMAIL]
WBXML code page 3: AirNotify	(no longer used)
WBXML code page 4: Calendar	[MS-ASCAL]
WBXML code page 5: Move	[MS-ASCMD] section 2.2.1.12
WBXML code page 6: GetItemEstimate	[MS-ASCMD] section 2.2.1.9
WBXML code page 7: FolderHierarchy	[MS-ASCMD] sections 2.2.1.3, 2.2.1.4, 2.2.1.5, 2.2.1.6, and 2.2.1.8
WBXML code page 8: MeetingResponse	[MS-ASCMD] section 2.2.1.11
WBXML code page 9: Tasks	[MS-ASTASK]
WBXML code page 10: ResolveRecipients	[MS-ASCMD] section 2.2.1.15
WBXML code page 11: ValidateCert	[MS-ASCMD] section 2.2.1.22
WBXML code page 12: Contacts2	[MS-ASCNTC]
WBXML code page 13: Ping	[MS-ASCMD] section 2.2.1.13
WBXML code page 14: Provision	[MS-ASPROV]
WBXML code page 15: Search	[MS-ASCMD] section 2.2.1.16
WBXML code page 16: GAL	[MS-ASCMD] section 2.2.1.16
WBXML code page 17: AirSyncBase	[MS-ASAIRS]
WBXML code page 18: Settings	[MS-ASCMD] section 2.2.1.18
WBXML code page 19: DocumentLibrary	[MS-ASDOC]
WBXML code page 20: ItemOperations	[MS-ASCMD] sections 2.2.1.10
WBXML code page 21: ComposeMail	[MS-ASCMD] sections 2.2.1.17, 2.2.1.19, and 2.2.1.20
WBXML code page 22: Email2	[MS-AEMAIL]
WBXML code page 23: Notes	[MS-ASNOTE]
WBXML code page 24: Rights Management	[MS-ASRM]
WBXML code page 25: Find	[MS-ASCMD] section 2.2.1.2

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

1.5 Applicability Statement

WBXML is used as a compact transmission format for mobile clients, which typically have little memory and bandwidth. WBXML encoding of **XML** tags is appropriate for all messages sent and received by using the ActiveSync protocols.

1.6 Standards Assignments

This algorithm uses the global **WBXML tokens** listed in the following table.

Token name	Token	Reference
SWITCH_PAGE	0	[WBXML1.2]
END	1	[WBXML1.2]
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 Algorithm Details

2.1 ActiveSync WBXML Algorithm Details

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

This section specifies the algorithm to encode XML request and response messages into WBXML format and to decode WBXML data into XML request and response messages. This algorithm is used by clients and servers.

2.1.1 Abstract Data Model

None.

2.1.2 Initialization

The **XML** tags in both request and response messages are encoded by using **WBXML** tokenization, as specified in [\[WBXML1.2\]](#). WBXML uses **WBXML code pages** to map XML tags to **WBXML tokens**. WBXML parsers MUST use the WBXML code pages specified in the following sections.

2.1.2.1 Code Pages

This algorithm supports the following **WBXML code pages**.

Code page	XML namespace
0	AirSync
1	Contacts
2	Email
3	AirNotify
4	Calendar
5	Move
6	GetItemEstimate
7	FolderHierarchy
8	MeetingResponse
9	Tasks
10	ResolveRecipients
11	ValidateCert
12	Contacts2
13	Ping

Code page	XML namespace
14	Provision
15	Search
16	Gal
17	AirSyncBase
18	Settings
19	DocumentLibrary
20	ItemOperations
21	ComposeMail
22	Email2
23	Notes
24	RightsManagement
25	Find

2.1.2.1.1 Code Page 0: AirSync

The tags and tokens in **WBXML code page 0** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Sync	0x05	All
Responses	0x06	All
Add	0x07	All
Change	0x08	All
Delete	0x09	All
Fetch	0x0A	All
SyncKey	0x0B	All
ClientId	0x0C	All
ServerId	0x0D	All
Status	0x0E	All
Collection	0x0F	All
Class	0x10	All
CollectionId	0x12	All

Tag name	Token	Protocol versions
GetChanges	0x13	All
MoreAvailable	0x14	All
WindowSize	0x15	All
Commands	0x16	All
Options	0x17	All
FilterType	0x18	All
Truncation	0x19	2.5
Conflict	0x1B	All
Collections	0x1C	All
ApplicationData	0x1D	All
DeletesAsMoves	0x1E	All
Supported	0x20	All
SoftDelete	0x21	All
MIMESupport	0x22	All
MIMETruncation	0x23	All
Wait	0x24	12.1, 14.0, 14.1, 16.0, 16.1
Limit	0x25	12.1, 14.0, 14.1, 16.0, 16.1
Partial	0x26	12.1, 14.0, 14.1, 16.0, 16.1
ConversationMode	0x27	14.0, 14.1, 16.0, 16.1
MaxItems	0x28	14.0, 14.1, 16.0, 16.1
HeartbeatInterval	0x29	14.0, 14.1, 16.0, 16.1

