

# [MS-ASDOC]:

## Exchange ActiveSync: Document Class Protocol

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Preliminary

## Revision Summary

Date	Revision History	Revision Class	Comments
12/3/2008	1.0.0	Major	Initial Release.
2/4/2009	1.0.1	Editorial	Revised and edited technical content.
3/4/2009	1.0.2	Editorial	Revised and edited technical content.
4/10/2009	2.0.0	Major	Updated 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	7.1	Minor	Clarified the meaning of the technical content.
3/18/2011	7.2	Minor	Clarified the meaning of the technical content.
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<b>Date</b>	<b>Revision History</b>	<b>Revision Class</b>	<b>Comments</b>
9/14/2015	12.1	Minor	Clarified the meaning of the technical content.
6/9/2016	13.0	Major	Significantly changed the technical content.
2/28/2017	14.0	Major	Significantly changed the technical content.
4/18/2017	14.0	None	No changes to the meaning, language, or formatting of the technical content.
7/24/2018	15.0	Major	Significantly changed the technical content.

Preliminary

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# 1 Introduction

The Exchange ActiveSync: Document Class Protocol supports accessing documents stored in a web-based team collaboration environment and on file shares specified using **Universal Naming Convention (UNC)** paths. This protocol enables the communication of document data between a mobile device and the server in the ActiveSync protocol.

Sections 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

## 1.1 Glossary

This document uses the following terms:

**base64 encoding:** A binary-to-text encoding scheme whereby an arbitrary sequence of bytes is converted to a sequence of printable ASCII characters, as described in [\[RFC4648\]](#).

**Coordinated Universal Time (UTC):** A high-precision atomic time standard that approximately tracks Universal Time (UT). It is the basis for legal, civil time all over the Earth. Time zones around the world are expressed as positive and negative offsets from UTC. In this role, it is also referred to as Zulu time (Z) and Greenwich Mean Time (GMT). In these specifications, all references to UTC refer to the time at UTC-0 (or GMT).

**header:** A name-value pair that supplies structured data in an Internet email message or MIME entity.

**Multipurpose Internet Mail Extensions (MIME):** A set of extensions that redefines and expands support for various types of content in email messages, as described in [\[RFC2045\]](#), [\[RFC2046\]](#), and [\[RFC2047\]](#).

**Uniform Resource Identifier (URI):** A string that identifies a resource. The URI is an addressing mechanism defined in Internet Engineering Task Force (IETF) Uniform Resource Identifier (URI): Generic Syntax [\[RFC3986\]](#).

**Universal Naming Convention (UNC):** A string format that specifies the location of a resource. For more information, see [\[MS-DTYP\]](#) section 2.2.57.

**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](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

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

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

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

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

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

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, 08 December 2009, <http://www.w3.org/TR/2009/REC-xml-names-20091208/>

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

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

### 1.2.2 Informative References

None.

## 1.3 Overview

This protocol describes the **XML** representation of documents that is used for client and server communication as described in [\[MS-ASCMD\]](#). The document data is included in protocol command requests when document data is being sent from the client to the server, and is included in protocol command responses when document data is returned from the server to the client.

## 1.4 Relationship to Other Protocols

This protocol describes the XML representation of documents that is used by the command requests and responses that are described in [\[MS-ASCMD\]](#). The protocol governing the transmission of these commands between the client and the server is described in [\[MS-ASCMD\]](#). The **Wireless Application Protocol (WAP) Binary XML (WBXML)**, as described in [\[MS-ASWBXML\]](#), is used to transmit the **XML** markup that constitutes the request body and the response body.

All simple data types in this document conform to the data type definitions that are described in [\[MS-ASDTYPE\]](#).

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

## **1.5 Prerequisites/Preconditions**

None.

## **1.6 Applicability Statement**

This protocol describes a set of elements that is used to communicate document data when using the commands described in [\[MS-ASCMD\]](#). This set of elements is applicable when communicating document data such as the document's name, location, estimated size, and visibility between a mobile device and a server. These elements are not applicable when sending calendar, e-mail, note, contact, or task data between a mobile device and a server.

