[MS-OXWSDLIST]:

Distribution List Creation and Usage Web Service Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
7/15/2009	1.0	Major	Initial Availability.
11/4/2009	1.0.1	Editorial	Revised and edited the technical content.
2/10/2010	2.0.0	Major	Updated and revised the technical content.
5/5/2010	2.0.1	Editorial	Revised and edited the technical content.
8/4/2010	2.1	Minor	Clarified the meaning of the technical content.
11/3/2010	2.1	None	No changes to the meaning, language, or formatting of the technical content.
3/18/2011	2.1	None	No changes to the meaning, language, or formatting of the technical content.
8/5/2011	2.2	Minor	Clarified the meaning of the technical content.
10/7/2011	2.2	None	No changes to the meaning, language, or formatting of the technical content.
1/20/2012	3.0	Major	Significantly changed the technical content.
4/27/2012	3.0	None	No changes to the meaning, language, or formatting of the technical content.
7/16/2012	3.1	Minor	Clarified the meaning of the technical content.
10/8/2012	3.2	Minor	Clarified the meaning of the technical content.
2/11/2013	3.2	None	No changes to the meaning, language, or formatting of the technical content.
7/26/2013	4.0	Major	Significantly changed the technical content.
11/18/2013	4.1	Minor	Clarified the meaning of the technical content.
2/10/2014	4.1	None	No changes to the meaning, language, or formatting of the technical content.
4/30/2014	5.0	Major	Significantly changed the technical content.
7/31/2014	5.0	None	No changes to the meaning, language, or formatting of the technical content.
10/30/2014	5.1	Minor	Clarified the meaning of the technical content.
5/26/2015	5.1	None	No changes to the meaning, language, or formatting of the technical content.
9/14/2015	5.1	None	No changes to the meaning, language, or formatting of the technical content.
6/13/2016	5.1	None	No changes to the meaning, language, or formatting of the technical content.
9/14/2016	5.1	None	No changes to the meaning, language, or formatting of the technical content.
7/24/2018	6.0	Major	Significantly changed the technical content.

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1 Introduction

The Distribution List Creation and Usage Web Service protocol enables clients to create, delete, get, move, update, and copy and to expand a distribution list.

Sections 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

1.1 Glossary

This document uses the following terms:

distribution list: A collection of users, computers, contacts, or other groups that is used only for email distribution, and addressed as a single recipient.

endpoint: A communication port that is exposed by an application server for a specific shared service and to which messages can be addressed.

Hypertext Transfer Protocol (HTTP): An application-level protocol for distributed, collaborative, hypermedia information systems (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.

Hypertext Transfer Protocol Secure (HTTPS): An extension of HTTP that securely encrypts and decrypts web page requests. In some older protocols, "Hypertext Transfer Protocol over Secure Sockets Layer" is still used (Secure Sockets Layer has been deprecated). For more information, see [SSL3] and [RFC5246].

mailbox: A **message store** that contains email, calendar items, and other Message objects for a single recipient.

message store: A unit of containment for a single hierarchy of Folder objects, such as a mailbox or public folders.

SOAP: A lightweight protocol for exchanging structured information in a decentralized, distributed environment. **SOAP** uses **XML** technologies to define an extensible messaging framework, which provides a message construct that can be exchanged over a variety of underlying protocols. The framework has been designed to be independent of any particular programming model and other implementation-specific semantics. SOAP 1.2 supersedes SOAP 1.1. See [SOAP1.2-1/2003].

SOAP message: An **XML** document consisting of a mandatory SOAP envelope, an optional SOAP header, and a mandatory SOAP body. See [SOAP1.2-1/2007] section 5 for more information.

web server: A server computer that hosts websites and responds to requests from applications.

Web Services Description Language (WSDL): An XML format for describing network services as a set of endpoints that operate on messages that contain either document-oriented or procedure-oriented information. The operations and messages are described abstractly and are bound to a concrete network protocol and message format in order to define an endpoint. Related concrete endpoints are combined into abstract endpoints, which describe a network service. WSDL is extensible, which allows the description of endpoints and their messages regardless of the message formats or network protocols that are used.

WSDL message: An abstract, typed definition of the data that is communicated during a WSDL operation [WSDL]. Also, an element that describes the data being exchanged between web service providers and clients.

WSDL port type: A named set of logically-related, abstract **Web Services Description Language (WSDL)** operations and messages.

XML: The Extensible Markup Language, as described in [XML1.0].

XML namespace: A collection of names that is used to identify elements, types, and attributes in XML documents identified in a URI reference [RFC3986]. A combination of XML namespace and local name allows XML documents to use elements, types, and attributes that have the same names but come from different sources. For more information, see [XMLNS-2ED].

XML schema: A description of a type of XML document that is typically expressed in terms of constraints on the structure and content of documents of that type, in addition to the basic syntax constraints that are imposed by **XML** itself. An XML schema provides a view of a document type at a relatively high level of abstraction.

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

1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the Errata.

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.

[MS-OXWSCDATA] Microsoft Corporation, "Common Web Service Data Types".

[MS-OXWSCONT] Microsoft Corporation, "Contacts Web Service Protocol".

[MS-OXWSCORE] Microsoft Corporation, "Core Items Web Service Protocol".

[MS-OXWSFOLD] Microsoft Corporation, "Folders and Folder Permissions Web Service Protocol".

