

[MS-ASDOC]: ActiveSync Document Class Protocol Specification

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1 Introduction

ActiveSync supports accessing documents stored in Windows Sharepoint Services and on file shares specified using Universal Naming Convention (UNC) paths. The Document Class protocol specifies how such document data is communicated from the server to the client in the ActiveSync protocol.

1.1 Glossary

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

- class**
- collection**
- Coordinated Universal Time (UTC)**
- message database**
- Multipurpose Internet Mail Extensions (MIME)**
- protocol**
- server**
- synchronization**
- Uniform Resource Identifier (URI)**
- Uniform Resource Locator (URL)**
- WAP Binary XML (WBXML)**

The following definitions are specific to this specification:

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

[MS-ASAIRS] Microsoft Corporation, "ActiveSync AirSyncBase Namespace Protocol Specification", December 2008.

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

[MS-ASDTYPE] Microsoft Corporation, "ActiveSync Data Types Protocol Specification", December 2008.

[MS-ASWBXML] Microsoft Corporation, "ActiveSync WAP Binary XML (WBXML) Protocol Specification", December 2008.

[MS-OXGLOS] Microsoft Corporation, "Exchange Server Protocols Master Glossary", June 2008.

[RFC822] Crocker, D.H., "Standard for ARPA Internet Text Messages", RFC 822, August 1982, <http://www.ietf.org/rfc/rfc0822.txt>.

[XML] Bray, T., et al., "Extensible Markup Language (XML) 1.0 (Fifth Edition)", <http://www.w3.org/TR/REC-xml/>.

1.2.2 Informative References

None.

1.3 Protocol Overview

The Document Class protocol specifies the XML representation of documents used for client and server communication as specified in [MS-ASCMD].

1.4 Relationship to Other Protocols

The Document **Class** protocol specifies the XML representation of documents that are used by commands specified in [MS-ASCMD]. The **protocol** governing the transmission of these commands between the client and the server is specified in [MS-ASCMD].

All simple data types in this document conform to the data type definitions specified in [MS-ASDTYPE].

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

None.

1.7 Versioning and Localization

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The Document **class** consists of a series of XML elements that are embedded inside of a **command** or a **collection** sent in accordance with [MS-ASCMD]. The XML block containing the **class** elements is transmitted in either the request body of a request, or the response body of a response.

The types and elements of the Document **class** are defined in two namespaces: Doc and AirSyncBase. All of the Document **class** types and elements are specified in this document; however, complex types and elements defined in the AirSyncBase namespace are further specified in [MS-ASAIRS].

The parent element of the Document **class** elements depends upon the ActiveSync protocol command used to retrieve the **class** data. Commands and parent elements for the Document **class** XML schema are specified in section 3.1.5.

2.2 Message Syntax

The markup MUST be well-formed XML, as specified in [XML].

The XML markup that constitutes the request body or the response body is transmitted between the client and the server using **WAP Binary XML (WBXML)**. For more information, see [MS-ASWBXML].