## **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 of a command request or command response, as specified in [\[MS-ASCMD\]](#).

The XML markup that constitutes the request body or the response body that is transmitted between the client and the server uses **Wireless Application Protocol (WAP) Binary XML (WBXML)**, as specified in [\[MS-ASWBXML\]](#).

### 2.2 Message Syntax

The **XML schema** for the **DocumentLibrary** namespace is described in section [6](#).

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

#### 2.2.1 Namespaces

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

Prefix	Namespace URI	Reference
(none)	<b>DocumentLibrary</b>	
airsyncbase	<b>AirSyncBase</b>	<a href="#">[MS-ASAIRS]</a>
itemoperations	<b>ItemOperations</b>	<a href="#">[MS-ASCMD]</a> section 2.2.1.10
search	<b>Search</b>	<a href="#">[MS-ASCMD]</a> section 2.2.1.16
xs	<a href="http://www.w3.org/2001/XMLSchema">http://www.w3.org/2001/XMLSchema</a>	<a href="#">[XMLSCHEMA1]</a>

#### 2.2.2 Elements

Elements of the **Document** class are defined in two namespaces: **DocumentLibrary** and **AirSyncBase**. All **Document** class elements are specified in this document. However, elements defined in the **AirSyncBase** namespace are further specified in [\[MS-ASAIRS\]](#).

The following table summarizes the set of common **XML schema** element definitions defined by this specification. For details about how these elements are used by a particular operation, see sections [3.1.5.1](#), [3.1.5.2](#), [3.2.5.1](#), and [3.2.5.2](#).

Element name	Description
<b>LinkId</b> (section <a href="#">2.2.2.8</a> )	The link to the document, specified as a <b>Uniform Resource Identifier (URI)</b> .
<b>DisplayName</b> (section <a href="#">2.2.2.4</a> )	The name of the document or folder, as displayed by the client.
<b>IsFolder</b> (section <a href="#">2.2.2.5</a> )	Specifies whether the item is a folder or a document.

Element name	Description
<b>CreationDate</b> (section <a href="#">2.2.2.3</a> )	The date and time when the document or folder was first created.
<b>LastModifiedDate</b> (section <a href="#">2.2.2.7</a> )	The date and time when the document, or the folder, or its properties was last modified.
<b>IsHidden</b> (section <a href="#">2.2.2.6</a> )	Specifies whether this is a hidden object.
<b>ContentLength</b> (section <a href="#">2.2.2.1</a> )	The estimated size of the document, in bytes.
<b>ContentType</b> (section <a href="#">2.2.2.2</a> )	The <b>Multipurpose Internet Mail Extensions (MIME)</b> type of the binary-encoded content or content encoded with <b>base64 encoding</b> .

### 2.2.2.1 ContentLength

The **ContentLength** element is a required child element of the **search:Properties** element ([\[MS-ASCMD\]](#) section 2.2.3.139.3) for **Document** class document items in a **Search** command response ([\[MS-ASCMD\]](#) section 2.2.1.16) that specifies the estimated size, in bytes, of the document. For more details about the **Search** command response for **Document** class items, see section [3.2.5.2](#).

The value of this element is an **integer** data type, as specified in [\[MS-ASDTYPE\]](#) section 2.6.

Because documents accessed by using the ActiveSync protocol can be shared across a network, it is possible that the value of the **ContentLength** element will differ between the time the document description is retrieved and the time the document is accessed.

#### Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

### 2.2.2.2 ContentType

The **ContentType** element is a required child element of the **search:Properties** element ([\[MS-ASCMD\]](#) section 2.2.3.139.3) for **Document** class document items in a **Search** command response

([MS-ASCMD] section 2.2.1.16) that specifies the **MIME** type of the binary-encoded content or document encoded with **base64 encoding**, if known. For more details about the **Search** command response for **Document** class items, see section [3.2.5.2](#).