[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

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

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, http://www.rfc-editor.org/rfc/rfc2818.txt

[RFC3066] Alvestrand, H., "Tags for the Identification of Languages", BCP 47, RFC 3066, January 2001, http://www.ietf.org/rfc/rfc3066.txt

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", W3C Note, May 2000, http://www.w3.org/TR/2000/NOTE-SOAP-20000508/

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, http://www.w3.org/TR/2001/NOTE-wsdl-20010315

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, 08 December 2009, http://www.w3.org/TR/2009/REC-xml-names-20091208/

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

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/

1.2.2 Informative References

[MS-OXDSCLI] Microsoft Corporation, "Autodiscover Publishing and Lookup Protocol".

[MS-OXWSADISC] Microsoft Corporation, "Autodiscover Publishing and Lookup SOAP-Based Web Service Protocol".

[MS-OXWSSRCH] Microsoft Corporation, "Mailbox Search Web Service Protocol".

1.3 Overview

The Distribution List Creation and Usage Web Service protocol provides clients with the ability to query the server for **distribution lists** and to expand a distribution list into the constituent e-mail addresses. In addition, it provides the capability to create, delete, get, move, update, and copy distribution lists.

1.4 Relationship to Other Protocols

A client that implements this protocol can use the Autodiscover Publishing and Lookup SOAP-Based Web Service Protocol, as described in [MS-OXWSADISC], or the Autodiscover Publishing and Lookup Protocol, as described in [MS-OXDSCLI], to identify the target **endpoint** to use for each operation.

This protocol uses **SOAP**, as described in [SOAP1.1], to specify the structure information that is exchanged between the client and the server. This protocol uses the **XML schema**, as described in [XMLSCHEMA1] and [XMLSCHEMA2], to describe the message content that is sent to and from the server.

This protocol uses SOAP over **HTTP**, as described in [RFC2616], and SOAP over **HTTPS**, as described in [RFC2818], as shown in the following diagram.

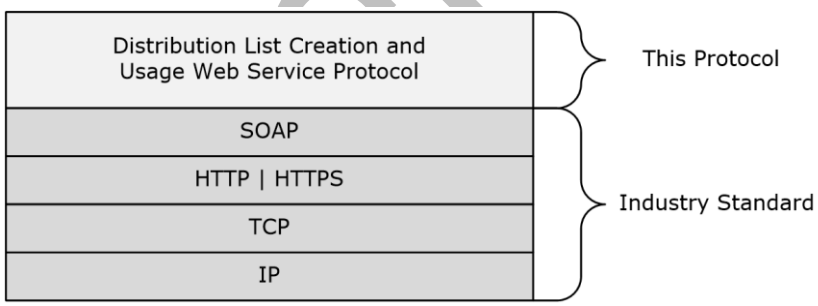

Figure 1: This protocol in relation to other protocols

This protocol can use the Mailbox Search Web Service Protocol, as described in [MS-OXWSSRCH], to search a **distribution list**.

This protocol uses the **GetItem**, **DeleteItem**, **UpdateItem**, **MoveItem**, **CopyItem**, and **CreateItem** operations, as described in [MS-OXWSCORE], to manipulate distribution lists.

For conceptual background information and overviews of the relationships and interactions between this and other protocols, see [MS-OXPROTO].

1.5 Prerequisites/Preconditions

The **endpoint** URL that is returned by either the Autodiscover Publishing Lookup SOAP-Based Web Service Protocol, as described in [MS-OXWSADISC]; the Autodiscover Publishing and Lookup Protocol, as described in [MS-OXDSCLI]; or known by the protocol client, is required to form the **HTTP** request to the **web server** that hosts this protocol. The operations that this protocol defines cannot be accessed unless the correct endpoint is identified in the HTTP requests that target this protocol.

1.6 Applicability Statement

This protocol is applicable to client programs that use distribution lists for directing items to multiple e-mail addresses.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports:** This protocol uses SOAP 1.1, as specified in section 2.1.
- **Protocol Versions:** This protocol specifies only one **WSDL port type** version.
- **Security and Authentication Methods:** This protocol relies on the **Web server** that is hosting it to perform authentication.
- **Localization:** This protocol includes text strings in various messages. Localization considerations for such strings are specified in section 3.1.4.
- **Capability Negotiation:** None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

In the following sections, the schema definition might differ from the processing rules imposed by the protocol. The **WSDL** in this specification provides a base description of the protocol. The schema in this specification provides a base description of the message syntax. The text that specifies the WSDL and schema might specify restrictions that reflect actual protocol behavior. For example, the schema definition might allow for an element to be **empty**, **null**, or **not present** but the behavior of the protocol as specified restricts the same elements to being **non-empty**, **not null**, or **present**.

2.1 Transport

The **SOAP** version supported is SOAP 1.1, as specified in [SOAP1.1].

The protocol server MUST support SOAP over **HTTP**, as defined in [RFC2616]. The protocol server SHOULD additionally support SOAP over **HTTPS**, as defined in [RFC2818], for securing communication with clients.

2.2 Common Message Syntax

This section contains common definitions that are used by this protocol. The syntax of the definitions uses XML schema, as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and **Web Services Description Language (WSDL)**, as defined in [WSDL].

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 not significant for interoperability.

Prefix	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
tns	http://schemas.microsoft.com/exchange/services/2006/messages	
s	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA2]
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA2]
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
t	http://schemas.microsoft.com/exchange/services/2006/types	
m	http://schemas.microsoft.com/exchange/services/2006/messages	

2.2.2 Messages

This specification does not define any common **WSDL message** definitions.

2.2.3 Elements

This specification does not define any common **XML schema** element definitions.

2.2.4 Complex Types

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

Complex type	Description
t:DistributionListType	Represents a distribution list.
t:MembersListType	Represents the member type.
t:MemberType	Provides an identifier for a fully resolved e-mail address, and the status of that address on the server.

