

# [MS-OXWOAB]: Offline Address Book (OAB) Retrieval File Format

---

## Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft's Open Specification Promise (available here: <http://www.microsoft.com/interop/osp>) or the Community Promise (available here: <http://www.microsoft.com/interop/cp/default.mspx>). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting [iplg@microsoft.com](mailto:iplg@microsoft.com).
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

**Reservation of Rights.** All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

**Tools.** The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

## Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1		Initial Availability.
06/27/2008	1.0		Initial Release.
08/06/2008	1.01		Revised and edited technical content.
09/03/2008	1.02		Revised and edited technical content.
12/03/2008	1.03		Updated IP notice.
03/04/2009	1.04		Revised and edited technical content.
04/10/2009	2.0		Updated technical content and applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	3.1.0	Minor	Updated the technical content.
02/10/2010	3.2.0	Minor	Updated the technical content.
05/05/2010	3.2.1	Editorial	Revised and edited the technical content.
08/04/2010	3.2.1	No change	No changes to the meaning, language, or formatting of the technical content.
11/03/2010	3.2.1	No change	No changes to the meaning, language, or formatting of the technical content.

# Contents

<b>1 Introduction</b>	<b>4</b>
1.1 Glossary	4
1.2 References	4
1.2.1 Normative References	4
1.2.2 Informative References	5
1.3 Overview	5
1.4 Relationship to Protocols and Other Structures	5
1.5 Applicability Statement	5
1.6 Versioning and Localization	6
1.7 Vendor-Extensible Fields	6
<b>2 Messages</b>	<b>7</b>
2.1 Transport	7
2.2 Message Syntax	7
2.2.1 Structures	7
2.2.1.1 Manifest File Structure	7
<b>3 Protocol Details</b>	<b>10</b>
3.1 Server Details	10
3.1.1 Abstract Data Model	10
3.1.2 Timers	10
3.1.3 Initialization	10
3.1.4 Higher-Layer Triggered Events	10
3.1.5 Processing Events and Sequencing Rules	10
3.1.5.1 oabElement	10
3.1.5.2 oalElement	10
3.1.5.3 fullElement	11
3.1.5.4 templateElement	11
3.1.5.5 diffElement	11
3.1.5.6 seq Attribute	12
3.1.6 Timer Events	12
3.1.7 Other Local Events	12
<b>4 Protocol Examples</b>	<b>13</b>
<b>5 Security</b>	<b>14</b>
5.1 Security Considerations for Implementers	14
5.2 Index of Security Parameters	14
<b>6 Appendix A: Product Behavior</b>	<b>15</b>
<b>7 Change Tracking</b>	<b>16</b>
<b>8 Index</b>	<b>17</b>

# 1 Introduction

A server might choose to represent **properties** of known **recipients** and make them available in an **address book** to its clients. When the client cannot reach the server because it is offline or because there is a high network cost to access the server, the client might keep a local copy of the address book. This document specifies the **offline address book (OAB)** version 4 Web-based retrieval mechanism, which is a way of delivering an offline address book from the server to the client.

As part of **OAB Web distribution**, the server publishes an **OAB manifest** document. This document specifies the format of this manifest.

## 1.1 Glossary

The following terms are defined in [\[MS-OXGLOS\]](#):

**address book**  
**Augmented Backus-Naur Form (ABNF)**  
**address list**  
**distinguished name (DN)**  
**GUID**  
**OAB manifest**  
**OAB Web distribution**  
**OAL data sequence number**  
**offline address book (OAB)**  
**offline address list (OAL)**  
**property**  
**recipient**  
**Uniform Resource Identifier (URI)**  
**XML**

The following terms are specific to this document:

**Web Distribution Point (WDP):** The location on the server where offline address book (OAB) files are published for Web distribution. The Uniform Resource Identifier (URI) of the WDP is discoverable by the client via the Autodiscover Publishing and Lookup protocol [\[MS-OXDSCLI\]](#).

**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](mailto: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.

[FIPS180] 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://msdn.microsoft.com/en-us/library/cc233965.aspx>

[MS-OXDCLI] Microsoft Corporation, "[Autodiscover Publishing and Lookup Protocol Specification](#)", April 2008.

[MS-OXOAB] Microsoft Corporation, "[Offline Address Book \(OAB\) File Format and Schema](#)", April 2008.

[MS-OXOABK] Microsoft Corporation, "[Address Book Object Protocol Specification](#)", April 2008.

