

[MS-OXWSDLIST]: Distribution List Creation and Usage Web Service Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
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11/04/2009	1.0.1	Editorial	Revised and edited the technical content.
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1 Introduction

This document specifies the Distribution List Creation and Usage Web Service protocol.

1.1 Glossary

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

SOAP body
SOAP fault
SOAP header
Web Services Description Language (WSDL)
WSDL message
WSDL port type
XML
XML namespace
XML schema

The following terms are specific to this document:

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. 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.

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

[MS-OXWSCDATA] Microsoft Corporation, "[Common Web Service Data Types](#)", July 2009.

[MS-OXWSCORE] Microsoft Corporation, "[Core Items Web Service Protocol Specification](#)", July 2009.

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

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.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>

[RFC3066] Alvestrand, H., "Tags for the Identification of Languages", RFC 3066, BCP 47, 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., Eds., et al., "Namespaces in XML 1.0 (Third Edition)", December 2009, <http://www.w3.org/TR/REC-xml-names/>

[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., and Malhotra, A., Eds., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

1.2.2 Informative References

None.

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

This protocol uses SOAP over HTTP and SOAP over HTTPS, as shown in the following figures.

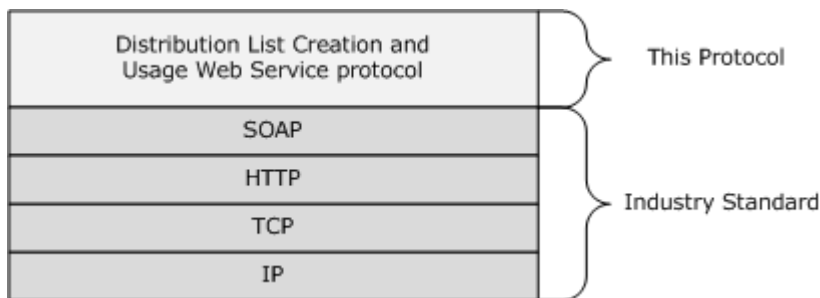


Figure 1: SOAP over HTTP

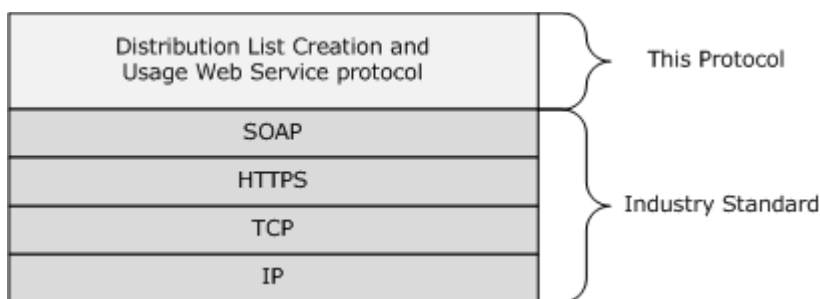


Figure 2: SOAP over HTTPS

1.5 Prerequisites/Preconditions

None.

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

2.1 Transport

The SOAP version supported is SOAP 1.1, as specified in [\[SOAP1.1\]](#).

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	[MS-OXWSDLIST]
s	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
targetNamespace	http://schemas.microsoft.com/exchange/services/2006/messages	[MS-OXWSDLIST]
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
t	http://schemas.microsoft.com/exchange/services/2006/types	[MS-OXWSDLIST]

2.2.2 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.

2.2.2.1 t:MemberStatusType Simple Type

The **MemberStatusType** simple type provides information as to the status of a distribution list member on the server.

```
<xs:simpleType>
  <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 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.

2.2.3 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
m:ExpandDLResponseMessageType	Contains the status and result of a single ExpandDL request.
t:ArrayOfDLExpansionType	Contains an array of mailboxes that are contained in a distribution list.
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.

2.2.3.1 m:ExpandDLResponseMessageType Complex Type

The **ExpandDLResponseMessageType** complex type contains the status and result of a single **ExpandDL** request.