2.2.4.1 t:DistributionListType Complex Type

The **DistributionListType** complex type represents a distribution list. The **DistributionListType** complex type extends the **ItemType** complex type, as specified in [MS-OXWSCORE] section 2.2.4.6.

```
<xs:complexType name="DistributionListType">
  <xs:complexContent>
    <xs:extension
      base="t:ItemType"
    >
      <xs:sequence>
        <xs:element name="DisplayName"
          type="xs:string"
          minOccurs="0"
         />
        <xs:element name="FileAs"
          type="xs:string"
          minOccurs="0"
         />
        <xs:element name="ContactSource"
          type="t:ContactSourceType"
          minOccurs="0"
         />
        <xs:element name="Members"
          type="t:MembersListType"
          minOccurs="0"
         />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child elements of the **DistributionListType** complex type.

Element	Type	Description
DisplayName	**xs:string** [XMLSCHEMA2]	Contains the display name for the distribution list.
FileAs	**xs:string**	Represents how a distribution list is filed in the Contacts folder. This element is read-only for the client.
ContactSource	**t:ContactSourceType** ([MS-OXWSCONT] section 2.2.5.1)	Describes whether the distribution list is located in the **message store** or in the directory service.

Element	Type	Description
Members	**t:MembersListType** (section 2.2.4.2)	Contains a list of members in a distribution list.

2.2.4.2 t:MembersListType Complex Type

The **MembersListType** complex type represents the collection of distribution list members.

```
<xs:complexType name="MembersListType">
  <xs:sequence>
    <xs:element name="Member"
      type="t:MemberType"
      maxOccurs="unbounded"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **MembersListType** complex type.

Element	Type	Description
Member	**t:MemberType** (section 2.2.4.3)	Provides information about each member of the members collection.

2.2.4.3 t:MemberType Complex Type

The **MemberType** complex type provides information about each member of the members collection of the distribution list, containing a member's mailbox address, status and optional member's identifier in the collection.

```
<xs:complexType name="MemberType">
  <xs:sequence>
    <xs:element name="Mailbox"
      type="t:EmailAddressType"
      minOccurs="0"
     />
    <xs:element name="Status"
      type="t:MemberStatusType"
      minOccurs="0"
     />
  </xs:sequence>
  <xs:attribute name="Key"
    type="xs:string"
    use="optional"
   />
</xs:complexType>
```

The following table lists the child elements of the **MemberType** complex type.

Element	Type	Description
Mailbox	**t:EmailAddressType** ([MS-OXWSCDATA] section 2.2.4.31)	Represents an e-mail address of a member. At least one of **EmailAddress** and **ItemId** in this element SHOULD be present. Otherwise, **ErrorInvalidMailbox** ([MS-OXWSCDATA] section 2.2.5.24) will be returned.
Status	**t:MemberStatusType** (section 2.2.5.1)	Provides information about the status of a distribution list member in the members' collection.

The following table lists the attributes of the **MemberType** complex type.

Name	Type	Description
Key	**xs:string** [XMLSCHEMA2]	Represents a unique identification of the member in the members collection.

2.2.5 Simple Types

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

Simple Type	Description
t:MemberStatusType	Provides information as to the status of a distribution list member on the server.

2.2.5.1 t:MemberStatusType Simple Type

The **MemberStatusType** simple type provides information as to the status of a distribution list member on the server. The **MemberStatusType** simple type extends the xs:string data type ([XMLSCHEMA2] section 3.2.1).

```
<xs:simpleType name="MemberStatusType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Unrecognized"
     />
    <xs:enumeration
      value="Normal"
     />
    <xs:enumeration
      value="Demoted"
     />
  </xs:restriction>
</xs:simpleType>
```

Enumeration

The following values are defined by the **MemberStatusType** simple type.

Value	Description
Unrecognized	Member information is invalid or unrecognized.
Normal	Member information in a distribution list is in sync with the referenced object.
Demoted	Referenced object is not available.

2.2.6 Attributes

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

2.2.7 Groups

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

2.2.8 Attribute Groups

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

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 ExchangeServicePortType Server Details

This protocol defines a single port type.

3.1.1 Abstract Data Model

This protocol is a stateless protocol.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

This protocol includes the operations listed in the following table.

Operation	Description
ExpandDL	Expands a distribution list into the constituent email addresses.
GetItem	Gets a distribution list on the server.
DeleteItem	Deletes a distribution list on the server.
UpdateItem	Updates a distribution list on the server.
MoveItem	Moves a distribution list on the server.
CopyItem	Copies a distribution list on the server.
CreateItem	Creates a distribution list on the server.

3.1.4.1 ExpandDL

ExpandDL defines an operation to expand a distribution list.

The following is the **WSDL port type** specification for the **ExpandDL** operation.

```
<wsdl:operation name="ExpandDL">
     <wsdl:input message="tns:ExpandDLSoapIn" />
     <wsdl:output message="tns:ExpandDLSoapOut" />
 </wsdl:operation>
```

The following is the WSDL binding specification for the **ExpandDL** operation.

```
<wsdl:operation name="ExpandDL">
            <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/ExpandDL" />
            <wsdl:input>
                <soap:header message="tns:ExpandDLSoapIn" part="Impersonation"
use="literal"/>
                <soap:header message="tns:ExpandDLSoapIn" part="MailboxCulture"
use="literal"/>
                <soap:header message="tns:ExpandDLSoapIn" part="RequestVersion"
use="literal"/>
                <soap:body parts="request" use="literal" />
            </wsdl:input>
            <wsdl:output>
                <soap:body parts="ExpandDLResult" use="literal" />
                <soap:header message="tns:ExpandDLSoapOut" part="ServerVersion"
use="literal"/>
            </wsdl:output>
        </wsdl:operation>
```

Request

Message format	Description
tns:ExpandDLSoapIn	Specifies the **SOAP message** that requests an expanded distribution list.

