[MS-OXWSRSLNM]:
Resolve Recipient Names Web Service Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
07/15/2009	1.0	Major	Initial Availability.
11/04/2009	1.1.0	Minor	Updated the technical content.

Table of Contents

1 Introduction

The Resolve Recipient Names Web service protocol enables a client with incomplete recipient identifying information to retrieve a list of matching and similar recipients that are known to the server.

1.1 Glossary

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

Hypertext Transfer Protocol (HTTP)
Hyptertext Transfer Protocol over Secure Socket Layers (HTTPS)
SOAP body
SOAP fault
Web Services Description Language (WSDL)
WSDL message
XML
XML namespace
XML schema

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", June 2008.

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

[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., 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.

[SOAP1.1] Box, D., et al., "Simple Object Access Protocol (SOAP) 1.1", 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] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, http://www.w3.org/TR/REC-xml-names/.

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "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/.

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

1.2.2 Informative References

None.

1.3 Protocol Overview

The Resolve Recipient Names Web Service Protocol enables a client to retrieve a list of e-mail addresses or contacts known to the server. The client can provide the full or partial name for the intended recipient. The server implementing the Resolve Recipient Names protocol will return a list of matching or similarly-named recipients. The client can then use those names when addressing items for the server to send. The server can return valid recipients known to it, for example recipient name stored in a Directory Service, or in a global or user-specific list of contacts.

1.4 Relationship to Other Protocols

The Resolve Recipient Names Web Service protocol uses SOAP over **HTTP** as shown in the following layer diagram:

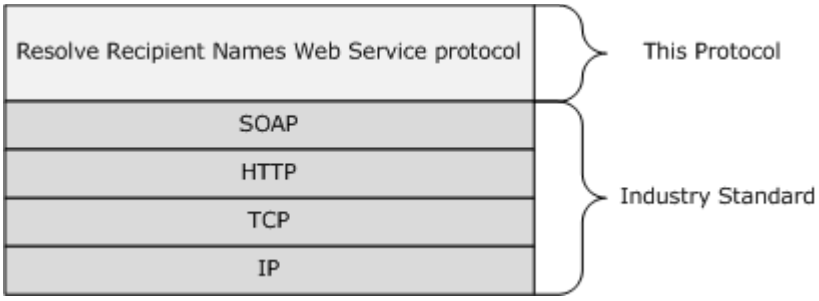

Figure 1: Resolve Recipient Names Web Service protocol HTTP stack.

The Resolve Recipient Names Web Service protocol uses SOAP over **HTTPS** as shown in the following layer diagram:

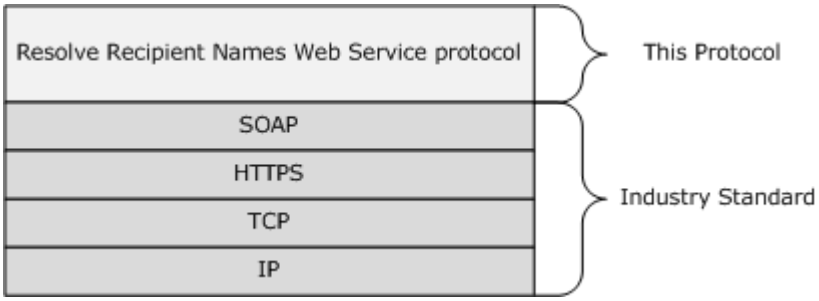

Figure 2: Resolve Recipient Names Web Service protocol HTTPS stack.

1.5 Prerequisities/Preconditions

None.

1.6 Applicability Statement

The Resolve Recipient Names Web Service protocol is applicable to clients that must obtain a list of candidate recipients that are possible matches for ambiguous or partial names provided to the client. The server returns the list of candidate matches, and the client application determines whether any of the supplied candidates are the intended recipient.