The value of this element is a **string** data type, as specified in [\[MS-ASDTYPE\]](#) section 2.7.

### Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

### 2.2.2.3 CreationDate

The **CreationDate** element is a required child element of the **search:Properties** element ([\[MS-ASCMD\]](#) section 2.2.3.139.3) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.1.16) that specifies the date and time when the document or folder was created. For more details about the **Search** command response for **Document** class items, see section [3.2.5.2](#).

The value of this element is a **datetime** data type in **Coordinated Universal Time (UTC)** format, as specified in [\[MS-ASDTYPE\]](#) section 2.3.

### Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes

Protocol version	Element support
16.0	Yes
16.1	Yes

#### 2.2.2.4 DisplayName

The **DisplayName** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.139.3) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.1.16) that specifies the name of the document or folder as it is displayed to the user. For more details about the **Search** command response for **Document** class items, see section 3.2.5.2.

The value of this element is a **string** data type, as specified in [MS-ASDTYPE] section 2.7.

#### Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [MS-ASHTTP] section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [MS-ASHTTP] section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

#### 2.2.2.5 IsFolder

The **IsFolder** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.139.3) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.1.16) that specifies whether the item is a folder. For more details about the **Search** command response for **Document** class items, see section 3.2.5.2.

The value of this element is an **unsignedByte** data type, as specified in [MS-ASDTYPE] section 2.8. Valid values for this element are as follows.

Value	Meaning
0	The item is not a folder.
1	The item is a folder.

## Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

### 2.2.2.6 IsHidden

The **IsHidden** element is a required child element of the **search:Properties** element ([\[MS-ASCMD\]](#) section 2.2.3.139.3) for **Document** class items in a **Search** command response ([\[MS-ASCMD\]](#) section 2.2.1.16) that specifies whether the document or folder is a hidden object. For more details about the **Search** command response for **Document** class items, see section [3.2.5.2](#).

The value of this element is an **unsignedByte** data type, as specified in [\[MS-ASDTYPE\]](#) section 2.8. The value of the **IsHidden** element MUST be one of the following values.

Value	Meaning
0	The document or folder is not hidden.
1	The document or folder is hidden.

## Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes

Protocol version	Element support
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

### 2.2.2.7 LastModifiedDate

The **LastModifiedDate** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.139.3) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.1.16) that specifies the date and time that the document, or the folder, or the properties of either the document or folder were last modified. For more details about the **Search** command response for **Document** class items, see section 3.2.5.2.

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

#### Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [MS-ASHTTP] section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [MS-ASHTTP] section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

### 2.2.2.8 LinkId

The **LinkId** element specifies the link to the document in the form of a **URI**. It is a required child element of the **itemoperations:Fetch** element ([MS-ASCMD] section 2.2.3.67.1) for **Document** class items in an **ItemOperations** command request and an **ItemOperations** command response ([MS-ASCMD] section 2.2.1.10), a required child element of the **search:EqualTo** element ([MS-ASCMD] section 2.2.3.62) for **Document** class items in a **Search** command request ([MS-ASCMD] section 2.2.1.16), and a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.139.3) for **Document** class items in a **Search** command response.

For more details about how the **LinkId** element is used by the **ItemOperations** command request, the **Search** command request, the **ItemOperations** command response, and the **Search** command response, see sections [3.1.5.1](#), [3.1.5.2](#), [3.2.5.1](#), and [3.2.5.2](#), respectively.

### Protocol Versions

The following table specifies the protocol versions that support this element. The client indicates the protocol version being used by setting either the MS-ASProtocolVersion header, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.2.6, or the **Protocol version** field, as specified in [\[MS-ASHTTP\]](#) section 2.2.1.1.1.1, in the request.

Protocol version	Element support
2.5	
12.0	Yes
12.1	Yes
14.0	Yes
14.1	Yes
16.0	Yes
16.1	Yes

## 3 Protocol Details

### 3.1 Client Details

#### 3.1.1 Abstract Data Model

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

**Document class:** A structured **XML** text block that adheres to the **XML schema** defined in section [2.2](#). It is returned by the server as part of a full XML response to the client command requests specified in section [3.1.5](#).