Response

Message format	Description
tns:ExpandDLSoapOut	Specifies the SOAP message returned by the server in response.

3.1.4.1.1 Complex Types

The following XML schema complex type definitions are specific to this operation.

Type	Description
m:ExpandDLResponseMessageType	Contains the status and result of a single **ExpandDL** request.
m:ExpandDLResponseType	Defines a response to a request to expand a distribution list.
m:ExpandDLType	Represents a request to expand a distribution list.
t:ArrayOfDLExpansionType	Contains an array of **mailboxes** that are contained in a distribution list.

3.1.4.1.1.1 m:ExpandDLResponseMessageType Complex Type

The **ExpandDLResponseMessageType** complex type contains the status and result of a single **ExpandDL** request. The **ExpandDLResponseMessageType** complex type extends the **ResponseMessageType** complex type, as specified in [MS-OXWSCDATA] section 2.2.3.52. **ExpandDLResponseMessage** is used in the sub-element of **BaseResponseMessageType**, which is the base type of **ExpandDLResponseType** defined in section 3.1.4.1.1.2.

```
<xs:complexType name="ExpandDLResponseMessageType">
  <xs:complexContent>
    <xs:extension
      base="m:ResponseMessageType"
    >
      <xs:sequence>
        <xs:element name="DLExpansion"
          type="t:ArrayOfDLExpansionType"
          minOccurs="0"
         />
      </xs:sequence>
      <xs:attributeGroup ref="t:FindResponsePagingAttributes"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child element of the **ExpandDLResponseMessageType** complex type.

Element	Type	Description
DLExpansion	**t:ArrayOfDLExpansionType** (section 3.1.4.1.1.4)	Contains an array of mailboxes that are contained in a distribution list.

The following table lists the attributes of the **ExpandDLResponseMessageType** complex type.

Name	Description
t:FindResponsePagingAttributes ([MS-OXWSCDATA] section 2.2.8.1)	Specifies zero or more attributes that describe the result set.

3.1.4.1.1.2 m:ExpandDLResponseType Complex Type

The **ExpandDLResponseType** complex type defines a response to a request to expand a distribution list. The **ExpandDLResponseType** complex type extends the **BaseResponseMessageType** complex type, as specified in [MS-OXWSCDATA] section 2.2.3.15.

```
<xs:complexType name="ExpandDLResponseType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseResponseMessageType"
     />
  </xs:complexContent>
</xs:complexType>
```

3.1.4.1.1.3 m:ExpandDLType Complex Type

The **ExpandDLType** complex type represents a request to expand a distribution list. The **ExpandDLType** complex type extends the **BaseRequestType** complex type, as specified in [MS-OXWSCDATA] section 2.2.3.14.

```
<xs:complexType name="ExpandDLType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseRequestType"
    >
```

```
      <xs:sequence>
        <xs:element name="Mailbox"
          type="t:EmailAddressType"
         />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type	Description
Mailbox	**t:EmailAddressType** ([MS-OXWSCDATA] section 2.2.4.31)	Represents an e-mail address of a distribution list member.

3.1.4.1.1.4 t:ArrayOfDLExpansionType Complex Type

The **ArrayOfDLExpansionType** complex type contains an array of mailboxes that are contained in a distribution list.

```
<xs:complexType name="ArrayOfDLExpansionType">
  <xs:sequence>
    <xs:element name="Mailbox"
      type="t:EmailAddressType"
      maxOccurs="unbounded"
      minOccurs="0"
     />
  </xs:sequence>
  <xs:attributeGroup
    ref="t:FindResponsePagingAttributes"
   />
</xs:complexType>
```

The following table lists the child element of the **ArrayOfDLExpansionType** complex type.

Element	Type	Description
Mailbox	**t:EmailAddressType** ([MS-OXWSCDATA] section 2.2.4.31)	Represents an e-mail address.

The following table lists and describes the attributes of the **ArrayOfDLExpansionType** complex type.

Name	Description
t:FindResponsePagingAttributes ([MS-OXWSCDATA] section 2.2.8.1)	Specifies zero or more attributes that describe the result set.

3.1.4.1.2 Elements

The following XML schema element definitions are specific to this operation.

Element	Description
tns:ExpandDL	Contains a request to expand a distribution list.
tns:ExpandDLResponse	Defines a response to a request to expand a distribution list.

3.1.4.1.2.1 ExpandDL Element

The **ExpandDL** element defines a request to expand a distribution list.

```
<xs:element name="ExpandDL"
  type="m:ExpandDLType"
 />
```

3.1.4.1.2.2 ExpandDLResponse Element

The **ExpandDLResponse** element defines a response to a request to expand a distribution list.

```
<xs:element name="ExpandDLResponse"
  type="m:ExpandDLResponseType"
 />
```

3.1.4.1.3 Messages

The following XML schema message definitions are specific to this operation.

Message	Description
tns:ExpandDLSoapIn	Contains the request information, the user whom the client application is impersonating, the culture to use for accessing the mailbox, and the schema version for the request.
tns:ExpandDLSoapOut	Contains the response message and the schema version for the response message.

