[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 ActiveSync Document Class protocol specifies how such document data is communicated from the server to the client.

1.1 Glossary

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

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

The following terms 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.

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[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/.

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, http://www.w3.org/TR/REC-xml-names/.

1.2.2 Informative References

None.

1.3 Protocol Overview

The ActiveSync 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 ActiveSync 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.

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2 Messages

2.1 Transport

This protocol 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 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.

This section describes the child elements that can be returned by an ActiveSync command. This section also describes concepts that are related to the document class.

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="DocumentLibrary"
attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="DocumentLibrary"
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:string" />
     <xs:element name="ContentType" type="xs:string" />
</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.

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Prefix	Reference
DOC:	[MS-ASDOC]
A:	[MS-ASAIRS]

2.2.2 Simple Types

This specification does not define any common XML schema simple type definitions.

2.2.3 Complex Types

There are no complex types defined for the document class.

2.2.4 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 Identifier (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.

2.2.4.1 LinkId

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

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2.2.4.2 DisplayName

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

2.2.4.3 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.

2.2.4.4 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].

2.2.4.5 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].

2.2.4.6 IsHidden

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

2.2.4.7 ContentLength

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

2.2.4.8 ContentType

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

2.2.5 Attributes

This specification does not define any common XML schema attribute definitions.

2.2.6 Groups

This specification does not define any common XML schema group definitions.

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2.2.7 Attribute Groups

This specification does not define any common XML schema attribute group definitions.

2.2.8 Commands

Commands that send and receive document class data are specified in section 3.1.5.

3 Protocol Details

3.1 Client and Server Details

3.1.1 Abstract Data Model

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

The document class is 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.

The server can return zero or more document class blocks in its response, depending on how many documents match the criteria specified by the client command request.

The server MUST return a document class XML block for every document that matches the criteria specified by the client command request.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

The document class is used when a client requests details for one or more specific documents residing on a file share.

3.1.5 Message Processing Events and Sequencing Rules

3.1.5.1 ItemOperations

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.

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

3.1.5.1.1 Complex Types

There are no complex types defined for the document class.

3.1.5.1.2 Elements

3.1.5.1.2.1 Command Request

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

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

3.1.5.1.2.2 Command Response

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 MUST be returned as children of the **Properties** type ([MS-ASCMD] section 2.2.1.9.3.8).

3.1.5.1.2.2.1 Retrieving 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.

3.1.5.2 Search

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

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

3.1.5.2.1 Complex Types

There are no complex types defined for the document class.

3.1.5.2.2 Elements

3.1.5.2.2.1 Command Request

The LinkId **element** can be included in a **Search** request.

3.1.5.2.2.2 Command Response

Any of the elements for the document class can be included in a **Search** command response.

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Document class elements MUST be returned as children of the **Properties** type ([MS-ASCMD] section 2.2.1.16.2.2).

3.1.6 Timer Events

None.

3.1.7 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:

- Office 2003 with Service Pack 3 applied
- Exchange 2003 with Service Pack 2 applied
- Office 2007 with Service Pack 1 applied
- Exchange 2007 with Service Pack 1 applied

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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