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

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

None.

#### 3.1.4 Higher-Layer Triggered Events

##### 3.1.4.1 Searching for Documents

The client searches for **Document** class data on a server by sending a **Search** command request ([\[MS-ASCMD\]](#) section 2.2.1.16) to the server.

##### 3.1.4.2 Requesting Details for Specific Documents

The client requests **Document** class data for one or more individual documents by sending an **ItemOperations** command request ([\[MS-ASCMD\]](#) section 2.2.1.10) to the server that contains one or more **itemoperations:Fetch** elements ([\[MS-ASCMD\]](#) section 2.2.3.67.1).

##### 3.1.4.3 Requesting the Document Body from the Server

Because the body of the document is not returned as part of the **Document** class data, the client submits the value of the **LinkId** element (section [2.2.2.8](#)) in a separate **ItemOperations** command request ([\[MS-ASCMD\]](#) section 2.2.1.10) to obtain the body of the document. The body of the document is returned as either text encoded with **base64 encoding** in the **itemoperations:Data** element ([\[MS-ASCMD\]](#) section 2.2.3.39.2) of the **ItemOperations** command response or as binary data, depending on the content type that the client requested. For details about how the client requests a particular content type in an **ItemOperations** command request, see section [3.1.5.1](#).

### 3.1.5 Message Processing Events and Sequencing Rules

The following sections define how various elements of the **Document** class are used in the context of specific ActiveSync commands. For more details about the commands themselves, see [\[MS-ASCMD\]](#).

#### 3.1.5.1 ItemOperations Command Request

A client uses an **ItemOperations** command request ([\[MS-ASCMD\]](#) section 2.2.1.10) that contains one or more **itemoperations:Fetch** elements ([\[MS-ASCMD\]](#) section 2.2.3.67.1) to retrieve data from the server for one or more individual documents.

The **LinkId** element (section [2.2.2.8](#)) is the only **Document** class element that can be included in an **ItemOperations** command request. The **LinkId** element is transmitted as a child element of the **itemoperations:Fetch** element ([\[MS-ASCMD\]](#) section 2.2.3.67.1).

A client can use the HTTP **header MS-ASAcceptMultiPart: T** to specify that the server returns the document data in multipart binary format. If this header is not used, the document data is returned as text. For more details about this header, see [\[MS-ASCMD\]](#) section 2.2.1.10.1.

#### 3.1.5.2 Search Command Request

A client uses the **Search** command request ([\[MS-ASCMD\]](#) section 2.2.1.16) to retrieve **Document** class items that match the criteria specified by the client.

The **LinkId** element (section [2.2.2.8](#)) is a required element in a **Search** command request, and is transmitted as a child element of the **search:EqualTo** element ([\[MS-ASCMD\]](#) section 2.2.3.62). The **search:Value** element ([\[MS-ASCMD\]](#) section 2.2.3.196) can also be included as a child of the **search:EqualTo** element. The value of the **search:Value** element is a string that describes the **Universal Naming Convention (UNC)** path of a file on a file share. A full example of this usage is provided in [\[MS-ASCMD\]](#) section 4.23.1.

If the **LinkId** element is not included in a **Search** command request, then the server **MUST** respond with protocol error 2.

#### 3.1.6 Timer Events

None.

#### 3.1.7 Other Local Events

None.

### 3.2 Server Details

#### 3.2.1 Abstract Data Model

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

**Document class:** A structured **XML** text block that adheres to the **XML schema** defined in section [2.2](#). It is returned by the server as part of a full XML response to the client command requests specified in section [3.1.5](#).

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

### 3.2.2 Timers

None.

### 3.2.3 Initialization

None.

### 3.2.4 Higher-Layered Triggered Events

#### 3.2.4.1 Searching for Documents

Searching for **Document** class data is initiated by the client, as specified in section [3.1.4.1](#). The server responds with a **Search** command response ([\[MS-ASCMD\]](#) section 2.2.1.16).