[MS-OXOABKT] Microsoft Corporation, "[Address Book User Interface Templates Protocol Specification](#)", April 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>

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, <http://www.ietf.org/rfc/rfc2616.txt>

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, <http://www.ietf.org/rfc/rfc2818.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>

[XML10] Bray, T., Paoli, J., Sperberg-McQueen, C., Eds., et al., "Extensible Markup Language (XML) 1.0 (Third Edition)", W3C Recommendation, February 2004, <http://www.w3.org/TR/2004/REC-xml-20040204/>

## 1.2.2 Informative References

[MS-OXGLOS] Microsoft Corporation, "[Exchange Server Protocols Master Glossary](#)", April 2008.

## 1.3 Overview

The OAB manifest is used by clients to identify the current version of data published by the server and build the **URIs** of data files to download. The format of the OAB manifest is **XML**, and contains it one entry for each data file in the OAB. The entries are organized hierarchically.

## 1.4 Relationship to Protocols and Other Structures

- Clients discover the URI of the **WDP** by using the Autodiscover Publishing and Lookup protocol [[MS-OXDCLI](#)].
- From the WDP URI, clients construct the manifest URI and use the **HTTP** /1.1 protocol [[RFC2616](#)] to retrieve the manifest file.
- Based on data in the manifest, clients use the offline address book (OAB) Retrieval protocol to retrieve and consume **OAB data files** that are generated as described in [[MS-OXOAB](#)].
- The OAB Retrieval protocol relies on the HTTP 1.1 protocol, as described in [[RFC2616](#)], to deliver the manifest and data OAB files from the server to the client. It also relies on **HTTPS**, as described in [[RFC2818](#)], for data protection services.

## 1.5 Applicability Statement

In order to use the OAB Web distribution algorithm specified in this document, a set of OAB files has to be generated in the format specified in [[MS-OXOAB](#)], the files have to be published on an HTTP

1.1 server, and the URI of the WDP has to be published via the Autodiscover Publishing and Lookup protocol, as specified in [\[MS-OXDCLI\]](#).

## **1.6 Versioning and Localization**

The OAB retrieval protocol has only one version.

## **1.7 Vendor-Extensible Fields**

None.

## 2 Messages

### 2.1 Transport

None.

### 2.2 Message Syntax

#### 2.2.1 Structures

The client uses the Autodiscover Publishing and Lookup protocol, as specified in [\[MS-OXDSCLI\]](#), to discover the Web Distribution Point (WDP) URI, and then constructs a manifest URI by appending the well-known name "oab.xml", as specified in the following **ABNF**:

```
manifestURI = wdpUri "/oab.xml"
```

It then retrieves the manifest file by using the standard HTTP/1.1 protocol, as specified in [\[RFC2616\]](#). The manifest file contains information about the **OAL data sequence number**, and the names of the data files that are published to a given WDP. The detailed structure of the manifest file is specified in the next section.

After the client retrieves and parses the manifest file, it finds out what **OALs** are associated with this OAB. Each OAL in the OAB can be retrieved by the client independently.

For each file that has to be retrieved, the client constructs the URI according to the following definition, and retrieves it using the HTTP/1.1 protocol [\[RFC2616\]](#):

```
dataFileURI = wdpUri "/" file
```

