[MS-ASDOC]:
ActiveSync Document Class Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
12/03/2008	1.0.0	Major	Initial Release.
02/04/2009	1.0.1	Editorial	Revised and edited technical content.
03/04/2009	1.0.2	Editorial	Revised and edited technical content.
04/10/2009	2.0.0	Major	Updated 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.
11/03/2010	7.1	Minor	Clarified the meaning of the technical content.
03/18/2011	7.2	Minor	Clarified the meaning of the technical content.
08/05/2011	8.0	Major	Significantly changed the technical content.
10/07/2011	8.0	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1   Introduction

The ActiveSync Document Class Protocol supports accessing documents stored in Windows® SharePoint® Services 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 1.8, 2, and 3 of this specification are normative and contain RFC 2119 language. Sections 1.5 and 1.9 are also normative but cannot contain RFC 2119 language. All other sections and examples in this specification are informative.

1.1   Glossary

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

> **Coordinated Universal Time (UTC)**
> **Universal Naming Convention (UNC)**
> **XML**

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

> **base64 encoding**
> **header**
> **Multipurpose Internet Mail Extensions (MIME)**
> **Uniform Resource Identifier (URI)**
> **Wireless Application Protocol (WAP) Binary XML (WBXML)**
> **XML namespace**
> **XML schema**

The following terms are specific to this document:

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

1.2   References

1.2.1   Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624, as an additional source.

[MS-ASAIRS] Microsoft Corporation, "ActiveSync AirSyncBase Namespace Protocol Specification".

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

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

[MS-ASWBXML] Microsoft Corporation, "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

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

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

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

1.2.2 Informative References

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

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

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].

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

This protocol defines **XML schema** elements for the **Document** class, which represents a document. The XML schema definition for the **Document** class is as follows, in accordance with the rules specified in [XMLSCHEMA1].

```
<?xml version="1.0" ?><xs:schema xmlns:tns="DocumentLibrary:"
attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="DocumentLibrary:" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:airsyncbase="AirSyncBase:">
    <xs:import namespace="AirSyncBase" />
    <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:unsignedByte" />
    <xs:element name="ContentType" type="xs:unsignedByte" />
</xs:schema>
```

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)	**DocumentLibrary**	
airsyncbase	**AirSyncBase**	[MS-ASAIRS]
itemoperations	**ItemOperations**	[MS-ASCMD] section 2.2.2.8
search	**Search**	[MS-ASCMD] section 2.2.2.14
xs	**http://www.w3.org/2001/XMLSchema**	[XMLSCHEMA1]

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
LinkId (section 2.2.2.8)	The link to the document, specified as a **Uniform Resource Identifier (URI)**.
DisplayName (section 2.2.2.4)	The name of the document, as displayed by the client.
IsFolder (section 2.2.2.5)	Specifies whether the item is a folder or a document.
CreationDate (section 2.2.2.3)	The date and time when the document was first created.
LastModifiedDate (section 2.2.2.7)	The date and time when the document or its properties was last modified.
IsHidden (section 2.2.2.6)	Specifies whether this is a hidden object.
ContentLength (section 2.2.2.1)	The estimated size of the document, in bytes.
ContentType (section 2.2.2.2)	The **Multipurpose Internet Mail Extensions (MIME)** type of the binary-encoded content or content encoded with **base64 encoding**.

2.2.2.1 ContentLength

The **ContentLength** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) 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 **unsignedByte** data type, as specified in [MS-ASDTYPE] section 2.7.

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.

2.2.2.2 ContentType

The **ContentType** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) 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 an **unsignedByte** data type, as specified in [MS-ASDTYPE] section 2.7.

2.2.2.3 CreationDate

The **CreationDate** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) that specifies the date and time when the document 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.

2.2.2.4 DisplayName

The **DisplayName** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) that specifies the name of the document 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 2.6.

2.2.2.5 IsFolder

The **IsFolder** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) 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 2.7. Valid values for this element are as follows.