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. For details, see [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 by using the mechanisms specified in [XMLNS]. Although this specification associates a specific XML namespace prefix with each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and is 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-OXWSRSLNM]
s	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
targetNamespace	http://schemas.microsoft.com/exchange/services/2006/messages	[MS-OXWSRSLNM]
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
t	http://schemas.microsoft.com/exchange/services/2006/types	[MS-OXWSRSLNM]

2.2.2 Simple Types

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

2.2.3 Complex Types

This specification does not define any common XML schema Complex Type definitions.

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 schemaAttribute 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

The Resolve Recipient Names Web service protocol defines a signle port type with 1 operation.

```
<wsdl:portType name="ExchangeServicePortType">
    <wsdl:operation name="ResolveNames" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
        <wsdl:input message="tns:ResolveNamesSoapIn"/>
        <wsdl:output message="tns:ResolveNamesSoapOut"/>
    </wsdl:operation>
</wsdl:portType>
```

Operation	Description
ResolveNames	Returns a list of candidate recipient names known to the server that match or are similar to the recipient name provided in the request by the client. The ResolveNames operation is defined in section 3.1.4.1

3.1.1 Server Abstract Data Model

The Resolve Recipient Names Web service protocol is a stateless protocol.

3.1.2 Server Timers

None.

3.1.3 Server Initialization

None.

3.1.4 Server Message Processing Events and Sequencing

This protocol includes the operation listed in the following table.

Operation	Description
ResolveNames	Returns candidate contacts that match ambiguous name supplied by client.

3.1.4.1 ResolveNames

Returns a list of candidate recipients that match an ambiguous recipient name supplied by the client.

```
<wsdl:operation name="ResolveNames" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
    <wsdl:input message="tns:ResolveNamesSoapIn"/>
```

```
    <wsdl:output message="tns:ResolveNamesSoapOut"/>
</wsdl:operation>
```

Request

Message Format	Description
tns:ResolveNamesSoapIn	Specifies the [SOAP] message that requests a list of candidate names.

Response

Message Format	Description
tns:ResolveNamesSoapOut	Specifies the [SOAP] message returned by the server in response.

3.1.4.1.1 ResolveNames Simple Types

The following XML schema simple types are specific to this operation.

Type	Description
ResolveNamesSearchScope	Specifies the locations that the server should search for candidate matching recipient names.

3.1.4.1.1.1 t:ResolveNamesSearchScopeType Simple Type

The **ResolveNamesSearchScopeType** simple type specifies a location where the server searches for candidate matches.

```
<xs:simpleType name="ResolveNamesSearchScopeType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="ActiveDirectory"
     />
    <xs:enumeration
      value="ActiveDirectoryContacts"
     />
    <xs:enumeration
      value="Contacts"
     />
    <xs:enumeration
      value="ContactsActiveDirectory"
     />
  </xs:restriction>
</xs:simpleType>
```

Enumeration

The following values are defined by the **ResolveNamesSearchScopeType** simple type:

Value	Description
ActiveDirectory	Specifies that the server search for candidate matches in the directory service for the organization.
ActiveDirectoryContacts	Specifies that the server search for candidate matches in the global contacts list stored in the directory service for the organization.
Contacts	Specifies that the server search for candidate matches in the mailbox Contacts folder.
ContactsActiveDirectory	Specifies that the server search for candidate matches in the mailbox Contacts list stored in the directory service for the organization.

3.1.4.1.2 ResolveNames Complex Types

The following XML schema complex types are specific to this operation.

Type	Description
m:ResolveNamesResponseMessageType	Represents a response to a Resolve Recipient Names operation.
m:ResolveNamesResponseType	Represents a response to a Resolve Recipient Names operation
m:ResolveNamesType	Represents the details of the Resolve Recipient Names request to the server.
t:ArrayOfResolutionType	Represents a container for the list of candidate matching recipients that are returned by the server.
t:ResolutionType	Represents the type of candidate matching recipient returned by the server.