#### 3.2.4.2 Retrieving Details for Specific Documents

Retrieval of **Document** class data for one or more individual documents is initiated by the client, as specified in section [3.1.4.2](#). The server responds with an **ItemOperations** command response ([\[MS-ASCMD\]](#) section 2.2.1.10).

#### 3.2.4.3 Retrieving the Document Body

Retrieval of the body of a document is initiated by the client, as specified in section [3.1.4.3](#). The server responds with an **ItemOperations** command response ([\[MS-ASCMD\]](#) section 2.2.1.10), which returns the body of the document either as text encoded with **base64 encoding** in the **itemoperations:Data** element ([\[MS-ASCMD\]](#) section 2.2.3.39.2) of the response or as binary text in multiple parts if the command request was a multi-part request.

### 3.2.5 Message Processing Events and Sequencing Rules

The following sections define how various elements of the **Document** class are used in the context of specific commands. For more details about the commands themselves, see [\[MS-ASCMD\]](#).

#### 3.2.5.1 ItemOperations Command Response

When a client uses an **ItemOperations** command request ([\[MS-ASCMD\]](#) section 2.2.1.10) to retrieve data from the server for one or more individual documents, as specified in section [3.1.5.1](#), the server responds with an **ItemOperations** command response.

The server **MUST** return a **Document** class **XML** block for every item that matches the criteria specified in the client command request. The server can return zero or more **Document** class blocks in its response, depending on how many document items match the criteria specified in the client command request.

The **LinkId** element (section [2.2.2.8](#)) is the only **Document** class element returned in an **ItemOperations** command response. The **LinkId** element is transmitted as a child element of the **Itemoperations:Fetch** element ([\[MS-ASCMD\]](#) section 2.2.3.67.1).

If an **ItemOperations** command request for the body of the document was made using the **MS-ASAcceptMultiPart: T header**, then the server **MUST** respond by providing the document body as binary data in multiple parts. Otherwise, the server **MUST** transmit the document as data encoded

with **base64 encoding** within the **itemoperations:Data** element ([MS-ASCMD] section 2.2.3.39.2) of the **ItemOperations** command response. For more details about content delivery for documents, see [MS-ASCMD] section 2.2.1.10.1.

The **ItemOperations** command is specified in [MS-ASCMD] section 2.2.1.10.

### 3.2.5.2 Search Command Response

When a client uses the **Search** command request ([MS-ASCMD] section 2.2.1.16) to retrieve **Document** class items that match the criteria specified by the client, as specified in section [3.1.5.2](#), the server responds with a **Search** command response.

The server MUST return a **Document** class **XML** block for every item that matches the criteria specified in the client command request. The server can return zero or more **Document** class blocks in its response, depending on how many document items match the criteria specified in the client command request.

Any of the elements for the **Document** class, as specified in section [2.2.2](#), can be included in a **Search** command response. **Document** class elements are returned as child elements of the **search:Properties** element ([MS-ASCMD] section 2.2.3.139.3) in a **Search** command response.

### 3.2.6 Timer Events

None.

### 3.2.7 Other Local Events

None.

## 4 Protocol Examples

### 4.1 Searching for a Document by LinkId

The following example demonstrates a client request to search for a document by using the specified **LinkId** element (section [2.2.2.8](#)) value (which in this example is the **UNC** path of the document), and the server response.

Request:

```
<?xml version="1.0" encoding="utf-8"?>
<Search xmlns="Search:" xmlns:A="DocumentLibrary:">
  <Store>
    <Name>DocumentLibrary</Name>
    <Query>
      <EqualTo>
        <A:LinkId/>
        <Value>\\EXCH-D-810\DocumentShare\document.txt</Value>
      </EqualTo>
    </Query>
    <Options>
      <Range>0-999</Range>
    </Options>
  </Store>
</Search>
```