3.1.4.1.3.1 tns:ExpandDLSoapIn

The **ExpandDLSoapIn** WSDL message specifies the **ExpandDL** operation request to expand a distribution list item into the constituent e-mail addresses.

```
    <wsdl:message name="ExpandDLSoapIn">
        <wsdl:part name="Request" element="tns:ExpandDL" />
        <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
        <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
        <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
```

The **ExpandDLSoapIn** WSDL message is the input message for the SOAP action http://schemas.microsoft.com/exchange/services/2006/messages/ExpandDL.

The **ExpandDLSoapIn** message contains four parts, as described in the following table.

Part Name	Element/Type	Description
Request	**tns:ExpandDL**	Specifies the request.
Impersonation	**t:ExchangeImpersonation** ([MS-OXWSCDATA] section 2.2.3.3)	Specifies the user whom the client application is impersonating.
MailboxCulture	**t:MailboxCulture** ([MS-OXWSCDATA] section 2.2.3.6)	Specifies the culture to use for accessing the mailbox. The cultures are defined by [RFC3066].
RequestVersion	**t:RequestServerVersion** ([MS-OXWSCDATA] section 2.2.3.9)	Specifies the schema version for the **ExpandDL** request.

3.1.4.1.3.2 tns:ExpandDLSoapOut

The **ExpandDLSoapOut** WSDL message specifies the server response to the **ExpandDL** operation request to expand a distribution list item into the constituent e-mail addresses.

```
<wsdl:message name="ExpandDLSoapOut">
      <wsdl:part name="ExpandDLResult" element="tns:ExpandDLResponse" />
      <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

The **ExpandDLSoapOut** WSDL message is the output message for the SOAP action http://schemas.microsoft.com/exchange/services/2006/messages/ExpandDL.

The **ExpandDLSoapOut** message contains two parts, as described in the following table.

Part Name	Element/Type	Description
ExpandDLResult	**tns:ExpandDLResponse**	Specifies the response message.
ServerVersion	**t:ServerVersionInfo** ([MS-OXWSCDATA] section 2.2.3.10)	Specifies the schema version for the **tns:ExpandDLResponse** message.

3.1.4.2 GetItem

This protocol uses the **GetItem** operation specified in [MS-OXWSCORE] section 3.1.4.4 to get a distribution list.

```
<wsdl:operation name="GetItem">
          <wsdl:input message="tns:GetItemSoapIn" />
          <wsdl:output message="tns:GetItemSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:GetItemSoapIn ([MS-OXWSCORE] section 3.1.4.4.1.1)	Specifies the SOAP message that defines the distribution list item to get. The **GetItem** ([MS-OXWSCORE] section 3.1.4.4.2.1) element that specifies the **XML** request MUST contain the following elements: the **ItemShape** element ([MS-OXWSCORE] section 3.1.4.4.3.2), whose type is **t:ItemResponseShapeType** ([MS-OXWSCDATA] section 2.2.4.44) and the **ItemIds** ([MS-OXWSCORE] section

Message Format	Description
	3.1.4.4.3.2) element, whose type is **t:NonEmptyArrayOfBaseItemIdsType** ([MS-OXWSCORE] section 2.2.4.9). The **ItemIds** element MUST contain one or more **ItemId** elements with type **t:ItemIdType** ([MS-OXWSCORE] section 2.2.4.14). All other elements of **ItemIds** MUST NOT be specified.

Response

Message Format	Description
tns:GetItemSoapOut ([MS-OXWSCORE] section 3.1.4.4.1.2)	Specifies the SOAP message returned by the server in response. The server returns a **GetItemResponseMessage** element that contains properties associated with the distribution list item.

3.1.4.3 DeleteItem

This protocol uses the **DeleteItem** operation specified in [MS-OXWSCORE] section 3.1.4.3 to delete a distribution list.

```
<wsdl:operation name="DeleteItem">
            <wsdl:input message="tns:DeleteItemSoapIn" />
            <wsdl:output message="tns:DeleteItemSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:DeleteItemSoapIn ([MS-OXWSCORE] section 3.1.4.3.1.1)	Specifies the SOAP message that defines the distribution list item to delete. The **ItemIds** child element of the **DeleteItem** ([MS-OXWSCORE] section 3.1.4.3.2.1) element that specifies the XML request MUST contain one or more **ItemId** elements of type **t:ItemIdType** ([MS-OXWSCORE] section 2.2.4.25). All other elements of **ItemIds** MUST NOT be specified.

Response

Message Format	Description
tns:DeleteItemSoapOut ([MS-OXWSCORE] section 3.1.4.3.1.2)	Specifies the SOAP message returned by the server in response.

3.1.4.4 UpdateItem

This protocol uses the **UpdateItem** operation specified in [MS-OXWSCORE] section 3.1.4.9 to update a distribution list.

```
<wsdl:operation name="UpdateItem">
    <wsdl:input message="tns:UpdateItemSoapIn" />
    <wsdl:output message="tns:UpdateItemSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:UpdateItemSoapIn ([MS-OXWSCORE] section 3.1.4.9.1.1)	The **UpdateItem** ([MS-OXWSCORE] section 3.1.4.9) element that specifies the **XML** request MUST contain an **ItemChanges** ([MS-OXWSCORE] section 3.1.4.9.3.2) element with the **t:NonEmptyArrayOfItemChangesType** ([MS-OXWSCORE] section 3.1.4.9.3.9) type. The **ItemChanges** element MUST contain one or more **ItemChange** elements with the **t:ItemChangeType** ([MS-OXWSCORE] section 3.1.4.9.3.7) type. The **ItemChange** element MUST contain an **ItemId** element with the **t:ItemIdType** ([MS-OXWSCORE] section 2.2.4.25) type and an **Updates** element with the **t:NonEmptyArrayOfItemChangeDescriptionsType** ([MS-OXWSCORE] section 3.1.4.9.3.8) type. If the update is to append to an item or to set the item, the **AppendToItemField** or **SetItemField** elements of **Updates** element MUST contain a **DistributionList** element with the **t:DistributionListType** (section 2.2.4.1) type. All other elements of the elements **AppendToItemField** or **SetItemField** MUST NOT be specified.