3.1.4.1.2.1 m:ResolveNamesResponseMessageType Complex Type

The **ResolveNamesResponseMessageType** complex type specifies the status and result of a **ResolveNames** operation (section 3.1.4.1). The **ResolveNamesResponseMessageType** complex type extends the **ResponseMessageType** complex type as specified in [MS-OXWSCDATA] section 2.2.3.49.

```
<xs:complexType name="ResolveNamesResponseMessageType">
  <xs:complexContent>
    <xs:extension
      base="m:ResponseMessageType"
    >
      <xs:sequence>
        <xs:element name="ResolutionSet"
          type="t:ArrayOfResolutionType"
          minOccurs="0"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type
ResolutionSet	t:ArrayOfResolutionType

3.1.4.1.2.2 m:ResolveNamesResponseType Complex Type

The **ResolveNamesResponseType** complex type specifies the contents of the response from the server. The **ResolveNamesResponseType** complex type extends the **BaseResponseMessageType** complex type, as specified in [MS-OXWSCDATA] section 2.2.3.15.

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

3.1.4.1.2.3 m:ResolveNamesType Complex Type

The **m:ResolveNamesType** complex type specifies the content of a request from the client to locate candidate matching recipients. The **m:ResolveNamesType** complex type extends the **m:BaseRequestType** complex type as specified in [MS-OXWSCDATA] section 2.2.3.49.

```
<xs:complexType name="ResolveNamesType">
  <xs:complexContent>
    <xs:extension
      base="m:BaseRequestType"
    >
      <xs:sequence>
        <xs:element name="ParentFolderIds"
          type="t:NonEmptyArrayOfBaseFolderIdsType"
          minOccurs="0"
         />
        <xs:element name="UnresolvedEntry"
          type="t:NonEmptyStringType"
         />
      </xs:sequence>
      <xs:attribute name="ReturnFullContactData"
        type="xs:boolean"
        use="required"
       />
      <xs:attribute name="SearchScope"
        type="t:ResolveNamesSearchScopeType"
        default="ActiveDirectoryContacts"
       />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Child Elements

Element	Type
ParentFolderIds	t:NonEmptyArrayOfBaseFolderIdsType
UnresolvedEntry	t:NonEmptyStringType

Attributes

Name	Type
ReturnFullContactData	xs:boolean
SearchScope	t:ResolveNamesSearchScopeType

3.1.4.1.2.4 t:ArrayOfResolutionType Complex Type

The **t:ArrayOfResolutionType Complex Type** complex type specifies the list of candidate matching recipients that are returned by the server. The **t:ArrayOfResolutionType Complex Type** complex type does not extend any other complex type. The server does not return more than 100 candidate matches.

```
<xs:complexType name="ArrayOfResolutionType">
  <xs:sequence>
    <xs:element name="Resolution"
      type="t:ResolutionType"
      maxOccurs="100"
      minOccurs="0"
     />
  </xs:sequence>
  <xs:attributeGroup
    ref="t:FindResponsePagingAttributes"
   />
</xs:complexType>
```

Child Elements

Element	Type
Resolution	t:ResolutionType

Attribute Groups

Name
t:FindResponsePagingAttributes

3.1.4.1.2.5 t:Resolutiontype Complex Type

The **ResolutionType Complex Type** complex type specifies the type of candidate matching recipient returned by the server. The **t:ResolutionType Complex Type** complex type does not extend any other compex type.

```
<xs:complexType name="ResolutionType">
  <xs:sequence>
    <xs:element name="Mailbox"
      type="t:EmailAddressType"
     />
    <xs:element name="Contact"
      type="t:ContactItemType"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

Child Elements

Element	Type	Description
Mailbox	t:EmailAddressType	Represents an e-mail address.
Contact	t:ContactItemType	Represents a contact item.

3.1.4.1.3 ResolveNames Elements

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

Operation	Description
tns:ResolveNames	Defines a request to return a list of candidate matching recipient names.
tns:ResolveNamesResponse	Defines a response to a reques to return a list of candidate names.

3.1.4.1.3.1 ResolveNames Element

The **ResolveNames** element is a container that specifies the parameters and the unresolved recipient name to the server.