2.1.2.1.2 Code Page 1: Contacts

The tags and tokens in **WBXML code page 1** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Anniversary	0x05	All
AssistantName	0x06	All
AssistantPhoneNumber	0x07	All
Birthday	0x08	All

Tag name	Token	Protocol versions
Body — see note 1 following this table	0x09	2.5
BodySize	0x0A	2.5
BodyTruncated	0x0B	2.5
Business2PhoneNumber	0x0C	All
BusinessAddressCity	0x0D	All
BusinessAddressCountry	0x0E	All
BusinessAddressPostalCode	0x0F	All
BusinessAddressState	0x10	All
BusinessAddressStreet	0x11	All
BusinessFaxNumber	0x12	All
BusinessPhoneNumber	0x13	All
CarPhoneNumber	0x14	All
Categories	0x15	All
Category	0x16	All
Children	0x17	All
Child	0x18	All
CompanyName	0x19	All
Department	0x1A	All
Email1Address	0x1B	All
Email2Address	0x1C	All
Email3Address	0x1D	All
FileAs	0x1E	All
FirstName	0x1F	All
Home2PhoneNumber	0x20	All
HomeAddressCity	0x21	All
HomeAddressCountry	0x22	All
HomeAddressPostalCode	0x23	All
HomeAddressState	0x24	All
HomeAddressStreet	0x25	All
HomeFaxNumber	0x26	All
HomePhoneNumber	0x27	All
JobTitle	0x28	All

Tag name	Token	Protocol versions
LastName	0x29	All
MiddleName	0x2A	All
MobilePhoneNumber	0x2B	All
OfficeLocation	0x2C	All
OtherAddressCity	0x2D	All
OtherAddressCountry	0x2E	All
OtherAddressPostalCode	0x2F	All
OtherAddressState	0x30	All
OtherAddressStreet	0x31	All
PagerNumber	0x32	All
RadioPhoneNumber	0x33	All
Spouse	0x34	All
Suffix	0x35	All
Title	0x36	All
WebPage	0x37	All
YomiCompanyName	0x38	All
YomiFirstName	0x39	All
YomiLastName	0x3A	All
Picture	0x3C	All
Alias	0x3D	14.0, 14.1, 16.0, 16.1
WeightedRank	0x3E	14.0, 14.1, 16.0, 16.1

Note 1: The **Body** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Body** tag in WBXML code page 1 with protocol versions 12.0, 12.1, 14.0, 14.1, 16.0, and 16.1.

2.1.2.1.3 Code Page 2: Email

The tags and tokens in **WBXML code page 2** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Attachment	0x05	2.5
Attachments — see note 1 following this table	0x06	2.5
AttName	0x07	2.5

Tag name	Token	Protocol versions
AttSize	0x08	2.5
Att0id	0x09	2.5
AttMethod	0x0A	2.5
Body — see note 2 following this table	0x0C	2.5
BodySize	0x0D	2.5
BodyTruncated	0x0E	2.5
DateReceived	0x0F	All
DisplayName	0x10	2.5
DisplayTo	0x11	All
Importance	0x12	All
MessageClass	0x13	All
Subject	0x14	All
Read	0x15	All
To	0x16	All
Cc	0x17	All
From	0x18	All
ReplyTo	0x19	All
AllDayEvent	0x1A	All
Categories	0x1B	14.0, 14.1, 16.0, 16.1
Category	0x1C	14.0, 14.1, 16.0, 16.1
DtStamp	0x1D	All
EndTime	0x1E	All
InstanceType	0x1F	All
BusyStatus	0x20	All
Location — see note 3 following this table	0x21	2.5, 12.0, 12.1, 14.0, 14.1
MeetingRequest	0x22	All
Organizer	0x23	All
RecurrenceId	0x24	All
Reminder	0x25	All
ResponseRequested	0x26	All
Recurrences	0x27	All
Recurrence	0x28	All

Tag name	Token	Protocol versions
Type	0x29	All
Until	0x2A	All
Occurrences	0x2B	All
Interval	0x2C	All
DayOfWeek	0x2D	All
DayOfMonth	0x2E	All
WeekOfMonth	0x2F	All
MonthOfYear	0x30	All
StartTime	0x31	All
Sensitivity	0x32	All
TimeZone	0x33	All
GlobalObjId — see note 4 following this table	0x34	2.5, 12.0, 12.1, 14.0, 14.1
ThreadTopic	0x35	All
MIMEData	0x36	2.5
MIMETruncated	0x37	2.5
MIMESize	0x38	2.5
InternetCPID	0x39	All
Flag	0x3A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Status	0x3B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ContentClass	0x3C	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
FlagType	0x3D	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
CompleteTime	0x3E	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DisallowNewTimeProposal	0x3F	14.0, 14.1, 16.0, 16.1

Note 1: The **Attachments** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Attachments** tag in WBXML code page 2 with protocol versions 12.0, 12.1, 14.0, 14.1, 16.0, and 16.1.