Response

Message Format	Description
tns:UpdateItemSoapOut ([MS-OXWSCORE] section 3.1.4.9.1.2)	Specifies the SOAP message returned by the server in response.

3.1.4.5 MoveItem

This protocol uses the **MoveItem** operation specified in [MS-OXWSCORE] section 3.1.4.7 to move a distribution list.

```
<wsdl:operation name="MoveItem">
    <wsdl:input message="tns:MoveItemSoapIn" />
    <wsdl:output message="tns:MoveItemSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:MoveItemSoapIn ([MS-OXWSCORE] section 3.1.4.7.1.1)	The **MoveItem** element ([MS-OXWSCORE] section 3.1.4.7) that specifies the **XML** request MUST contain the following elements: the **ToFolderId** element ([MS-OXWSCORE] section 2.2.4.16), whose type is **t:TargetFolderIdType** ([MS-OXWSFOLD] section 2.2.4.16), and the **ItemIds** element ([MS-OXWSCORE] section 2.2.4.15), whose type is **t:NonEmptyArrayOfBaseItemIdsType** ([MS-OXWSCORE] section 2.2.4.31). The **ItemIds** element MUST contain one or more **ItemId** elements with the **t:ItemIdType** type ([MS-OXWSCORE] section 2.2.4.25). All other elements of **ItemIds** MUST NOT be specified.

Response

Message Format	Description
tns:MoveItemSoapOut ([MS-OXWSCORE] section 3.1.4.7.1.2)	Specifies the SOAP message returned by the server in response.

3.1.4.6 CopyItem

This protocol uses the **CopyItem** operation specified in [MS-OXWSCORE] section 3.1.4.1 to copy a distribution list.

```
<wsdl:operation name="CopyItem">
    <wsdl:input message="tns:CopyItemSoapIn" />
    <wsdl:output message="tns:CopyItemSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:CopyItemSoapIn ([MS-OXWSCORE] section 3.1.4.1.1.1)	The **CopyItem** ([MS-OXWSCORE] section 3.1.4.1.2.1) element that specifies the **XML** request MUST contain the following elements: the **ToFolderId** ([MS-OXWSCORE] section 2.2.4.16) element, whose type is **t:TargetFolderIdType** ([MS-OXWSFOLD] section 2.2.4.16), and the **ItemIds** ([MS-OXWSCORE] section 3.1.4.4.3.2) element, whose type is **t:NonEmptyArrayOfBaseItemIdsType** ([MS-OXWSCORE] section 2.2.4.31). The **ItemIds** element MUST contain one or more **ItemId** element with the **t:ItemIdType** ([MS-OXWSCORE] section 2.2.4.25) type. All other elements of **ItemIds** MUST NOT be specified.

Response

Message Format	Description
tns:CopyItemSoapOut ([MS-OXWSCORE] section 3.1.4.1.1.2)	Specifies the SOAP message returned by the server in response.

3.1.4.7 CreateItem

This protocol uses the **CreateItem** operation specified in [MS-OXWSCORE] section 3.1.4.2 to create a distribution list.

```
<wsdl:operation name="CreateItem">
     <wsdl:input message="tns:CreateItemSoapIn" />
     <wsdl:output message="tns:CreateItemSoapOut" />
</wsdl:operation>
```

Request

Message Format	Description
tns:CreateItemSoapIn ([MS-OXWSCORE] section 3.1.4.2.1.1)	Specifies the SOAP message that defines the distribution list item to create. The **Items** child element of the **CreateItem** child element that specifies the XML request MUST contain one or more **t:DistributionListType** elements (section 2.2.4.1). All other elements of **Items** MUST NOT be specified.

Response

Message Format	Description
tns:CreateItemSoapOut ([MS-OXWSCORE] section 3.1.4.2.1.2)	Specifies the SOAP message returned by the server in response.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

3.2 Client 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.

3.2.1 Client Abstract Data Model

None.

3.2.2 Client Timers

None.

3.2.3 Client Initialization

None.

3.2.4 Client Message Processing Events and Sequencing

None.

3.2.5 Client Timer Events

None.

3.2.6 Client Other Local Events

None.

4 Protocol Examples

None.

5 Security

5.1 Security Considerations for Implementers

This protocol does not use additional security mechanisms.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

The following table lists the XML files that are required to implement the functionality that is specified in this document. The contents of each file are included in this section.

File name	Description	Section
MS-OXWSDLIST.wsdl	Contains the WSDL for the implementation of this protocol.	6.1
MS-OXWSDLIST-types.xsd	Contains the XML schema type definitions that are used in this protocol.	6.2
MS-OXWSDLIST-messages.xsd	Contains the XML schema message definitions that are used in this protocol.	6.3

These files need to be placed in a common folder for the WSDL to validate and operate. Also, any schema files that are included in or imported into the MS-OXWSDLIST-types.xsd or MS-OXWSDLIST-messages.xsd schemas need to be placed in the common folder with these files.

For ease of implementation, the full WSDL and schemas are provided in the following sections.

6.1 WSDL

This section contains the contents of the MS-OXWSDLIST.wsdl file.