Response:

```
<?xml version="1.0" encoding="utf-8"?>
<Search
xmlns:documentlibrary="DocumentLibrary:" >
  <Status>1 Success</Status>
  <Response>
    <Store>
      <Status>1 Success</Status>
      <Result>
        <Properties>
          <documentlibrary:LinkId>\\exch-d-
810\DocumentShare\document.txt</documentlibrary:LinkId>
          <documentlibrary:DisplayName>document.txt</documentlibrary:DisplayName>
          <documentlibrary:IsFolder>0</documentlibrary:IsFolder>
          <documentlibrary:CreationDate>2009-11-
11T17:07:08.156Z</documentlibrary:CreationDate>
          <documentlibrary:LastModifiedDate>2009-11-
11T17:07:17.613Z</documentlibrary:LastModifiedDate>
          <documentlibrary:IsHidden>0</documentlibrary:IsHidden>
          <documentlibrary:ContentLength>13</documentlibrary:ContentLength>
          <documentlibrary:ContentType>text/plain</documentlibrary:ContentType>
        </Properties>
      </Result>
      <Range>0-0</Range>
      <Total>1</Total>
    </Store>
  </Response>
</Search>
```

### 4.2 Retrieving the Text of a Document by Using the ItemOperations Command

The following example demonstrates a client request to retrieve the data for a document by using the **ItemOperations** command ([\[MS-ASCMD\]](#) section 2.2.1.10), and the server response. In the **XML**

response below, the value of the **itemoperations:Data** element ([MS-ASCMD] section 2.2.3.39.2) has been truncated for the sake of brevity.

Request:

```
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations xmlns:documentlibrary="DocumentLibrary:" xmlns="ItemOperations:">
  <Fetch>
    <Store>DocumentLibrary</Store>
    <documentlibrary:LinkId>\\EXCH-D-810\DocumentShare\Word
Document.docx</documentlibrary:LinkId>
  </Fetch>
</ItemOperations>
```

Response:

```
<?xml version="1.0" encoding="utf-8"?>
<ItemOperations
xmlns:documentlibrary="DocumentLibrary:"
>
  <Status>1</Status>
  <Response>
    <Fetch>
      <Status>1</Status>
      <documentlibrary:LinkId>\\EXCH-D-810\DocumentShare\Word
Document.docx</documentlibrary:LinkId>
      <Properties>

<Data>UEsDBBQABgAIAAAAIQDd/+ImYzsKNchci+VLqQHEkJU4+RzBv1jKu6vsf0VwOamabaWQ1pZ+9AtcdYNl/WD103G
n4KZu/Yy4kVyAdhb9kuYipsSc
ZyjWop9SwabDDPJZ2RYqwKNuBpotX1RP9fi46FLAmhCYnP83x1nANaXg902aJ5x687HyFZLBZ9e/tDg7MvaD4BAAD//wM
AUEsDBBQABgAIAAAAIQDWZLNR
+gAAADEDAAAcAAGBd29yZC9fcmVscy9kb2N1bWVudC54bWwucmVscyCiBAEooAABAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAA...</Data>
      <Version>2009-11-11T19:15:45.177Z</Version>
    </Properties>
  </Fetch>
</Response>
</ItemOperations>
```

### 4.3 Browsing a Document Folder

The following example demonstrates how a client can use the **Search** command request ([MS-ASCMD] section 2.2.1.16) to browse a folder on a remote share. The client submits a request for a folder to view, and the server responds with a list of the folder's contents.

Request:

```
<?xml version="1.0" encoding="utf-8"?>
<Search xmlns="Search:" xmlns:documentlibrary="DocumentLibrary:">
  <Store>
    <Name>DocumentLibrary</Name>
    <Query>
      <EqualTo>
        <documentlibrary:LinkId/>
        <Value>\\myserver\myshare</Value>
      </EqualTo>
    </Query>
    <Options>
      <Range>0-999</Range>
    </Options>
  </Store>
```

