[MS-OXPFOAB]: Offline Address Book (OAB) Public Folder Retrieval Protocol Specification

Revision Summary			
Author	Date	Version	Comments
Microsoft Corporation	April 4, 2008	0.1	Initial Availability.
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1 Introduction

This document specifies a new structure format.

A collaboration server might choose to represent properties of known Address Book objects and make them available in an address book to its clients. When the client cannot reach the server due to being offline or having high network costs to access the server, the client might keep a local copy of an offline address book. This document specifies the Offline Address Book (OAB) Public Folder Retrieval protocol, which is how OAB V2 and V4 are retrieved from public folders; a mechanism for delivering an offline address book from server to client. An offline address book uses the Offline Address Book (OAB) Format and Schema structure described in [MS-OXOAB].

1.1 Glossary

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

address book
Address Book object
address list
Augmented Backus-Naur Form (ABNF)
distinguished name (DN)
folder ID (FID)
GUID
messaging object
offline address book (OAB)
property
public folder
template
Unicode

The following terms are specific to this document:

OAB data file: A file that contains Offline Address Book (OAB) v4–specific data, as specified in [MS-OXOAB].

OAB manifest: A file that contains information about data files in the v4 OAB and has fixed, well-known name “oab.xml”. By discovering the Web Distribution Point (WDP) URI and downloading the manifest, a client application gets all information necessary to download any published data file in a given WDP as needed.

OAB Web distribution: A distribution mechanism specific to Offline Address Book (OAB) v4 when OAB data files and manifest are published as a collection of files that can be downloaded by client applications using the HTTP 1.1 protocol.

OAL data sequence number: The integer number associated with **Offline Address List (OAL)** data that represents the generation number of this data. The initial sequence number is 1. Every subsequent data generation that produces a data set not identical to the previous one increments the sequence number by one.

Offline Address List (OAL): A portion of data in an **offline address book (OAB)** that is related to a single **address list**.

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

[FIP180-1] Federal Information Processing Standards Publication, "Secure Hash Standard", FIPS PUB 180-1, April 1995, http://www.itl.nist.gov/fipspubs/fip180-1.htm.

[MS-LCID] Microsoft Corporation, "Windows Language Code Identifier (LCID) Reference", March 2007, http://go.microsoft.com/fwlink/?LinkId=112265.

[MS-NSPI] Microsoft Corporation, "Name Service Provider Interface (NSPI) Protocol Specification", June 2008.

[MS-OXCFOLD] Microsoft Corporation, "Folder Object Protocol Specification", June 2008.

[MS-OXCMSG] Microsoft Corporation, "Message and Attachment Object Protocol Specification", June 2008.

[MS-OXCSTOR] Microsoft Corporation, "Store Object Protocol Specification", June 2008.

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

[MS-OXOAB] Microsoft Corporation, "Offline Address Book (OAB) Format and Schema Protocol Specification", June 2008.

[MS-OXOABK] Microsoft Corporation, "Address Book Object Protocol Specification", June 2008.

[MS-OXOABKT] Microsoft Corporation, "Address Book User Interface Templates Protocol Specification", June 2008.

[MS-OXPROPS] Microsoft Corporation, "Office Exchange Protocols Master Property List Specification", June 2008.

[MS-OXWOAB] Microsoft Corporation, "Offline Address Book (OAB) Retrieval Protocol Specification", June 2008.

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

[RFC4234] Crocker, D., Ed. and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", RFC 4234, October 2005, http://www.ietf.org/rfc/rfc4234.txt.

1.2.2 Informative References

None.

1.3 Protocol Overview

The Offline Address Book (OAB) Format and Schema structure are described in [MS-OXOAB].

The OAB Public Folder Retrieval protocol specifies how OAB data is located and obtained from a shared location so that it can be retrieved by clients.

OAB V4 files can also be obtained using the Offline Address Book (OAB) Web Retrieval Protocol, as specified in [MS-OXWOAB]. The OAL data sequence number as described in [MS-OXWOAB] is also used in public folder distribution, and any client use of that number applies identically to the public folder-distributed OAB.

1.4 Relationship to Other Protocols and Other Structures

- The OAB Public Folder Retrieval protocol extends the Message and Attachment Object protocol, as specified in [MS-OXCMSG].
- Clients use this protocol to retrieve and consume OAB data files that have the Offline Address Book (OAB) Format and Schema structure, as specified in [MS-OXOAB].

- Clients using this protocol rely on the Store Object protocol, as specified in [MS-OXCSTOR], to obtain the ID of the Local Site's Offline Address Book Data Folder from the server when logging on to the public folder using RopLogon.

1.5 Prerequisites/Preconditions

The Offline Address Book (OAB) Public Folder Retrieval protocol assumes that the server is configured to support public folders<1>.