#### 2.2.1.1 Manifest File Structure

The manifest file structure is a well-formed XML document, as specified in [\[XML10\]](#), and has the following ABNF structure, as per the specification of Augumented BNF semantics [\[RFC4234\]](#).

```
manifestDocument = prolog oabElement
prolog           = "<?xml" VersionInfo UTF8EncodingDecl "?>" *S
VersionInfo     = S "version" Eq (XMLQUOTE VersionNum XMLQUOTE)
VersionNum      = "1.0"
Eq              = "="
UTF8EncodingDecl = S "encoding" Eq XMLQUOTE "UTF-8" XMLQUOTE
oabElement      = oabSTag oabContent oabETag
oabSTag         = "<OAB>" *S
oabETag        = "</OAB>" *S
oabContent      = 1* oalElement
oalElement      = oalSTag S oalAttributes *S ">" *S oalContent oalETag
oalSTag         = "<OAL"
oalETag        = "</OAL>" *S
oalAttributes   = idAttribute S dnAttribute S nameAttribute
idAttribute     = "id=" XMLQUOTE guidString XMLQUOTE
dnAttribute     = "dn=" XMLQUOTE addresslist-legacy-dn XMLQUOTE
nameAttribute   = "name=" XMLQUOTE nestedUnicodeRdn XMLQUOTE
guidString      = 8HEX "-" 4HEX "-"4HEX "-" 4HEX "-" 12HEX
nestedUnicodeRdn = 1*16 ( "\" unicodeRdn )
```

```

; the total length is limited to
; 1024 characters
unicodeRdn      = 1*1023 (NON-ZERO-OCTET)
NON-ZERO-OCTET  = %x01-FF ; Any octet (8-bit data unit) except for 0
oalContent      = fullElement 1*templateElement *diffElement
fullElement     = "<Full" S seq S ver S size S uncompressedSize S SHA ">" *S
                *S "</Full>"
templateElement = "<Template" S seq S ver S size S uncompressedSize S SHA S
                langid S type ">" *S file *S "</Template>"
diffElement     = "<Diff" S seq S ver S size S uncompressedSize S SHA ">" *S
                file *S "</Diff>"
seq             = "seq=" XMLQUOTE 1*DIGIT XMLQUOTE
                ; limited to values from 0 to 2147483648
ver            = "ver=" XMLQUOTE 1*DIGIT XMLQUOTE
                ; limited to values from 0 to 2147483648
size           = "size=" XMLQUOTE 1*DIGIT XMLQUOTE
uncompressedSize = "uncompressedSize=" XMLQUOTE 1*DIGIT XMLQUOTE
SHA            = "SHA=" XMLQUOTE 40HEX XMLQUOTE
langid         = "langid=" XMLQUOTE 1*HEX XMLQUOTE
type           = "type=" XMLQUOTE ("mac" / "windows") XMLQUOTE
file           = *( NONDOT / DOT) 1* NONDOT
compressedFile = file ".lzx"
addresslist-legacy-dn = "/guid=" 32(HEX) / "/" / legacy-dn
legacy-dn      = org org-unit 1*13(container) object-rdn
                ; legacy-dns are limited to 16 levels
org            = "/o=" rdn
org-unit       = "/ou=" rdn
container      = "/cn=" rdn
object-rdn     = "/cn=" rdn
rdn            = ( non-space-teletex ) /
                ( non-space-teletex *62(teletex-char)
                non-space-teletex )
                ; rdn values are limited to 64 characters and
                ; the number of rdns is limited to 16 but the
                ; total cumulative length of rdn characters in
                ; a legacy-dn is limited to 256.

teletex-char   = " " / non-space-teletex
non-space-teletex = "!" / XMLQUOTE / "%" / "&" / "\" / "(" / ")" /
                "*" / "+" / "," / "-" / "." / "0" / "1" /
                "2" / "3" / "4" / "5" / "6" / "7" / "8" /
                "9" / ":" / "<" / "=" / ">" / "?" / "@" /
                "A" / "B" / "C" / "D" / "E" / "F" / "G" /
                "H" / "I" / "J" / "K" / "L" / "M" / "N" /
                "O" / "P" / "Q" / "R" / "S" / "T" / "U" /
                "V" / "W" / "X" / "Y" / "Z" / "[" / "]" /
                "_" / "a" / "b" / "c" / "d" / "e" / "f" /
                "g" / "h" / "i" / "j" / "k" / "l" / "m" /
                "n" / "o" / "p" / "q" / "r" / "s" / "t" /
                "u" / "v" / "w" / "x" / "y" / "z" / "|"

DIGIT          = %x30-39
HEX            = DIGIT
                / "A" / "B" / "C" / "D" / "E" / "F"
                / "a" / "b" / "c" / "d" / "e" / "f"
S              = 1*(%x20 / %x09 / %x0D / %x0A)
ALPHA          = %x41-5A / %x61-7A ; A-Z / a-z
XMLQUOTE       = DQUOTE / "'"
DOT            = "."

```

NONDOT = DIGIT / ALPHA / "-"  
DQUOTE = %x22  
; " (Double Quote)

## 3 Protocol Details

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

### 3.1 Server Details

#### 3.1.1 Abstract Data Model

None.

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

None.

#### 3.1.4 Higher-Layer Triggered Events

None.

#### 3.1.5 Processing Events and Sequencing Rules

##### 3.1.5.1 oabElement

The **oabElement** in the document structure represents a top-level container in the hierarchy of the XML document, and MUST contain one or more **oalElement** entities. The **oabElement** does not have any attributes.

##### 3.1.5.2 oalElement

The <oalElement> element is a container in the hierarchy of the XML document that contains the XML child elements <fullElement>, <templateElement>, and <diffElement>, and represents an OAL that is part of the OAB. See section 4 for an example of the XML structure. The <oalElement> MUST have the following attributes:

- **id** (as specified in the <idAttribute> element): A string representation of randomly chosen **GUIDs** that uniquely represents the current OAL. This **id** remains the same through all subsequent OAB generations.
- **Dn**: The **distinguished name (DN)** of the OAL.
- **Name**: The name of the **address list**, prepended with "\".