Note 2: The **Body** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Body** tag in WBXML code page 2 with protocol versions 12.0, 12.1, 14.0, 14.1, 16.0, and 16.1.

Note 3: The **Location** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Location** tag in WBXML code page 2 with protocol version 16.0 and 16.1.

Note 4: The **UID** tag in WBXML code page 4 (Calendar) is used instead of the **GlobalObjId** tag in WBXML code page 2 with protocol version 16.0 and 16.1.

2.1.2.1.4 Code Page 3: AirNotify

WBXML code page 3 is no longer in use.

2.1.2.1.5 Code Page 4: Calendar

The tags and tokens in WBXML code page 4 are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Timezone	0x05	All
AllDayEvent	0x06	All
Attendees	0x07	All
Attendee	0x08	All
Email	0x09	All
Name	0x0A	All
Body — see note 1 following this table	0x0B	2.5
BodyTruncated	0x0C	2.5
BusyStatus	0x0D	All
Categories	0x0E	All
Category	0x0F	All
DtStamp	0x11	All
EndTime	0x12	All
Exception	0x13	All
Exceptions	0x14	All
Deleted	0x15	All
ExceptionStartTime	0x16	2.5, 12.0, 12.1, 14.0, 14.1
Location — see note 2 following this table	0x17	2.5, 12.0, 12.1, 14.0, 14.1
MeetingStatus	0x18	All
OrganizerEmail	0x19	All
OrganizerName	0x1A	All
Recurrence	0x1B	All
Type	0x1C	All
Until	0x1D	All

Tag name	Token	Protocol versions
Occurrences	0x1E	All
Interval	0x1F	All
DayOfWeek	0x20	All
DayOfMonth	0x21	All
WeekOfMonth	0x22	All
MonthOfYear	0x23	All
Reminder	0x24	All
Sensitivity	0x25	All
Subject	0x26	All
StartTime	0x27	All
UID	0x28	All
AttendeeStatus	0x29	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AttendeeType	0x2A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DisallowNewTimeProposal	0x33	14.0, 14.1, 16.0, 16.1
ResponseRequested	0x34	14.0, 14.1, 16.0, 16.1
AppointmentReplyTime	0x35	14.0, 14.1, 16.0, 16.1
ResponseType	0x36	14.0, 14.1, 16.0, 16.1
CalendarType	0x37	14.0, 14.1, 16.0, 16.1
IsLeapMonth	0x38	14.0, 14.1, 16.0, 16.1
FirstDayOfWeek	0x39	14.1, 16.0, 16.1
OnlineMeetingConfLink	0x3A	14.1, 16.0, 16.1
OnlineMeetingExternalLink	0x3B	14.1, 16.0, 16.1
ClientUid	0x3C	16.0, 16.1

Note 1: The **Body** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Body** tag in WBXML code page 4 with protocol versions 12.0, 12.1, 14.0, 14.1, 16.0, and 16.1.

Note 2: The **Location** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Location** tag in WBXML code page 4 with protocol version 16.0 and 16.1.

2.1.2.1.6 Code Page 5: Move

The tags and tokens in **WBXML code page 5** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For

details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
MoveItems	0x05	All
Move	0x06	All
SrcMsgId	0x07	All
SrcFldId	0x08	All
DstFldId	0x09	All
Response	0x0A	All
Status	0x0B	All
DstMsgId	0x0C	All

2.1.2.1.7 Code Page 6: GetItemEstimate

The tags and tokens in **WBXML code page 6** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
GetItemEstimate	0x05	All
Collections	0x07	All
Collection	0x08	All
Class — see note 1 following this table	0x09	2.5, 12.0, 12.1
CollectionId	0x0A	All
Estimate	0x0C	All
Response	0x0D	All
Status	0x0E	All

Note 1: The **Class** tag in WBXML code page 0 (AirSync) is used instead of the **Class** tag in WBXML code page 6 with protocol versions 14.0, 14.1, 16.0, and 16.1.

2.1.2.1.8 Code Page 7: FolderHierarchy

The tags and tokens in **WBXML code page 7** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Folders	0x05	2.5, 12.0, 12.1
Folder	0x06	2.5, 12.0, 12.1
DisplayName	0x07	All
ServerId	0x08	All
ParentId	0x09	All
Type	0x0A	All
Status	0x0C	All
Changes	0x0E	All
Add	0x0F	All
Delete	0x10	All
Update	0x11	All
SyncKey	0x12	All
FolderCreate	0x13	All
FolderDelete	0x14	All
FolderUpdate	0x15	All
FolderSync	0x16	All
Count	0x17	All

2.1.2.1.9 Code Page 8: MeetingResponse

The tags and tokens in **WBXML code page 8** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
CalendarId	0x05	All
CollectionId	0x06	All
MeetingResponse	0x07	All
RequestId	0x08	All
Request	0x09	All
Result	0x0A	All
Status	0x0B	All
UserResponse	0x0C	All