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:s="http://www.w3.org/2001/XMLSchema" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
  <wsdl:types>
    <xs:schema id="messages" elementFormDefault="qualified" version="Exchange2016"
xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="MS-OXWSCORE-types.xsd"/>
      <xs:include schemaLocation="MS-OXWSDLIST-messages.xsd"/>



      <!-- Add global elements and types from messages.xsd -->
    </xs:schema>
    <xs:schema id="types" elementFormDefault="qualified" version="Exchange2016"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
      <!-- Add global elements and types from types.xsd -->
    </xs:schema>


  </wsdl:types>
    <wsdl:message name="ExpandDLSoapIn">
        <wsdl:part name="request" element="tns:ExpandDL" />
        <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
        <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
```

```
        <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    </wsdl:message>
    <wsdl:message name="ExpandDLSoapOut">
        <wsdl:part name="ExpandDLResult" element="tns:ExpandDLResponse" />
        <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
    </wsdl:message>
  <wsdl:message name="GetItemSoapIn">
    <wsdl:part name="request" element="tns:GetItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
  </wsdl:message>
  <wsdl:message name="GetItemSoapOut">
    <wsdl:part name="GetItemResult" element="tns:GetItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:message name="CreateItemSoapIn">
    <wsdl:part name="request" element="tns:CreateItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
  </wsdl:message>
  <wsdl:message name="CreateItemSoapOut">
    <wsdl:part name="CreateItemResult" element="tns:CreateItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:message name="DeleteItemSoapIn">
    <wsdl:part name="request" element="tns:DeleteItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
  </wsdl:message>
  <wsdl:message name="DeleteItemSoapOut">
    <wsdl:part name="DeleteItemResult" element="tns:DeleteItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:message name="UpdateItemSoapIn">
    <wsdl:part name="request" element="tns:UpdateItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
  </wsdl:message>
  <wsdl:message name="UpdateItemSoapOut">
    <wsdl:part name="UpdateItemResult" element="tns:UpdateItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:message name="MoveItemSoapIn">
    <wsdl:part name="request" element="tns:MoveItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>


    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
  </wsdl:message>
  <wsdl:message name="MoveItemSoapOut">
    <wsdl:part name="MoveItemResult" element="tns:MoveItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:message name="CopyItemSoapIn">
    <wsdl:part name="request" element="tns:CopyItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
  </wsdl:message>
  <wsdl:message name="CopyItemSoapOut">
    <wsdl:part name="CopyItemResult" element="tns:CopyItemResponse"/>
```

```
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:portType name="ExchangeServicePortType">
        <wsdl:operation name="ExpandDL">
            <wsdl:input message="tns:ExpandDLSoapIn" />
            <wsdl:output message="tns:ExpandDLSoapOut" />
        </wsdl:operation>
    <wsdl:operation name="GetItem">
      <wsdl:input message="tns:GetItemSoapIn"/>
      <wsdl:output message="tns:GetItemSoapOut"/>
    </wsdl:operation>
    <wsdl:operation name="CreateItem">
      <wsdl:input message="tns:CreateItemSoapIn"/>
      <wsdl:output message="tns:CreateItemSoapOut"/>
    </wsdl:operation>
    <wsdl:operation name="DeleteItem">
      <wsdl:input message="tns:DeleteItemSoapIn"/>
      <wsdl:output message="tns:DeleteItemSoapOut"/>
    </wsdl:operation>
    <wsdl:operation name="UpdateItem">
      <wsdl:input message="tns:UpdateItemSoapIn"/>
      <wsdl:output message="tns:UpdateItemSoapOut"/>
    </wsdl:operation>
    <wsdl:operation name="MoveItem">
      <wsdl:input message="tns:MoveItemSoapIn"/>
      <wsdl:output message="tns:MoveItemSoapOut"/>
    </wsdl:operation>
    <wsdl:operation name="CopyItem">
      <wsdl:input message="tns:CopyItemSoapIn"/>
      <wsdl:output message="tns:CopyItemSoapOut"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="ExchangeServiceBinding" type="tns:ExchangeServicePortType">
    <wsdl:documentation>
      <wsi:Claim conformsTo="http://ws-i.org/profiles/basic/1.0" xmlns:wsi="http://ws-
i.org/schemas/conformanceClaim/"/>
    </wsdl:documentation>
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="GetItem">
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/GetItem"/>
      <wsdl:input>
        <soap:header message="tns:GetItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:GetItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:GetItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:header message="tns:GetItemSoapIn" part="TimeZoneContext" use="literal"/>
        <soap:body parts="request" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="GetItemResult" use="literal"/>
        <soap:header message="tns:GetItemSoapOut" part="ServerVersion" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="CreateItem">
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/CreateItem"/>
      <wsdl:input>
        <soap:header message="tns:CreateItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:CreateItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:CreateItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:header message="tns:CreateItemSoapIn" part="TimeZoneContext" use="literal"/>
        <soap:body parts="request" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="CreateItemResult" use="literal"/>
        <soap:header message="tns:CreateItemSoapOut" part="ServerVersion" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
```