For details about address lists, see [\[MS-OXOABK\]](#).

### 3.1.5.3 fullElement

Each **oalElement** MUST contain exactly one **fullElement**. The **fullElement** provides information about the compressed full details file, as specified in [\[MS-OXOAB\]](#) section 1.3.1. The following attributes MUST be specified:

- **seq** – The **OAL data sequence number**.
- **ver** – The version of the data file, as specified in [\[MS-OXOAB\]](#).
- **size** – The size in bytes of the data file on the WDP.
- **uncompressedsize** – The size in bytes of the data file after decompression.
- **SHA** – The SHA1 checksum of the compressed file, calculated as specified in [\[FIPS180\]](#).
- **file** – The name of the data file on WDP. Although file is not actually an element, it can be found within the XML content of the <Full> and </Full> tags.

### 3.1.5.4 templateElement

Each **oalElement** MUST contain at least one **templateElement**. The **templateElement** provides information about the compressed template file, as specified in [\[MS-OXOAB\]](#). The following attributes MUST be specified:

- **seq** – The OAL data sequence number. It is kept in sync with sequence number of **fullElement**.
- **ver** – The version of the data file, as specified in [\[MS-OXOAB\]](#).
- **size** – The size in bytes of the data file on WDP.
- **uncompressedsize** – The size in bytes of the data file after decompression.
- **SHA** – The SHA1 checksum of the compressed file, calculated as specified in [\[FIPS180\]](#).
- **langid** – The template language identifier, as specified in [\[MS-LCID\]](#).
- **type** – A string representing the client platform, currently "windows" or "mac", as specified in [\[MS-OXOABKT\]](#).
- **file** – The name of the data file on WDP. Although file is not actually an element, it can be found within the XML content of the <Template> and </Template> tags.

### 3.1.5.5 diffElement

Each **oalElement** MUST contain zero or more **diffElements**. The **diffElement** provides information about the OAB v4 differential details file, as specified in [\[MS-OXOAB\]](#) section 1.3.1. The following attributes MUST be specified:

- **seq** – The OAL data sequence number.
- **ver** – The version of the resulting data file that will be produced by applying this differential file.
- **size** – The size in bytes of data file on WDP.
- **uncompressedsize** – The size in bytes of data file after decompression.
- **SHA** – The SHA1 checksum of the compressed file, calculated as specified in [\[FIPS180\]](#).

- **file** – The name of the data file on WDP. Although file is not actually an element, it can be found within the XML content of the <Diff> and </Diff> tags.

### 3.1.5.6 seq Attribute

As each <fullElement>, <templateElement>, and <diffElement> contains a **seq** attribute, this enables certain optimizations for the client, as described in this section.

The client could internally maintain an integer value to store the sequence number of the last successfully downloaded OAL data. This enables it to determine whether the server has any data that is newer than the data that is available on the client side. This internal value is referred to as **clientSequenceNumber**. If the client implementation maintains **clientSequenceNumber**, the client also has to store the OAL **id** to identify OAL in future versions of the manifest, and the last downloaded full details file, to be able to build a new version of the data file by applying differential files to the older file.

As a result of parsing the manifest, the client finds the sequence number of the full OAL data file available on the server. This value is referred to as **serverSequenceNumber**. If **serverSequenceNumber**  $\geq 2$ , there are zero or more differential details files with sequential sequence numbers from  $M$  to **serverSequenceNumber**, where  $2 \leq M \leq \text{serverSequenceNumber}$ . The number of differential details files depends on the server implementation.

If for a particular OAL the client has a copy of the full details file with the data sequence number **clientSequenceNumber**, and the manifest has differential details files from **clientSequenceNumber** to **serverSequenceNumber**, the client can choose to download the differential detail files from **clientSequenceNumber** + 1 to **serverSequenceNumber** and apply them to the previously downloaded full details file to get to the latest version. Otherwise, the client can download a single full details file **serverSequenceNumber** to get up to date.

### 3.1.6 Timer Events

None.

### 3.1.7 Other Local Events

None.