Tag name	Token	Protocol versions
InstanceId	0x0E	14.1, 16.0, 16.1
ProposedStartTime	0x10	16.1
ProposedEndTime	0x11	16.1
SendResponse	0x12	16.0, 16.1

2.1.2.1.10 Code Page 9: Tasks

The tags and tokens in **WBXML code page 9** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Body — see note 1 following this table	0x05	2.5
BodySize	0x06	2.5
BodyTruncated	0x07	2.5
Categories	0x08	All
Category	0x09	All
Complete	0x0A	All
DateCompleted	0x0B	All
DueDate	0x0C	All
UtcDueDate	0x0D	All
Importance	0x0E	All
Recurrence	0x0F	All
Type	0x10	All
Start	0x11	All
Until	0x12	All
Occurrences	0x13	All
Interval	0x14	All
DayOfMonth	0x15	All
DayOfWeek	0x16	All
WeekOfMonth	0x17	All
MonthOfYear	0x18	All
Regenerate	0x19	All

Tag name	Token	Protocol versions
DeadOccur	0x1A	All
ReminderSet	0x1B	All
ReminderTime	0x1C	All
Sensitivity	0x1D	All
StartDate	0x1E	All
UtcStartDate	0x1F	All
Subject	0x20	All
OrdinalDate	0x22	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
SubOrdinalDate	0x23	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
CalendarType	0x24	14.0, 14.1, 16.0, 16.1
IsLeapMonth	0x25	14.0, 14.1, 16.0, 16.1
FirstDayOfWeek	0x26	14.1, 16.0, 16.1

Note 1: The **Body** tag in WBXML code page 17 (AirSyncBase) is used instead of the **Body** tag in WBXML code page 9 with protocol versions 12.0, 12.1, 14.0, 14.1, 16.0, and 16.1.

2.1.2.1.11 Code Page 10: ResolveRecipients

The tags and tokens in **WBXML code page 10** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
ResolveRecipients	0x05	All
Response	0x06	All
Status	0x07	All
Type	0x08	All
Recipient	0x09	All
DisplayName	0x0A	All
EmailAddress	0x0B	All
Certificates	0x0C	All
Certificate	0x0D	All
MiniCertificate	0x0E	All
Options	0x0F	All
To	0x10	All

Tag name	Token	Protocol versions
CertificateRetrieval	0x11	All
RecipientCount	0x12	All
MaxCertificates	0x13	All
MaxAmbiguousRecipients	0x14	All
CertificateCount	0x15	All
Availability	0x16	14.0, 14.1, 16.0, 16.1
StartTime	0x17	14.0, 14.1, 16.0, 16.1
EndTime	0x18	14.0, 14.1, 16.0, 16.1
MergedFreeBusy	0x19	14.0, 14.1, 16.0, 16.1
Picture	0x1A	14.1, 16.0, 16.1
MaxSize	0x1B	14.1, 16.0, 16.1
Data	0x1C	14.1, 16.0, 16.1
MaxPictures	0x1D	14.1, 16.0, 16.1

2.1.2.1.12 Code Page 11: ValidateCert

The tags and tokens in **WBXML code page 11** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
ValidateCert	0x05	All
Certificates	0x06	All
Certificate	0x07	All
CertificateChain	0x08	All
CheckCRL	0x09	All
Status	0x0A	All

2.1.2.1.13 Code Page 12: Contacts2

The tags and tokens in **WBXML code page 12** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
CustomerId	0x05	All
GovernmentId	0x06	All
IMAddress	0x07	All
IMAddress2	0x08	All
IMAddress3	0x09	All
ManagerName	0x0A	All
CompanyMainPhone	0x0B	All
AccountName	0x0C	All
NickName	0x0D	All
MMS	0x0E	All

2.1.2.1.14 Code Page 13: Ping

The tags and tokens in **WBXML code page 13** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Ping	0x05	All
Status	0x07	All
HeartbeatInterval	0x08	All
Folders	0x09	All
Folder	0x0A	All
Id	0x0B	All
Class	0x0C	All
MaxFolders	0x0D	All

2.1.2.1.15 Code Page 14: Provision

The tags and tokens in **WBXML code page 14** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Provision	0x05	All