```

<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:extension>
</xs:complexContent>
</xs:complexType>

```

Child Elements

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

2.2.3.2 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>

```

Child Elements

Element	Type	Description
Mailbox	t:EmailAddressType	Represents an e-mail address.

Attribute Groups

Name
t:FindResponsePagingAttributes

2.2.3.3 t:DistributionListType Complex Type

The **DistributionListType** complex type represents a distribution list.

```

<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>

```

Child Elements

Element	Type	Description
DisplayName	xs:string	Contains the display name for the distribution list.
FileAs	xs:string	Represents how a distribution list is filed in the Contacts folder.
ContactSource	t:ContactSourceType	Describes whether the distribution list is located in the messaging server store or in the directory service.
Members	t:MembersListType	Contains a list of members in a distribution list.

2.2.3.4 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>

```

Child Elements

Element	Type	Description
Member	t:MemberType	Provides information about each member of the members collection.

2.2.3.5 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"
  />
</xs:complexType>
```

Child Elements

Element	Type	Description
Mailbox	t:EmailAddressType	Represents an e-mail address of a member.
Status	t:MemberStatusType	Provides information about the status of a distribution list member in the members' collection.

Attributes

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

2.2.4 Elements

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

2.2.5 Attributes

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

2.2.6 Groups

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

2.2.7 Attribute Groups

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

2.2.8 Message Syntax

This specification does not define any common XML schema message syntax 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.

Operation	Description
ExpandDL	Defines a request to expand a distribution list.
GetItem	Defines a request to get an item from a mailbox in the server.
DeleteItem	Defines a request to delete an item from a mailbox in the server.
UpdateItem	Defines a request to update an item in a mailbox.
MoveItem	Defines a request to move an item in the server.
CopyItem	Defines a request to copy an item in a mailbox in the server.
CreateItem	Defines a request to create an item in the server.

3.1.1 Server Abstract Data Model

This protocol is a stateless protocol.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Server Message Processing Events and Sequencing

This protocol includes the operations listed in the following table.

Operation	Description
ExpandDL	Expands a distribution list.
GetItem	Gets items in the server.
DeleteItem	Deletes items in the server.
UpdateItem	Updates items in the server
MoveItem	Moves items in the server.
CopyItem	Copies items in the server.
CreateItem	Creates items in the server.

3.1.4.1 ExpandDL

ExpandDL defines a request to expand a distribution list.

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 ExpandDL Complex Types

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

Type	Description
m:ExpandDLResponseType	Defines a response to a request to expand a distribution list.
m:ExpandDLType	Represents a request to expand a distribution list.

3.1.4.1.1.1 m:ExpandDLResponseType Complex Type

The **ExpandDLResponseType** complex type defines a response to a request to expand a distribution list.

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

3.1.4.1.1.2 m:ExpandDLType Complex Type

The **ExpandDLType** complex type represents a request to expand a distribution list.