1.6 Applicability Statement

Clients use the OAB Public Folder Retrieval protocol for OAB files. Clients that do not support the OAB Retrieval protocol, or clients connecting to servers that do not support the OAB Retrieval protocol, will use the OAB Public Folder Retrieval protocol to retrieve OAB data.

1.7 Versioning and Localization

None.

1.8 Vendor-Extensible Fields

None.

2 Messages

2.1 Transport

The OAB Public Folder Retrieval protocol uses the protocols defined in [MS-OXCMSG] as its primary transport mechanism.

2.2 Message Syntax

2.2.1 All OAB Messages

OAB data is stored as a set of properties and attachments on a message in the public folders store. The message is referred to as the Full OAB Message or Differential OAB Message. The location of this message is described in section 3. Unless otherwise specified, the OAB Messages adhere to [MS-OXCMSG]. Properties are defined in [MS-OXPROPS].

OAB Messages come in two types, full and differential, with some further differences related to version of the OAB. Full messages contain all information needed to create a current OAB. Differential messages contain enough information to update a previous OAB to a more current OAB. The properties common to all OAB Messages are defined in the subsections that follow.

2.2.1.1 PidTagOfflineAddressBookName

The value of this property is the name of the address list contained in the OAB Message. See [MS-OXPROPS] for details.

2.2.1.2 PidTagOfflineAddressBookSequence

The value of this property is the OAL data sequence number of the attached full or differential OAL files, as described in [MS-OXOAB]. See [MS-OXPROPS] for details.

2.2.1.3 PidTagOfflineAddressBookContainerGuid

The value of this property is a GUID identifying a set of full and differential OAL files that form a sequence, ordered by their OAL data sequence numbers. A server MUST set this value to the same for every full and differential OAB message in a sequence, but MUST set this to a different value for unrelated sequences of files. See [MS-OXPROPS] for details.

2.2.1.4 PidTagOfflineAddressBookDistinguishedName

The value of this property is the distinguished name of the address list contained in the OAB Message. This is addresslist-x500-dn as described in [MS-OXOAB]. It MUST match the distinguished name returned by the Name Service Provider Interface (NSPI) Protocol for the Address List. See [MS-OXPROPS] for details.

2.2.1.5 PidTagSortLocaleId

The value of this property is the Locale Identifier, as described in [MS-LCID], used in combination with PidTagMessageCodepage to sort RDN2_REC and ANR_REC in OAB Version 2 files. See [MS-OXPROPS] for details.

2.2.1.6 PidTagMessageCodepage

The value of this property is the code page used to encode the strings in the message properties in OAB Version 2 files. Note that strings in OAB Version 4 files are stored in UTF-8. See [MS-OXCMSG] and [MS-OXPROPS] for details.

2.2.1.7 PidTagMessageSize

See [MS-OXCMSG] and [MS-OXPROPS] for details.

2.2.1.8 PidTagParentEntryId

See [MS-OXPROPS] for details.

2.2.1.9 PidTagEntryId

See [MS-OXPROPS] for details.

2.2.2 Full OAB Messages

2.2.2.1 Properties and attachments specific to Full OAB Message

2.2.2.1.1 PidTagOfflineAddressBookMessageClass

This property is set to 1 for all Full OAB Messages. See [MS-OXPROPS] for details.

2.2.2.1.2 Full OAB Message Attachments – Version 2

Attached to the version 2 Full OAB Message are multiple compressed files, using the Offline Address Book (OAB) Format and Schema structure described in [MS-OXOAB]. These are the Browse file, RDN Index file, ANR Index file, Details file, and one or more Display Template files.

Version 2 attachments have their own properties and are described in the subsections that follow.

2.2.2.1.2.1 PidTagAttachFilename

See [MS-OXPROPS] for details. This property is set to the values corresponding to each file.

OAB File	PidTagAttachFilename value MUST start with	PidTagAttachFilename value SHOULD be
Browse	b	browse2.oab
RDN Index	r	rdndex2.oab
ANR Index	a	anrdex.oab
Details	d	details2.oab
Template	l	*

*The Template file MUST have a name in the following format:

```
"Lng" LocaleIdentifier ".oab"

LocaleIdentifier = non-zero-hexdigit *HEX

(i.e. 409 and cc08 but not 0409)
```

LocaleIdentifier is a value from [MS-LCID] but can also have the value 8411 to indicate the special Japanese template with phonetic, or "Yomi", properties as described in [MS-OXOABKT].

2.2.2.1.2.2 PidTagAttachMethod

This property MUST be set to 1 (ATTACH_BY_VALUE). See [MS-OXPROPS] for details.