Tag name	Token	Protocol versions
Policies	0x06	All
Policy	0x07	All
PolicyType	0x08	All
PolicyKey	0x09	All
Data	0x0A	All
Status	0x0B	All
RemoteWipe	0x0C	All
EASProvisionDoc	0x0D	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DevicePasswordEnabled	0x0E	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AlphanumericDevicePasswordRequired	0x0F	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
RequireStorageCardEncryption	0x10	12.1, 14.0, 14.1, 16.0, 16.1
PasswordRecoveryEnabled	0x11	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AttachmentsEnabled	0x13	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
MinDevicePasswordLength	0x14	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
MaxInactivityTimeDeviceLock	0x15	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
MaxDevicePasswordFailedAttempts	0x16	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
MaxAttachmentSize	0x17	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AllowSimpleDevicePassword	0x18	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DevicePasswordExpiration	0x19	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DevicePasswordHistory	0x1A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AllowStorageCard	0x1B	12.1, 14.0, 14.1, 16.0, 16.1
AllowCamera	0x1C	12.1, 14.0, 14.1, 16.0, 16.1
RequireDeviceEncryption	0x1D	12.1, 14.0, 14.1, 16.0, 16.1
AllowUnsignedApplications	0x1E	12.1, 14.0, 14.1, 16.0, 16.1
AllowUnsignedInstallationPackages	0x1F	12.1, 14.0, 14.1, 16.0, 16.1
MinDevicePasswordComplexCharacters	0x20	12.1, 14.0, 14.1, 16.0, 16.1

Tag name	Token	Protocol versions
AllowWiFi	0x21	12.1, 14.0, 14.1, 16.0, 16.1
AllowTextMessaging	0x22	12.1, 14.0, 14.1, 16.0, 16.1
AllowPOPIMAPEmail	0x23	12.1, 14.0, 14.1, 16.0, 16.1
AllowBluetooth	0x24	12.1, 14.0, 14.1, 16.0, 16.1
AllowIrDA	0x25	12.1, 14.0, 14.1, 16.0, 16.1
RequireManualSyncWhenRoaming	0x26	12.1, 14.0, 14.1, 16.0, 16.1
AllowDesktopSync	0x27	12.1, 14.0, 14.1, 16.0, 16.1
MaxCalendarAgeFilter	0x28	12.1, 14.0, 14.1, 16.0, 16.1
AllowHTMLEmail	0x29	12.1, 14.0, 14.1, 16.0, 16.1
MaxEmailAgeFilter	0x2A	12.1, 14.0, 14.1, 16.0, 16.1
MaxEmailBodyTruncationSize	0x2B	12.1, 14.0, 14.1, 16.0, 16.1
MaxEmailHTMLBodyTruncationSize	0x2C	12.1, 14.0, 14.1, 16.0, 16.1
RequireSignedSMIMEMessages	0x2D	12.1, 14.0, 14.1, 16.0, 16.1
RequireEncryptedSMIMEMessages	0x2E	12.1, 14.0, 14.1, 16.0, 16.1
RequireSignedSMIMEAlgorithm	0x2F	12.1, 14.0, 14.1, 16.0, 16.1
RequireEncryptionSMIMEAlgorithm	0x30	12.1, 14.0, 14.1, 16.0, 16.1
AllowSMIMEEncryptionAlgorithmNegotiation	0x31	12.1, 14.0, 14.1, 16.0, 16.1
AllowSMIMESoftCerts	0x32	12.1, 14.0, 14.1, 16.0, 16.1
AllowBrowser	0x33	12.1, 14.0, 14.1, 16.0, 16.1
AllowConsumerEmail	0x34	12.1, 14.0, 14.1, 16.0, 16.1
AllowRemoteDesktop	0x35	12.1, 14.0, 14.1, 16.0, 16.1
AllowInternetSharing	0x36	12.1, 14.0, 14.1, 16.0, 16.1
UnapprovedInROMApplicationList	0x37	12.1, 14.0, 14.1, 16.0, 16.1
ApplicationName	0x38	12.1, 14.0, 14.1, 16.0, 16.1
ApprovedApplicationList	0x39	12.1, 14.0, 14.1, 16.0, 16.1
Hash	0x3A	12.1, 14.0, 14.1, 16.0, 16.1
AccountOnlyRemoteWipe	0x3B	16.1

2.1.2.1.16 Code Page 15: Search

The tags and tokens in **WBXML code page 15** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Search	0x05	All
Store	0x07	All
Name	0x08	All
Query	0x09	All
Options	0x0A	All
Range	0x0B	All
Status	0x0C	All
Response	0x0D	All
Result	0x0E	All
Properties	0x0F	All
Total	0x10	All
EqualTo	0x11	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Value	0x12	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
And	0x13	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Or	0x14	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
FreeText	0x15	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DeepTraversal	0x17	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
LongId	0x18	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
RebuildResults	0x19	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
LessThan	0x1A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
GreaterThan	0x1B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
UserName	0x1E	12.1, 14.0, 14.1, 16.0, 16.1
Password	0x1F	12.1, 14.0, 14.1, 16.0, 16.1
ConversationId	0x20	14.0, 14.1, 16.0, 16.1
Picture	0x21	14.1, 16.0, 16.1
MaxSize	0x22	14.1, 16.0, 16.1
MaxPictures	0x23	14.1, 16.0, 16.1