```
    <wsdl:operation name="DeleteItem">
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/DeleteItem"/>
      <wsdl:input>
        <soap:header message="tns:DeleteItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:DeleteItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:DeleteItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:body parts="request" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="DeleteItemResult" use="literal"/>
        <soap:header message="tns:DeleteItemSoapOut" part="ServerVersion" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="UpdateItem">
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/UpdateItem"/>
      <wsdl:input>
        <soap:header message="tns:UpdateItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:UpdateItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:UpdateItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:header message="tns:UpdateItemSoapIn" part="TimeZoneContext" use="literal"/>
        <soap:body parts="request" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="UpdateItemResult" use="literal"/>
        <soap:header message="tns:UpdateItemSoapOut" part="ServerVersion" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="MoveItem">
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/MoveItem"/>
      <wsdl:input>
        <soap:header message="tns:MoveItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:MoveItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:MoveItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:body parts="request" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="MoveItemResult" use="literal"/>
        <soap:header message="tns:MoveItemSoapOut" part="ServerVersion" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="CopyItem">
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/CopyItem"/>
      <wsdl:input>
        <soap:header message="tns:CopyItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:CopyItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:CopyItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:body parts="request" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="CopyItemResult" use="literal"/>
        <soap:header message="tns:CopyItemSoapOut" part="ServerVersion" use="literal"/>
      </wsdl:output>
    </wsdl:operation>
            <wsdl:operation name="ExpandDL">
            <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/ExpandDL" />
            <wsdl:input>
                <soap:header message="tns:ExpandDLSoapIn" part="Impersonation"
use="literal"/>
                <soap:header message="tns:ExpandDLSoapIn" part="MailboxCulture"
use="literal"/>
                <soap:header message="tns:ExpandDLSoapIn" part="RequestVersion"
use="literal"/>
                <soap:body parts="request" use="literal" />
            </wsdl:input>
```

```
            <wsdl:output>
                <soap:body parts="ExpandDLResult" use="literal" />
                <soap:header message="tns:ExpandDLSoapOut" part="ServerVersion"
use="literal"/>
            </wsdl:output>
        </wsdl:operation>
  </wsdl:binding>
</wsdl:definitions>
```

6.2 Types Schema

This section contains the contents of the MS-OXWSDLIST-types.xsd file and information about additional files that this schema file requires to operate correctly.

For MS-OXWSDLIST-types.xsd to operate correctly the file shown in the following table needs to be present in the folder that contains the WSDL, types schema and messages schema files for this protocol.

Defining specification	File name
[MS-OXWSCDATA] section 7.2	MS-OXWSCDATA-types.xsd

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
elementFormDefault="qualified" version="Exchange2016" id="types">
  <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
  <xs:include schemaLocation="MS-OXWSCDATA-types.xsd"/>
  <xs:complexType name="ArrayOfDLExpansionType">
    <xs:sequence>
      <xs:element name="Mailbox" type="t:EmailAddressType" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attributeGroup ref="t:FindResponsePagingAttributes"/>
  </xs:complexType>
  <xs:complexType name="DistributionListType">
    <xs:complexContent>
      <xs:extension base="t:ItemType">
        <xs:sequence>
          <xs:element name="DisplayName" type="xs:string" minOccurs="0"/>
          <xs:element name="FileAs" type="xs:string" minOccurs="0"/>
          <xs:element name="ContactSource" type="t:ContactSourceType" minOccurs="0"/>
          <xs:element name="Members" type="t:MembersListType" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="MemberStatusType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Unrecognized"/>
      <xs:enumeration value="Normal"/>
      <xs:enumeration value="Demoted"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="MembersListType">
    <xs:sequence>
      <xs:element name="Member" type="t:MemberType" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MemberType">
    <xs:sequence>
      <xs:element name="Mailbox" type="t:EmailAddressType" minOccurs="0"/>
      <xs:element name="Status" type="t:MemberStatusType" minOccurs="0"/>
    </xs:sequence>
```

```
    <xs:attribute name="Key" type="xs:string" use="optional"/>
  </xs:complexType>
</xs:schema>
```

6.3 Messages Schema

This section contains the contents of the MS-OXWSDLIST-messages.xsd file and information about additional files that this schema file requires to operate correctly.

For MS-OXWSDLIST-messages.xsd to operate correctly the file shown in the following table needs to be present in the folder that contains the WSDL, types schema and messages schema files for this protocol.

Defining specification	File name
[MS-OXWSCDATA] section 7.1	MS-OXWSCDATA-messages.xsd

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages"
elementFormDefault="qualified" version="Exchange2016" id="messages">
  <xs:include schemaLocation="MS-OXWSCDATA-messages.xsd"/>
  <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="MS-OXWSCDATA-types.xsd"/>
  <xs:complexType name="ExpandDLType">
    <xs:complexContent>
      <xs:extension base="m:BaseRequestType">
        <xs:sequence>
          <xs:element name="Mailbox" type="t:EmailAddressType"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="ExpandDL" type="m:ExpandDLType"/>
  <xs:complexType name="ExpandDLResponseMessageType">
    <xs:complexContent>
      <xs:extension base="m:ResponseMessageType">
        <xs:sequence>
          <xs:element name="DLExpansion" type="t:ArrayOfDLExpansionType" minOccurs="0"/>
        </xs:sequence>
        <xs:attributeGroup ref="t:FindResponsePagingAttributes"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ExpandDLResponseType">
    <xs:complexContent>
      <xs:extension base="m:BaseResponseMessageType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="ExpandDLResponse" type="m:ExpandDLResponseType"/>
</xs:schema>
```

7 Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Microsoft Exchange Server 2007
- Microsoft Exchange Server 2010
- Microsoft Exchange Server 2013
- Microsoft Exchange Server 2016
- Microsoft Exchange Server 2019 Preview

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates 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.

8 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements.
- A document revision that captures changes to protocol functionality.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

The changes made to this document are listed in the following table. For more information, please contact dochelp@microsoft.com.

Section	Description	Revision class
7 Appendix B: Product Behavior	Updated list of supported products.	Major

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