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

2.2.2.6 IsHidden

The **IsHidden** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) 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 2.7. 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.

2.2.2.7 LastModifiedDate

The **LastModifiedDate** element is a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2) that specifies the date and time that the document or its properties was 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 Coordinated Universal Time (UTC) format, as specified in [MS-ASDTYPE] section 2.3.

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 2.2.3.60.1) for **Document** class items in an **ItemOperation** command request ([MS-ASCMD] section 2.2.2.8.2) and an **ItemOperations** command response ([MS-ASCMD] section 2.2.2.8.3), a required child element of the **search:EqualTo** element ([MS-ASCMD] section 2.2.3.56) for **Document** class items in a **Search** command request ([MS-ASCMD] section 2.2.2.14.1), and a required child element of the **search:Properties** element ([MS-ASCMD] section 2.2.3.118.2) for **Document** class items in a **Search** command response ([MS-ASCMD] section 2.2.2.14.2).

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.

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 2.2.2.14.1) 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 2.2.2.8.2) to the server that contains one or more **itemoperations:Fetch** elements ([MS-ASCMD] section 2.2.3.60.1).

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 2.2.2.8.2) 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 2.2.3.37.1) of the **ItemOperations** command response ([MS-ASCMD] section 2.2.2.8.3) 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 2.2.2.8.2) that contains one or more **itemoperations:Fetch** elements ([MS-ASCMD] section 2.2.3.60.1) 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 2.2.3.60.1).

A client can use the HTTP **header (2) MS-ASAcceptMultiPart: T** to specify that the server return 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 (2), see [MS-ASCMD] section 2.2.2.8.1.

The **ItemOperations** command is specified in [MS-ASCMD] section 2.2.2.8.

3.1.5.2 Search Command Request

A client uses the **Search** command request ([MS-ASCMD] section 2.2.2.14.1) 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 2.2.3.56). The **search:Value** element ([MS-ASCMD] section 2.2.3.169) 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 4.22.1.

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

The **Search** command is specified in [MS-ASCMD] section 2.2.2.14.

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 2.2.2.14.2).

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 2.2.2.8.3).

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 2.2.2.8.3), which returns the body of the document either as text encoded with base64 encoding in the **itemoperations:Data** element ([MS-ASCMD] section 2.2.2.8.3) 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 2.2.2.8.2) 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 ([MS-ASCMD] section 2.2.2.8.3).

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 I**temoperations:Fetch** element ([MS-ASCMD] section 2.2.3.60.1).

If an **ItemOperations** command request for the body of the document was made using the **MS-ASAcceptMultiPart: T** header (2), 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 2.2.3.37.1) of the **ItemOperations** command response. For more details about content delivery for documents, see [MS-ASCMD] section 2.2.2.8.1.

The **ItemOperations** command is specified in [MS-ASCMD] section 2.2.2.8.

3.2.5.2 Search Command Response

When a client uses the **Search** command request ([MS-ASCMD] section 2.2.2.14.1) 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 ([MS-ASCMD] section 2.2.2.14.2).

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 2.2.3.118) in a **Search** command response.

The **Search** command is specified in [MS-ASCMD] section 2.2.2.14.

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
<?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
<?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 2.2.2.8), and the server response. In the XML response below, the value of the **itemoperations:Data** element ([MS-ASCMD] section 2.2.3.37.1) 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/WDl03G
n4KZu/Yy4kVyAdhb9kuYipsSc
ZyjWop9SwabDDPJZ2RYqwKNuBpotX1RP9fi46FLAmhCYnP83x1nANaXg902aJ5x687HyFZLBZ9e/tDg7MvaD4BAAD//wM
AUEsDBBQABgAIAAAAIQDWZLNR
+gAAADEDAAAcAAgBd29yZC9fcmVscy9kb2N1bWVudC54bWwucmVscyCiBAEooAABAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAA...</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 2.2.2.14.1) 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>
        </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.

6   Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

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

- Microsoft® Exchange Server 2010

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

7 Change Tracking

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

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