2.1.2.1.17 Code Page 16: GAL

The tags and tokens in **WBXML code page 16** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
DisplayName	0x05	All
Phone	0x06	All
Office	0x07	All
Title	0x08	All
Company	0x09	All
Alias	0x0A	All
FirstName	0x0B	All
LastName	0x0C	All
HomePhone	0x0D	All
MobilePhone	0x0E	All
EmailAddress	0x0F	All
Picture	0x10	14.1, 16.0, 16.1
Status	0x11	14.1, 16.0, 16.1
Data	0x12	14.1, 16.0, 16.1

2.1.2.1.18 Code Page 17: AirSyncBase

The tags and tokens in **WBXML code page 17** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
BodyPreference	0x05	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Type	0x06	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
TruncationSize	0x07	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AllOrNone	0x08	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Body	0x0A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Data	0x0B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1

Tag name	Token	Protocol versions
EstimatedDataSize	0x0C	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Truncated	0x0D	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Attachments	0x0E	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Attachment	0x0F	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DisplayName	0x10	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
FileReference	0x11	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Method	0x12	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ContentId	0x13	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ContentLocation	0x14	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
IsInline	0x15	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
NativeBodyType	0x16	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ContentType	0x17	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Preview	0x18	14.0, 14.1, 16.0, 16.1
BodyPartPreference	0x19	14.1, 16.0, 16.1
BodyPart	0x1A	14.1, 16.0, 16.1
Status	0x1B	14.1, 16.0, 16.1
Add	0x1C	16.0, 16.1
Delete	0x1D	16.0, 16.1
ClientId	0x1E	16.0, 16.1
Content	0x1F	16.0, 16.1
Location	0x20	16.0, 16.1
Annotation	0x21	16.0, 16.1
Street	0x22	16.0, 16.1
City	0x23	16.0, 16.1
State	0x24	16.0, 16.1
Country	0x25	16.0, 16.1
PostalCode	0x26	16.0, 16.1
Latitude	0x27	16.0, 16.1
Longitude	0x28	16.0, 16.1
Accuracy	0x29	16.0, 16.1
Altitude	0x2A	16.0, 16.1
AltitudeAccuracy	0x2B	16.0, 16.1

Tag name	Token	Protocol versions
LocationUri	0x2C	16.0, 16.1
InstanceId	0x2D	16.0, 16.1

2.1.2.1.19 Code Page 18: Settings

The tags and tokens in **WBXML code page 18** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Settings	0x05	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Status	0x06	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Get	0x07	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Set	0x08	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Oof	0x09	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
OofState	0x0A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
StartTime	0x0B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
EndTime	0x0C	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
OofMessage	0x0D	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AppliesToInternal	0x0E	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AppliesToExternalKnown	0x0F	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
AppliesToExternalUnknown	0x10	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Enabled	0x11	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ReplyMessage	0x12	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
BodyType	0x13	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DevicePassword	0x14	12.0, 12.1, 14.0, 14.1, 16.0,

Tag name	Token	Protocol versions
		16.1
Password	0x15	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DeviceInformation	0x16	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Model	0x17	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
IMEI	0x18	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
FriendlyName	0x19	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
OS	0x1A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
OSLanguage	0x1B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
PhoneNumber	0x1C	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
UserInfo	0x1D	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
EmailAddresses	0x1E	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
SMTPAddress	0x1F	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
UserAgent	0x20	12.1, 14.0, 14.1, 16.0, 16.1
EnableOutboundSMS	0x21	14.0, 14.1, 16.0, 16.1
MobileOperator	0x22	14.0, 14.1, 16.0, 16.1
PrimarySmtpAddress	0x23	14.1, 16.0, 16.1
Accounts	0x24	14.1, 16.0, 16.1
Account	0x25	14.1, 16.0, 16.1
AccountId	0x26	14.1, 16.0, 16.1
AccountName	0x27	14.1, 16.0, 16.1
UserDisplayName	0x28	14.1, 16.0, 16.1
SendDisabled	0x29	14.1, 16.0, 16.1
RightsManagementInformation	0x2B	14.1, 16.0, 16.1

2.1.2.1.20 Code Page 19: DocumentLibrary

The tags and tokens in **WBXML code page 19** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
LinkId	0x05	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DisplayName	0x06	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
IsFolder	0x07	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
CreationDate	0x08	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
LastModifiedDate	0x09	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
IsHidden	0x0A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ContentLength	0x0B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
ContentType	0x0C	12.0, 12.1, 14.0, 14.1, 16.0, 16.1

2.1.2.1.21 Code Page 20: ItemOperations

The tags and tokens in **WBXML code page 20** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
ItemOperations	0x05	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Fetch	0x06	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Store	0x07	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Options	0x08	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Range	0x09	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Total	0x0A	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Properties	0x0B	12.0, 12.1, 14.0, 14.1, 16.0, 16.1