</Search>

## Response:

```
<?xml version="1.0" encoding="utf-8"?>
<Search xmlns="Search:" xmlns:documentlibrary="DocumentLibrary:">
  <Status>1</Status>
  <Response>
    <Store>
      <Status>1</Status>
      <Result>
        <Properties>
          <documentlibrary:LinkId>\\myserver\myshare</documentlibrary:LinkId>
          <documentlibrary:DisplayName>d$</documentlibrary:DisplayName>
          <documentlibrary:IsFolder>1</documentlibrary:IsFolder>
          <documentlibrary:CreationDate>2007-10-
02T00:34:28.686Z</documentlibrary:CreationDate>
          <documentlibrary:LastModifiedDate>2009-11-
13T21:48:20.919Z</documentlibrary:LastModifiedDate>
          <documentlibrary:IsHidden>1</documentlibrary:IsHidden>
        </Properties>
      </Result>
      <Result>
        <Properties>
          <documentlibrary:LinkId>\\myserver\myshare\blah.txt</documentlibrary:LinkId>
          <documentlibrary:DisplayName>blah.txt</documentlibrary:DisplayName>
          <documentlibrary:IsFolder>0</documentlibrary:IsFolder>
          <documentlibrary:CreationDate>2007-10-
02T18:26:52.265Z</documentlibrary:CreationDate>
          <documentlibrary:LastModifiedDate>2009-04-
02T02:57:55.843Z</documentlibrary:LastModifiedDate>
          <documentlibrary:IsHidden>1</documentlibrary:IsHidden>
          <documentlibrary:ContentLength>48</documentlibrary:ContentLength>
          <documentlibrary:ContentType>text/plain</documentlibrary:ContentType>
        </Properties>
      </Result>
      <Result>
        <Properties>
          <documentlibrary:LinkId>\\myserver\myshare\foo</documentlibrary:LinkId>
          <documentlibrary:DisplayName>foo</documentlibrary:DisplayName>
          <documentlibrary:IsFolder>1</documentlibrary:IsFolder>
          <documentlibrary:CreationDate>2009-10-
13T00:43:44.660Z</documentlibrary:CreationDate>
          <documentlibrary:LastModifiedDate>2009-10-
13T00:46:17.421Z</documentlibrary:LastModifiedDate>
          <documentlibrary:IsHidden>0</documentlibrary:IsHidden>
        </Properties>
      </Result>
      <Range>0-2</Range>
      <Total>3</Total>
    </Store>
  </Response>
</Search>
```



## **5 Security**

### **5.1 Security Considerations for Implementers**

None.

### **5.2 Index of Security Parameters**

None.

Preliminary

## 6 Appendix A: Full XML Schema

For ease of implementation, this section contains the contents of the DocumentLibrary.xsd file, which represents the full **XML schema** for this protocol.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="DocumentLibrary"
  targetNamespace="DocumentLibrary" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="LinkId" type="xs:string"/>
  <xs:element name="DisplayName" type="xs:string"/>
  <xs:element name="IsFolder" type="xs:unsignedByte"/>
  <xs:element name="CreationDate" type="xs:dateTime"/>
  <xs:element name="LastModifiedDate" type="xs:dateTime"/>
  <xs:element name="IsHidden" type="xs:unsignedByte"/>
  <xs:element name="ContentLength" type="xs:integer"/>
  <xs:element name="ContentType" type="xs:string"/>
  <xs:group name="AllProps">
    <xs:sequence>
      <xs:choice maxOccurs="unbounded">
        <xs:element ref="LinkId"/>
        <xs:element ref="DisplayName"/>
        <xs:element ref="IsFolder"/>
        <xs:element ref="CreationDate"/>
        <xs:element ref="LastModifiedDate"/>
        <xs:element ref="IsHidden"/>
        <xs:element ref="ContentLength"/>
        <xs:element ref="ContentType"/>
      </xs:choice>
    </xs:sequence>
  </xs:group>
</xs:schema>
```

Prelim.

## 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 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 Preview

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.

Preliminary

## 8 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](mailto:dochelp@microsoft.com).

Section	Description	Revision class
<a href="#">Z</a> Appendix B: Product Behavior	Updated list of supported products.	Major

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