2.2.2.1.3 Full OAB Message Attachments – Version 4

Attached to the version 4 Full OAB Message are multiple compressed files, described in [MS-OXOAB]. These are the Data file, and one or more Display Template files.

Version 4 attachments have their own properties and are described in the sub sections that follow

2.2.2.1.3.1 PidTagAttachFilename

See [MS-OXPROPS] for details. This property is set to the values corresponding to each file.

OAB File	PidTagAttachFilename value MUST start with	PidTagAttachFilename value MUST be
Data	d	data.oab
Template	l	*

*The Template file MUST have a name in the following format:

```
"Lng" LocaleIdentifier ".oab"

LocaleIdentifier = non-zero-hexdigit *HEX

(i.e. 409 and cc08 but not 0409)
```

LocaleIdentifier is a value from [MS-LCID] but can also have the value 8411 to indicate the special Japanese template with phonetic, or "Yomi", properties as described in [MS-OXOABKT].

2.2.2.1.3.2 PidTagAttachMethod

This property MUST be set to 1 (ATTACH_BY_VALUE). See [MS-OXPROPS] for details.

2.2.2.2 Properties and attachments specific to Differential OAB Message

2.2.2.2.1 PidTagOfflineAddressBookMessageClass

This property MUST be set to 2 for all Differential OAB Messages. See [MS-OXPROPS] for details.

2.2.2.2.2 Differential OAB Message Attachments – Version 2

Attached to the version 2 Differential OAB Message is one compressed file, described in [MS-OXOAB]. This is a Changes File.

This attachment has its own properties that are defined in the subsections that follow.

2.2.2.2.2.1 PidTagAttachFilename

See [MS-OXPROPS] for details.

Value SHOULD be “changes.oab”.

2.2.2.2.2.2 PidTagAttachMethod

This property MUST be set to 1 (ATTACH_BY_VALUE). See [MS-OXPROPS] for details.

2.2.2.2.3 Diff OAB Message Attachments – Version 4

Attached to the version 4 Differential OAB Message are one or more compressed files, described in [MS-OXOAB]. These are zero or one Changes file, and zero or more Templates files.

The Differential Patch file MUST be the first attachment on this message.

These attachments have their own properties and are defined in the subsections that follow.

2.2.2.2.3.1 PidTagAttachFilename

See [MS-OXPROPS] for details. This property is set to the value corresponding to each file.

OAB File	PidTagAttachFilename value MUST start with	PidTagAttachFilename value SHOULD be
Differential Patch	*N/A	binpatch.oab
Template	l	*

*The Template file MUST have a name in the following format:

```
“Lng” LocaleIdentifier “.oab”

LocaleIdentifier = non-zero-hexdigit *HEX

(i.e. 409 and cc08 but not 0409)
```

2.2.2.2.3.2 PidTagAttachMethod

This property MUST be set to 1 (ATTACH_BY_VALUE). See [MS-OXPROPS] for details.

3 Protocol Details

3.1 Server Details

OAB Messages are kept in folders in the public folder store. There is one folder for each OAB, named for the OAB contained in it.

The server MUST publish the entry ID of the OAB folder in the "Local Site's Offline Address Book Data Folder" property when clients connect to the public folder store as described in the Public Folder IDs of the RopLogon Semantics in [MS-OXCSTOR].

Under that folder are subfolders with a fixed name relative to the OAB version contained therein, either "OAB Version 2" or "OAB Version 4". The messages containing OAB files are posted to the appropriate folder.

The folder SHOULD be secure in such a way that users cannot add, change, or delete the content in the folder. The server MUST allow an administrative user to be able to customize the security to grant read access to an administrator-chosen set of users.

The server SHOULD discard old Messages to prevent the size of the folder from growing without bounds. The server SHOULD allow an administrative user to be able to customize the age limit of Messages.<2>

3.2 Client Details

Before using this protocol [MS-OXPFOAB], the client SHOULD use [MS-OXWOAB] if it is available.<3>

Clients obtain the entry ID of their Offline Address Book folder (the one containing OAB Version 2 and OAB Version 4 subfolders) during the RopLogon call when connecting to the public folder store. It is the "Local Site's Offline Address Book Data Folder" as described in the Public Folder IDs of the RopLogon Semantics in [MS-OXCSTOR]. The client SHOULD use the Local Site's Offline Address Book Data Folder as the root folder to start finding its OAB messages. The client SHOULD first check for existence of subfolder "OAB Version 4" and use OAB v4 if it exists. If not, the client SHOULD check for existence of subfolder "OAB Version 2" and use OAB v2 if it exists. The client SHOULD ignore any other subfolders.