Tag name	Token	Protocol versions
Data	0x0C	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Status	0x0D	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Response	0x0E	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Version	0x0F	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Schema	0x10	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
Part	0x11	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
EmptyFolderContents	0x12	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
DeleteSubFolders	0x13	12.0, 12.1, 14.0, 14.1, 16.0, 16.1
UserName	0x14	12.1, 14.0, 14.1, 16.0, 16.1
Password	0x15	12.1, 14.0, 14.1, 16.0, 16.1
Move	0x16	14.0, 14.1, 16.0, 16.1
DstFldId	0x17	14.0, 14.1, 16.0, 16.1
ConversationId	0x18	14.0, 14.1, 16.0, 16.1
MoveAlways	0x19	14.0, 14.1, 16.0, 16.1

2.1.2.1.22 Code Page 21: ComposeMail

The tags and tokens in **WBXML code page 21** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
SendMail	0x05	14.0, 14.1, 16.0, 16.1
SmartForward	0x06	14.0, 14.1, 16.0, 16.1
SmartReply	0x07	14.0, 14.1, 16.0, 16.1
SaveInSentItems	0x08	14.0, 14.1, 16.0, 16.1
ReplaceMime	0x09	14.0, 14.1, 16.0, 16.1
Source	0x0B	14.0, 14.1, 16.0, 16.1
FolderId	0x0C	14.0, 14.1, 16.0, 16.1

Tag name	Token	Protocol versions
ItemId	0x0D	14.0, 14.1, 16.0, 16.1
LongId	0x0E	14.0, 14.1, 16.0, 16.1
InstanceId	0x0F	14.0, 14.1, 16.0, 16.1
Mime	0x10	14.0, 14.1, 16.0, 16.1
ClientId	0x11	14.0, 14.1, 16.0, 16.1
Status	0x12	14.0, 14.1, 16.0, 16.1
AccountId	0x13	14.1, 16.0, 16.1
Forwardees	0x15	16.0, 16.1
Forwarder	0x16	16.0, 16.1
ForwarderName	0x17	16.0, 16.1
ForwarderEmail	0x18	16.0, 16.1

2.1.2.1.23 Code Page 22: Email2

The tags and tokens in **WBXML code page 22** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
UmCallerID	0x05	14.0, 14.1, 16.0, 16.1
UmUserNotes	0x06	14.0, 14.1, 16.0, 16.1
UmAttDuration	0x07	14.0, 14.1, 16.0, 16.1
UmAttOrder	0x08	14.0, 14.1, 16.0, 16.1
ConversationId	0x09	14.0, 14.1, 16.0, 16.1
ConversationIndex	0x0A	14.0, 14.1, 16.0, 16.1
LastVerbExecuted	0x0B	14.0, 14.1, 16.0, 16.1
LastVerbExecutionTime	0x0C	14.0, 14.1, 16.0, 16.1
ReceivedAsBcc	0x0D	14.0, 14.1, 16.0, 16.1
Sender	0x0E	14.0, 14.1, 16.0, 16.1
CalendarType	0x0F	14.0, 14.1, 16.0, 16.1
IsLeapMonth	0x10	14.0, 14.1, 16.0, 16.1
AccountId	0x11	14.1, 16.0, 16.1
FirstDayOfWeek	0x12	14.1, 16.0, 16.1

Tag name	Token	Protocol versions
MeetingMessageType	0x13	14.1, 16.0, 16.1
IsDraft	0x15	16.0, 16.1
Bcc	0x16	16.0, 16.1
Send	0x17	16.0, 16.1

2.1.2.1.24 Code Page 23: Notes

The tags and tokens in **WBXML code page 23** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Subject	0x05	14.0, 14.1, 16.0, 16.1
MessageClass	0x06	14.0, 14.1, 16.0, 16.1
LastModifiedDate	0x07	14.0, 14.1, 16.0, 16.1
Categories	0x08	14.0, 14.1, 16.0, 16.1
Category	0x09	14.0, 14.1, 16.0, 16.1

2.1.2.1.25 Code Page 24: RightsManagement

The tags and tokens in **WBXML code page 24** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
RightsManagementSupport	0x05	14.1, 16.0, 16.1
RightsManagementTemplates	0x06	14.1, 16.0, 16.1
RightsManagementTemplate	0x07	14.1, 16.0, 16.1
RightsManagementLicense	0x08	14.1, 16.0, 16.1
EditAllowed	0x09	14.1, 16.0, 16.1
ReplyAllowed	0x0A	14.1, 16.0, 16.1
ReplyAllAllowed	0x0B	14.1, 16.0, 16.1
ForwardAllowed	0x0C	14.1, 16.0, 16.1
ModifyRecipientsAllowed	0x0D	14.1, 16.0, 16.1
ExtractAllowed	0x0E	14.1, 16.0, 16.1

Tag name	Token	Protocol versions
PrintAllowed	0x0F	14.1, 16.0, 16.1
ExportAllowed	0x10	14.1, 16.0, 16.1
ProgrammaticAccessAllowed	0x11	14.1, 16.0, 16.1
Owner	0x12	14.1, 16.0, 16.1
ContentExpiryDate	0x13	14.1, 16.0, 16.1
TemplateID	0x14	14.1, 16.0, 16.1
TemplateName	0x15	14.1, 16.0, 16.1
TemplateDescription	0x16	14.1, 16.0, 16.1
ContentOwner	0x17	14.1, 16.0, 16.1
RemoveRightsManagementProtection	0x18	14.1, 16.0, 16.1

2.1.2.1.26 Code Page 25: Find

The tags and tokens in **WBXML code page 25** are listed in the following table. The ActiveSync protocol versions that support each tag/token are specified in the "Protocol versions" column of the table. For details about the ActiveSync protocol versions that can be used by a client or a server, see [\[MS-ASHTTP\]](#).