## 4 Protocol Examples

The following is an example of the manifest file and corresponding WDP content. The **OAB** contains two address lists: "Global Address List," represented by the second OAL element, and "All Rooms," represented by the first OAL element. Both address lists include two templates, both for language with **id=0409**, such as English, for both "Mac" and "Windows" platforms. Both have a full details data file and a differential details files. The first OAL, however, has the data sequence number 2 and only one differential file. The second OAL has data sequence number 4 and three differential files.

```
<?xml version="1.0" encoding="UTF-8"?>
<OAB>
  <OAL id='f867b9e0-d01e-43e3-8708-ba86a1c77dff'
  dn='/guid=F8E7206B268E404B9519453F0F184D24' name='\All Rooms'>
    <Full seq='2' ver='32' size='554' uncompressedsize='1165'
  SHA='d626d8d782332b7e8d689eea266ee315c31f19da'>
      f867b9e0-d01e-43e3-8708-ba86a1c77dff-data-2.lzx
    </Full>
    <Template seq='2' ver='7' size='5794' uncompressedsize='25620'
  SHA='53fb16d6dcdfla559b8649e9b269eee84b85c91b' langid='0409' type='windows'>
      f867b9e0-d01e-43e3-8708-ba86a1c77dff-lng0409-2.lzx
    </Template>
    <Template seq='2' ver='7' size='5794' uncompressedsize='25620'
  SHA='53fb16d6dcdfla559b8649e9b269eee84b85c91b' langid='0409' type='mac'>
      f867b9e0-d01e-43e3-8708-ba86a1c77dff-mac0409-2.lzx
    </Template>
    <Diff seq='2' ver='32' size='132' uncompressedsize='1165'
  SHA='f53ec568b6fc3e4adce0e7d7dfd51ace604a9234'>
      f867b9e0-d01e-43e3-8708-ba86a1c77dff-binpatch-2.lzx
    </Diff>
  </OAL>
  <OAL id='2e3eaccd-85a0-4abe-84f8-603a49801bb6' dn='/' name='\Global Address List'>
    <Full seq='4' ver='32' size='574' uncompressedsize='1872'
  SHA='91c1d0fa378dc961f9e8aafb17a9569767e21c73'>
      2e3eaccd-85a0-4abe-84f8-603a49801bb6-data-4.lzx
    </Full>
    <Template seq='4' ver='7' size='5794' uncompressedsize='25620'
  SHA='53fb16d6dcdfla559b8649e9b269eee84b85c91b' langid='0409' type='windows'>
      2e3eaccd-85a0-4abe-84f8-603a49801bb6-lng0409-4.lzx
    </Template>
    <Template seq='4' ver='7' size='5794' uncompressedsize='25620'
  SHA='53fb16d6dcdfla559b8649e9b269eee84b85c91b' langid='0409' type='mac'>
      2e3eaccd-85a0-4abe-84f8-603a49801bb6-mac0409-4.lzx
    </Template>
    <Diff seq='4' ver='32' size='132' uncompressedsize='1872'
  SHA='49d0d0c8185dd93ba7df0fbc6b532049ba5a29c5'>
      2e3eaccd-85a0-4abe-84f8-603a49801bb6-binpatch-4.lzx
    </Diff>
    <Diff seq='2' ver='32' size='136' uncompressedsize='1197'
  SHA='7e391a3fd934310489f87576ad6b6e1fd6fc1590'>
      2e3eaccd-85a0-4abe-84f8-603a49801bb6-binpatch-2.lzx
    </Diff>
    <Diff seq='3' ver='32' size='138' uncompressedsize='1544'
  SHA='3eb5108d87e366681eb27be395f3ef7d9525c63f'>
      2e3eaccd-85a0-4abe-84f8-603a49801bb6-binpatch-3.lzx
    </Diff>
  </OAL>
</OAB>
```

## **5 Security**

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

The manifest file contains the results of the SHA-1 hashing calculation; however, the SHA-1 hash value is used as an optional means of checksum verification of the downloaded file, and should not be used as a security feature. In particular, it does not prevent deliberate data tampering.

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

None.

## 6 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products:

- Microsoft® Office Outlook® 2007
- Microsoft® Exchange Server 2007
- Microsoft® Outlook® 2010
- Microsoft® Exchange Server 2010

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. 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 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 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.

## 8 Index

### A

[Applicability](#) 5

### C

[Change tracking](#) 16

### E

[Example](#) 13

### G

[Glossary](#) 4

### I

[Implementer - security considerations](#) 14

[Introduction](#) 4

### L

[Localization](#) 6

### N

[Normative references](#) 4

### O

[Overview \(synopsis\)](#) 5

### P

[Product behavior](#) 15

### R

References

[normative](#) 4

[Relationship to protocols and other structures](#) 5

### S

[Security - implementer considerations](#) 14

### T

[Tracking changes](#) 16

### V

[Versioning and Localization](#) 6