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

```

    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

Child Elements

Element	Type	Description
Mailbox	t:EmailAddressType	Represents an e-mail address of a distribution list member.

3.1.4.1.2 ExpandDL 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 ExpandDL 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** message contains four parts, as described in the following table.

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

3.1.4.1.3.2 tns:ExpandDLSoapOut

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	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 distribution list item elements.

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

Request

Message Format	Description
tns:GetItemSoapIn	Specifies the SOAP message that defines the distribution list item to get. The Items child element of the GetItem child element that specifies the XML request MUST contain the following elements: t:ItemResponseShapeType and t:ItemIdType . All other elements MUST be empty.

Response

Message Format	Description
tns:GetItemSoapOut	Specifies the SOAP message returned by the server in response. The server returns a t:ItemResponseShapeType 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 distribution list item elements.

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

Request

Message Format	Description
tns:DeleteItemSoapIn	Specifies the SOAP message that defines the distribution list item to delete. The Items child element of the DeleteItem child element that specifies the XML request MUST contain one or more t:ItemIdType elements. All other elements MUST be empty.

Response

Message Format	Description
tns:DeleteItemSoapOut	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 3.1.4.7 to update distribution list item elements.

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

Request

Message Format	Description
tns:UpdateItemSoapIn	Specifies the SOAP message that defines the distribution list item to update. The Items child element of the UpdateItem child element that specifies the XML request MUST contain one or more t:DistributionListType elements. All other elements MUST be empty.

Response

Message Format	Description
tns:UpdateItemSoapOut	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 3.1.4.4 to move distribution list item elements.

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

Request

Message Format	Description
tns:MoveItemSoapIn	Specifies the SOAP message that defines the distribution list item to move. The Items child element of the MoveItem child element that specifies the XML request MUST contain the following elements: t:TargetFolderIdType and t:ItemIdType . All other elements MUST be empty.

Response

Message Format	Description
tns:MoveItemSoapOut	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 distribution list item elements.

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

Request

Message Format	Description
tns:CopyItemSoapIn	Specifies the SOAP message that defines the distribution list item to copy. The Items child element of the CopyItem child element that specifies the XML request MUST contain the following elements: t:TargetFolderIdType and t:ItemIdType . All other elements MUST be empty.

Response

Message Format	Description
tns:CopyItemSoapOut	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 distribution list item elements.

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

Request

Message Format	Description
tns:CreateItemSoapIn	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. All other elements MUST be empty.

Response

Message Format	Description
tns:CreateItemSoapOut	Specifies the SOAP message returned by the server in response.

3.1.5 Server Timer Events

None.

3.1.6 Server 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-OXWSGTRM-types.xsd or MS-OXWSGTRM-messages.xsd schemas need to be placed in the common folder with these files.

6.1 WSDL

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

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="Exchange2010"
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-OXWSGTRM-types.xsd"/>
      <xs:include schemaLocation="MS-OXWSDLIST-messages.xsd"/>
    </xs:schema>
    <xs:schema id="types" elementFormDefault="qualified" version="Exchange2010"
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"/>
    </xs:schema>
  </wsdl:types>
  <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:operation>
  </wsdl:portType>
</wsdl:definitions>
```



```

<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/">
</wsi: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: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>
<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: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 6.3	MS-OXWSDATA-types.xsd

MS-OXWSDLIST-types.xsd file:

```

<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:t="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"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
elementFormDefault="qualified" version="Exchange2010" 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 6.2	MS-OXWSCDATA-messages.xsd

MS-OXWSDLIST-Messages.xsd file:

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema 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"
elementFormDefault="qualified" version="Exchange2010" 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 product versions. References to product versions include released service packs.

- 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.

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.

8 Change Tracking

This section identifies changes made to [MS-OXWSDLIST] protocol documentation between February 2010 and May 2010 releases. Changes are classed as major, minor, or editorial.

Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- A protocol is deprecated.
- The removal of a document from the documentation set.
- Changes made for template compliance.

Minor changes do not affect protocol interoperability or implementation. Examples are updates to fix technical accuracy or ambiguity at the sentence, paragraph, or table level.

Editorial changes apply to grammatical, formatting, and style issues.

No changes means that the document is identical to its last release.

Major and minor changes can be described further using the following revision types:

- New content added.
- Content update.
- Content removed.
- New product behavior note added.
- Product behavior note updated.
- Product behavior note removed.
- New protocol syntax added.
- Protocol syntax updated.
- Protocol syntax removed.
- New content added due to protocol revision.
- Content updated due to protocol revision.
- Content removed due to protocol revision.
- New protocol syntax added due to protocol revision.
- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.

- Content removed for template compliance.
- Obsolete document removed.

Editorial changes always have the revision type "Editorially updated."

Some important terms used in revision type descriptions are defined as follows:

Protocol syntax refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.

Protocol revision refers to changes made to a protocol that affect the bits that are sent over the wire.

Changes are listed in the following table. If you need further information, please contact protocol@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Revision Type
1.3 Overview	Updated the section title.	N	Content updated for template compliance.

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