Tag name	Token	Protocol versions
Find	0x05	16.1
SearchId	0x06	16.1
ExecuteSearch	0x07	16.1
MailBoxSearchCriterion	0x08	16.1
Query	0x09	16.1
Status	0x0A	16.1
FreeText	0x0B	16.1
Options	0x0C	16.1
Range	0x0D	16.1
DeepTraversal	0x0E	16.1
Response	0x11	16.1
Result	0x12	16.1
Properties	0x13	16.1
Preview	0x14	16.1
HasAttachments	0x15	16.1

Tag name	Token	Protocol versions
Total	0x16	16.1
DisplayCc	0x17	16.1
DisplayBcc	0x18	16.1
GalSearchCriterion	0x19	16.1

2.1.3 Processing Rules

The processing rules for this algorithm are specified in [\[WBXML1.2\]](#).

This algorithm uses the following features that are specified in [WBXML1.2]:

- **WBXML tokens** to encode **XML** tags
- **WBXML code pages** to support multiple **XML namespaces**
- Inline strings
- Opaque data

This algorithm does not use the following features that are specified in [WBXML1.2]:

- String tables
- Entities
- Processing instructions
- Attribute encoding

3 Algorithm Examples

The following example shows the **WBXML** encoding of a server response that contains a new **contact** and provides a byte-by-byte description of the encoding.

The following **XML** represents a server response to a request to create a new contact.

```
<?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>Funk, Don</contacts:FileAs>
            <contacts:FirstName>Don</contacts:FirstName>
            <contacts:LastName>Funk</contacts:LastName>
            <airsyncbase:NativeBodyType>1</airsyncbase:NativeBodyType>
          </ApplicationData>
        </Add>
      </Commands>
    </Collection>
  </Collections>
</Sync>
```

The Exchange ActiveSync: WAP Binary XML (WBXML) Algorithm encodes this XML as the following 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 46 75 6E 6B 2C 20 44 6F 6E 00 01 5F 03 44 6F 6E 00 01 69 03 46 75 6E 6B 00 01
00 11 56 03 31 00 01 01 01 01 01 01 01
```

The following table explains each byte in the WBXML encoding.

Bytes	Description
03	Version number – WBXML version 1.3
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

Bytes	Description
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 WBXML code page 17 (AirSyncBase)
4A	<airsyncbase:Body>, with content
46	<airsyncbase:Type>, with content
03	Inline string follows
31 00	"1"
01	</airsyncbase:Type>
4C	<airsyncbase:EstimatedDataSize>, with content
03	Inline string follows
30 00	"0"

Bytes	Description
01	</airsyncbase:EstimatedDataSize>
4D	<airsyncbase:Truncated>, with content
03	Inline string follows
31 00	"1"
01	</airsyncbase:Truncated>
01	</airsyncbase:Body>
00 01	Select WBXML code page 1 (Contacts)
5E	<contacts:FileAs>, with content
03	Inline string follows
46 75 6E 6B 2C 20 44 6F 6E 00	"Funk, 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
46 75 6E 6B 00	"Funk"
01	</contacts:LastName>
00 11	Select WBXML code page 17 (AirSyncBase)
56	<airsyncbase:NativeBodyType>, with content
03	Inline string follows
31 00	"1"
01	</airsyncbase:NativeBodyType>
01	</airsync:ApplicationData>
01	</airsync:Add>
01	</airsync:Commands>
01	</airsync:Collection>
01	</airsync:Collections>
01	</airsync:Sync>

4 Security

4.1 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. 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.

4.2 Index of Security Parameters

None.

5 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Microsoft Exchange Server 2007 Service Pack 1 (SP1)
- Microsoft Exchange Server 2010
- Microsoft Exchange Server 2013
- Microsoft Exchange Server 2016
- Microsoft Exchange Server 2019
- Windows 8.1
- Windows Communication Apps
- Windows 10 operating system
- Windows Server 2016 operating system

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates 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.

6 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

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.
- A document revision that captures changes to protocol functionality.

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 **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

The changes made to this document are listed in the following table. For more information, please contact dochelp@microsoft.com.

Section	Description	Revision class
5 Appendix A: Product Behavior	Updated list of supported products.	Major

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