4 Structure Examples

The followings is an example of OAB Public Folder content. The offline address book contains two address lists: "Global Address List" represented by one set of messages, and "All Rooms", represented by another set. Both address lists include two templates, one for language with id=0409, i.e. English, and one for language with id=0411, i.e. Japanese. Both have full details data file and differential details files. The first OAL, however, has the OAL data sequence number 2 and only one differential file. The second OAL has OAL data sequence number 4 and three differential files.

Folders:

NON_IPM_SUBTREE

OFFLINE ADDRESS BOOK

/o=First Organization/ou=addrlists/cn=oabs/cn=Offline Address Book

OAB Version 2

OAB Version 4

Messages in "OAB Version 2":

- Address list "Global Address List", Full OAB Version 2 Message, sequence number = 2
- Address list "Global Address List", Differential OAB Version 2 Message, sequence number = 2
- Address list "All Rooms", Full OAB Version 2 Message, sequence number = 4
- Address list "All Rooms", Differential OAB Version 2 Message, sequence number = 4
- Address list "All Rooms", Differential OAB Version 2 Message, sequence number = 3
- Address list "All Rooms", Differential OAB Version 2 Message, sequence number = 2

Properties of these messages:

	1	2	3	4	5	6
PidTagOfflineAddressBookName	\Global Address List	Same as 1	\All Rooms	Same as 3	Same as 3	Same as 3
PidTagOfflineAddressBookSequence	2	2	4	4	3	2
PidTagOfflineAddressBookContainerGuid	{00010203-0405-0607-0809-0A0B0C0D0E0F }	Same as 1	{10111213-1415-1617-1819-1A1B1C1D1E1F}	Same as 3	Same as 3	Same as 3

PidTagOfflineAddressBookDistinguishedName	/	Same as 1	/guid=aa65bfa24602544d9d71a5f36ce1b7f3	Same as 3	Same as 3	Same as 3
PidTagSortLocaleId	0x0409	0x409	0x409	0x409	0x409	0x409
PidTagOfflineAddressBookMessageClass	1	2	1	2	2	2
Attachment Table	Browse2.oab, rdndex2.oab, anrdex.oab, details.oab, lng409.oab, lng411.oab	Changes.oab	Browse2.oab, rdndex2.oab, anrdex.oab, details.oab, lng409.oab, lng411.oab	Changes.oab	Changes.oab	Changes.oab

Messages in "OAB Version 4":

- "Global Address List" Full OAB Version 4 Message, sequence number = 2
- "Global Address List" Differential OAB Version 4 Message, sequence number = 2
- "All Rooms" Full OAB Version 4 Message, sequence number = 4
- "All Rooms" Differential OAB Version 4 Message, sequence number = 4
- "All Rooms" Differential OAB Version 4 Message, sequence number = 3
- "All Rooms" Differential OAB Version 4 Message, sequence number = 2

Properties of these messages:

	1	2	3	4	5	6
PidTagOfflineAddressBookName	\Global Address List	Same as 1	\All Rooms	Same as 3	Same as 3	3
PidTagOfflineAddressBookSequence	2	2	4	4	3	2
PidTagOfflineAddressBookContainerGuid	{20212223-2425-2627-2829-2A2B2C2D2E2F }	Same as 1	{30313233-3435-3637-3839-3A3B3C3D3E3F}	Same as 3	Same as 3	Same as 3
PidTagOfflineAddressBookDistinguishedName	/	Same as 1	/guid=aa65bfa24602544d9d71a5f36ce1b7f3	Same as 3	Same as 3	Same as 3
PidTagSortLocaleId	0x0409	0x409	0x409	0x409	0x409	0x409
PidTagOfflineAddressBookMessageClass	1	2	1	2	2	2
Attachment Table	data.oab, lng409.oab, lng411.oab	binpatch.oab	data.oab, lng409.oab, lng411.oab	binpatch.oab	binpatch.oab	binpatch.oab

5 Security Considerations

OAB Version 4 Messages contain the results of SHA-1 hashing calculation; however, SHA-1 hash value is used as an optional means of checksum verification of the downloaded file, and is not intended to be used as security feature.

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.

<1> Public folders are supported by default on Exchange 2003 SP2. But they might have to be configured explicitly on an Exchange 2007 SP1 server.
<2> Exchange 2003 SP2 and Exchange 2007 SP1 removes messages that have been stored and not modified for 30 days
<3> Outlook 2003 SP3 does not use the OAB Retrieval protocol. Outlook 2007 SP1 examines the rgwServerVersion returned by EcDoConnectEx to determine which protocol to use. If the second byte contains a value greater or equal to 8, Outlook 2007 SP1 will use the Autodiscover HTTP Service protocol, which will direct the client to use the OAB Retrieval protocol or the OAB Public Folder Retrieval protocol. If the second byte is less than 8, the client uses the OAB Public Folder Retrieval protocol.

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