```
<xs:element name="ResolveNames"
  type="m:ResolveNamesType"
 />
```

3.1.4.1.3.2 ResolveNamesResponse Element

The **ResolveNamesResponse** element is a container that specifies the candidate matches returned in the server response.

```
<xs:element name="ResolveNamesResponse"
```

```
 type="m:ResolveNamesResponseType"
/>
```

3.1.4.1.4 ResolveNames Messages

The following **WSDL message** definitions are specific to this operation.

Messages	Description
tns:ResolveNamesSoapIn	The request for a list of candidate matching recipient names.
tns:ResolveNamesSoapOut	The response containing the list of candidate matching recipient names.

3.1.4.1.4.1 tns:ResolveNamesSoapIn

The tns:ResolveNamesSoapIn message contains four parts.

Part Name	Element/Type	Description
request	**tns:ResolveNames**	This part specifies the request.
Impersonation	**t:ExchangeImpersonation**	The identifier of the account to impersonate.
MailboxCulture	**t:MailboxCulture**	This part specifies the culture to use for accessing the server. The cultures are defined by [RFC3066].
RequestVersion	**t:RequestServerVersion**	This part specifies the schema version for the request.

3.1.4.1.4.2 tns:ResolveNamesSoapOut

The tns:ResolveNamesSoapOut message contains two parts.

Part Name	Element/Type	Description
ResolveNamesResult	**tns:ResolveNamesResponse**	This part specifies the response.
ServerVersion	**t:ServerVersionInfo**	This part specifies the server version for the 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

The Resolve Recipient Names Web service protocol does not use any 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.

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

These files MUST 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-OXWSRSLNM-types.xsd or MS-OXWSRSLNM-messages.xsd schemas MUST be placed in the common folder with the files.

6.1 WSDL

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

MS-OXWSRSLNM.wsdl includes the files listed in the following table. For the schema file to operate correctly, these files MUST be present in the folder that contains the WSDL, types schema, and messages schema files for this protocol.

Defining protocol	File name
[MS-OXWSRSLNM], section 6.2.	MS-OXWSRSLNM-messages.xsd
[MS-OXWSRSLNM], section 6.3	MS-OXWSRSLNM-types.xsd

```
<?xml version="1.0" encoding="utf-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Thomas L Randolph (private) -->
<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"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types">
<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">
<xs:include schemaLocation="MS-OXWSRSLNM-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:tns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:include schemaLocation="MS-OXWSRSLNM-types.xsd"/>
```

```
</xs:schema>
</wsdl:types>
<wsdl:portType name="ExchangeServicePortType">
<wsdl:operation name="ResolveNames" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
<wsdl:input message="tns:ResolveNamesSoapIn"/>
<wsdl:output message="tns:ResolveNamesSoapOut"/>
</wsdl:operation>
</wsdl:portType>
<wsdl:message name="ResolveNamesSoapIn" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
<wsdl:part name="request" element="tns:ResolveNames"/>
<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="ResolveNamesSoapOut" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
<wsdl:part name="ResolveNamesResult" element="tns:ResolveNamesResponse"/>
<wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
<wsdl:binding name="ExchangeServiceBinding" type="tns:ExchangeServicePortType">
<soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
<wsdl:operation name="ResolveNames" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
<soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/ResolveNames"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
<wsdl:input>
<soap:body parts="request" use="literal" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
<soap:header message="tns:ResolveNamesSoapIn" part="Impersonation" use="literal"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
<soap:header message="tns:ResolveNamesSoapIn" part="MailboxCulture" use="literal"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
<soap:header message="tns:ResolveNamesSoapIn" part="RequestVersion" use="literal"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
</wsdl:input>
<wsdl:output>
<soap:body parts="ResolveNamesResult" use="literal"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
<soap:header message="tns:ResolveNamesSoapOut" part="ServerVersion" use="literal"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"/>
</wsdl:output>
</wsdl:operation>
</wsdl:binding>
</wsdl:definitions>
```

6.2 Messages Schema

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

MS-OXWSRSLNM-messages.xsd includes or imports the files listed in the following table. For the schema file to operate correctly, these files MUST be in the folder that contains the WSDL, types schema, and messages schema files for this protocol.

Defining protocol	File name
[MS-OXWSCDATA], section 6.3.	MS-OXWSCDATA-messages.xsd
[MS-OXWSRSLNM], section 6.3	MS-OXWSRSLNM-types.xsd