The XML schema definition for the Document **class** in ActiveSync is as follows.

```
<?xml version="1.0" ?><xs:schema xmlns:tns="DOC:"
attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="DOC:" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:A="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 Complex Types

There are no complex types defined for the Document **class**.

2.2.2 Elements

The following table summarizes the set of common XML schema element definitions defined by this specification. XML schema elements that are specific to a particular operation are described with the operation.

Document **class** elements **MUST NOT** have child elements in either the command request or response.

Element	Description
LinkId	The link to the document, specified as a Uniform Resource Locator (URI).
DisplayName	The name of the document, as displayed to the user.
IsFolder	Specifies whether the item is a folder or a document.
CreationDate	The date and time when the document was first created.
LastModifiedDate	The date and time when the document or its properties was last modified.
IsHidden	Specifies whether this is a hidden object.
ContentLength	The estimated size of the document, in bytes.
ContentType	The Multipurpose Internet Mail Extension (MIME) type of the binary- or base-64-encoded content.

2.2.2.1 LinkId

The **LinkId** element is an optional element that specifies the link to the document in the form of a URI.

2.2.2.2 DisplayName

The **DisplayName** element is a required element that specifies the name of the document as it is displayed to the user.

2.2.2.3 IsFolder

The **IsFolder** element is a required element that specifies whether this item is a folder. Valid values for this element are as follows.

Value	Description
True	The item is a folder.
False	The item is not a folder.

2.2.2.4 CreationDate

The **CreationDate** element is a required element that specifies the date and time when the document was first created.

The value of this element is in **Coordinated Universal Time (UTC)** format, as specified in [MS-ASDTYPE].

2.2.2.5 LastModifiedDate

The **LastModifiedDate** element is a required element that specifies the date and time that the document or its properties was last modified.

The value of this element is in **UTC** format, as specified in [MS-ASDTYPE].

2.2.2.6 IsHidden

The **IsHidden** element is a required element that specifies whether this is a hidden object.

2.2.2.7 ContentLength

The **ContentLength** element is a required element that specifies the size, in bytes, of the document.

2.2.2.8 ContentType

The **ContentType** element is an optional element that specifies the MIME type of the binary- or base64-encoded document, if known.

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 2.1. It is returned by the server as part of a full XML response to the client commands specified in section 3.1.4.

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

A client searches for Document **class** data on a server by sending a **Search** command request.

3.1.4.2 Requesting Details for a Specific Document

Document **class** data for one or more individual documents is requested by the client sending an **ItemOperations** command request, which is a wrapper for the **Fetch** command. An **ItemOperations** command can contain multiple **Fetch** commands.

3.1.4.3 Requesting the Document Body from the Server

The body of the document is not returned in the Document **class**. A client can submit the value of the **LinkID** element in a separate **ItemOperations** request to obtain the body of the document.

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 commands. For more details about the commands themselves, see [MS-ASCMD].

3.1.5.1 ItemOperations Command Request

A client uses the **ItemOperations** command to retrieve specific Document items from the server using the **Fetch** element. An **ItemOperations** request can contain multiple **Fetch** elements.

Any of the Document **class** elements can be included in an **ItemOperations** command request.

Document **class** elements are transmitted as children of the **Schema** type ([MS-ASCMD] section 2.2.1.9.2.12).

ItemOperations is specified in [MS-ASCMD] section 2.2.1.9.Search Command Request

A client uses the **Search** command to retrieve Document **class** items that match the criteria specified by the client.

The Document **class** elements **MUST NOT** be included in a **Search** command request.

Search is specified in [MS-ASCMD] section 2.2.1.16.

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 2.1. It is returned by the server as part of a full XML response to the client commands specified in section 3.1.4.

Command response: A WBXML formatted message that adheres to the command schemas specified in [MS-ASCMD]. The server **MUST** return a Document **class** XML block for every e-mail 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.

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Higher-Layered Triggered Events

3.2.4.1 Searching for Documents

A client searches for Document **class** data on a server by sending a **Search** command request. The server responds with a **Search** command response.

3.2.4.2 Requesting Details for a Specific Document

Document **class** data for one or more individual documents is requested by the client sending an **ItemOperations** command request, which is a wrapper for the **Fetch** command. An **ItemOperations** command can contain multiple **Fetch** commands. The server responds with an **ItemOperations** command response.

3.2.4.3 Requesting the Document Body from the Server

The body of the document is not returned in the Document **class**. A client can submit the value of the **LinkID** element in a separate **ItemOperations** request to obtain the body of the document. The server responds with an **ItemOperations** command response.

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

A client uses the **ItemOperations** command to retrieve specific Document items from the server using the **Fetch** element. An **ItemOperations** request can contain multiple **Fetch** elements.

Any of the elements for the Document **class** can be included in an **ItemOperations** command response. If a **Schema** element was included in the command request, then the elements returned **MUST** be restricted to the elements included in the command request's **Schema** element.

Document **class** elements are returned as children of the **Properties** type ([MS-ASCMD] section 2.2.1.9.3.8).

ItemOperations is specified in [MS-ASCMD] section 2.2.1.9.

3.2.5.2 Search Command Response

A client uses the **Search** command to retrieve Document **class** items that match the criteria specified by the client.

Any of the elements for the Document **class** can be included in a **Search** command response. Document **class** elements are returned as children of the **Properties** type ([MS-ASCMD] section 2.2.1.16.2.2).

Search is specified in [MS-ASCMD] section 2.2.1.16.

3.2.6 Timer Events

None.

3.2.7 Other Local Events

None.

4 Protocol Examples

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

6 Appendix A: Office/Exchange Behavior

The information in this specification is applicable to the following versions of Office/Exchange:

- Microsoft Exchange Server 2007
- Microsoft Exchange Server 2010

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies Office/Exchange behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies Office/Exchange does not follow the prescription

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