```
<?xml version="1.0" encoding="utf-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Thomas L Randolph (private) -->
<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:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="MS-OXWSRSLNM-types.xsd"/>
<xs:include schemaLocation="MS-OXWSCDATA-messages.xsd"/>
<xs:complexType name="ResolveNamesResponseMessageType"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:complexContent>
<xs:extension base="m:ResponseMessageType">
<xs:sequence>
<xs:element name="ResolutionSet" type="t:ArrayOfResolutionType" minOccurs="0"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="ResolveNamesResponseType" xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:complexContent>
<xs:extension base="m:BaseResponseMessageType"/>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="ResolveNamesType" xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:complexContent>
<xs:extension base="m:BaseRequestType">
<xs:sequence>
<xs:element name="ParentFolderIds" type="t:NonEmptyArrayOfBaseFolderIdsType" minOccurs="0"/>
<xs:element name="UnresolvedEntry" type="t:NonEmptyStringType"/>
</xs:sequence>
<xs:attribute name="ReturnFullContactData" type="xs:boolean" use="required"/>
<xs:attribute name="SearchScope" type="t:ResolveNamesSearchScopeType"
default="ActiveDirectoryContacts"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="ResolveNames" type="m:ResolveNamesType"
xmlns:xs="http://www.w3.org/2001/XMLSchema"/>
<xs:element name="ResolveNamesResponse" type="m:ResolveNamesResponseType"
xmlns:xs="http://www.w3.org/2001/XMLSchema"/>
</xs:schema>
```

6.3 Types Schema

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

MS-OXWSRSLNM-types.xsd includes the file listed in the following table. For the schema file to operate correctly, this file MUST be in the folder that contains the WSDL, types schema, and messages schema files for this protocol.

Defining protocol	File name
[MS-OXWSCDATA], section 6.2.	MS-OXWSCDATA-types.xsd

```
<?xml version="1.0" encoding="utf-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by Thomas L Randolph (private) -->
<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="ArrayOfResolutionType" xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:sequence>
<xs:element name="Resolution" type="t:ResolutionType" minOccurs="0" maxOccurs="100"/>
</xs:sequence>
<xs:attributeGroup ref="t:FindResponsePagingAttributes"/>
</xs:complexType>
<xs:complexType name="ResolutionType" xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:sequence>
<xs:element name="Mailbox" type="t:EmailAddressType"/>
<xs:element name="Contact" type="t:ContactItemType" minOccurs="0"/>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="ResolveNamesSearchScopeType"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
<xs:restriction base="xs:string">
<xs:enumeration value="ActiveDirectory"/>
<xs:enumeration value="ActiveDirectoryContacts"/>
<xs:enumeration value="Contacts"/>
<xs:enumeration value="ContactsActiveDirectory"/>
</xs:restriction>
</xs:simpleType>
</xs:schema>
```

7 Appendix A: 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-OXWSRSLNM] protocol documentation between July 2009 and November 2009 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
1.7 Versioning and Capability Negotiation	52687 Updated section link to point to the appropriate topic.	N	Content update.
2.2 Common Message Syntax	Added links to normative references [XMLSCHEMA1], [XMLSCHEMA2], and [WSDL].	N	Content update.
2.2.1 Namespaces	52687 Added links to normative references [XMLNS], [SOAP1.1], [XMLSCHEMA1], and [WSDL].	N	Content update.

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