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## Revision Summary

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1 Introduction

The Folder Sharing Web Service Protocol is responsible for managing calendars that are shared among users in separate organizations. Clients use the Folder Sharing Web Service Protocol to share calendar appointments, get appointments, and update appointments.

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:

- **calendar**: A date range that shows availability, meetings, and appointments for one or more users or resources. See also Calendar object.

- **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.

- **recipient**: An entity that is in an address list, can receive email messages, and contains a set of attributes. Each attribute has a set of associated values.

- **security token service (STS)**: A web service that issues claims and packages them in encrypted security tokens.

- **shared folder**: A folder for which a sharing relationship has been created to share items in the folder between two servers.

- **Simple Mail Transfer Protocol (SMTP)**: A member of the TCP/IP suite of protocols that is used to transport Internet messages, as described in [RFC5321].

- **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 action**: The HTTP request header field used to indicate the intent of the SOAP request, using a URI value. See [SOAP1.1] section 6.1.1 for more information.

- **SOAP body**: A container for the payload data being delivered by a SOAP message to its recipient. See [SOAP1.2-1/2007] section 5.3 for more information.

- **SOAP header**: A mechanism for implementing extensions to a SOAP message in a decentralized manner without prior agreement between the communicating parties. See [SOAP1.2-1/2007] section 5.2 for more information.

- **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 namespace prefix: An abbreviated form of an XML namespace, as described in [XML].

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

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


1.2.2 Informative References


[MS-OXWSLVID] Microsoft Corporation, "Federated Internet Authentication Web Service Protocol".

[MS-OXWSSSYNC] Microsoft Corporation, "Mailbox Contents Synchronization Web Service Protocol".

1.3 Overview

The Folder Sharing Web Service Protocol specifies data types and operations that enable client applications to manage cross-organization sharing of folder items. This sharing enables a client in one organization to access information from another organization, such as calendar free/busy information. This protocol is applicable to person-to-person sharing scenarios; it does not address organizations sharing information on behalf of the entire organization. The protocol defines operations that are used to create an opaque data structure that authorizes sharing, getting shared folder information, and initiating synchronization of shared folders.

1.4 Relationship to Other Protocols

The Folder Sharing Web Service Protocol uses SOAP over HTTPS, as described in [RFC2818], as shown in the following layering diagram.

```
+------------------+
| Folder Sharing Web Service protocol |
|      +-------+      |
|      | SOAP  |      |
|      +-------+      |
|      +-------+      |
|      | HTTPS |      |
|      +-------+      |
|      +-------+      |
|      | TCP   |      |
|      +-------+      |
|      +-------+      |
|      | IP    |      |
+------------------+
```

Figure 1: This protocol in relation to other protocols

Clients that implement this protocol use operations from the protocols listed in the following table to perform work.
Protocol | Description
--- | ---
Core Items Web Service Protocol ([MS-OXWSCORE]) | Subscribing clients can use the **CreateItem** operation ([MS-OXWSCORE] section 3.1.4.2) to create the local shared folder.
Federated Internet Authentication Web Service Protocol ([MS-OXWSLVID]) | Servers can use Federated Internet Authentication Web Service Protocol client operations to obtain authentication tokens to establish sharing relationships among users.
Folders and Folder Permissions Web Service Protocol ([MS-OXWSFOLD]) | Clients can use the **GetFolder** operation ([MS-OXWSFOLD] section 3.1.4.6) to retrieve information about folders to be shared, and they can use the **UpdateFolder** operation ([MS-OXWSFOLD] section 3.1.4.8) to update permissions on shared folders.
Mailbox Contents Synchronization Web Service Protocol ([MS-OXWSSYNC]) | Clients can use Mailbox Contents Synchronization Web Service Protocol operations to synchronize the local shared folder on the server with the client's local data store.

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

This protocol uses the XML protocols presented in [XMLSCHEMA1] and [XMLSCHEMA2], to describe the message content sent to and from the server.

### 1.5 Prerequisites/Preconditions
None.

### 1.6 Applicability Statement
The Folder Sharing Web Service Protocol is applicable to SOAP-based clients, as described in [SOAP1.1].

### 1.7 Versioning and Capability Negotiation
This document covers versioning in the following areas:

- **Supported Transports:** This protocol uses SOAP 1.1 over HTTPS, as described in section 2.1 and in [SOAP1.1].
- **Protocol Versions:** This protocol specifies only one WSDL port type version. The WSDL version of the request is identified by using the **t:RequestServerVersion** element, as described in [MS-OXWSCDATA] section 2.2.3.9, and the version of the server responding to the request is identified by using the **t:ServerVersionInfo** element, as described in [MS-OXWSCDATA] section 2.2.3.10.
- **Security and Authentication Methods:** This protocol relies on the web server that is hosting it to perform authentication.
- **Capability Negotiation:** This protocol does not support version negotiation.

### 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. For details, see [SOAP1.1]. This protocol MUST support SOAP over HTTPS, as defined in [RFC2818].

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 for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

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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
--- | ---
GetSharingFolderResponseMessageType | Specifies the response from the GetSharingFolder operation (section 3.1.4.3).
GetSharingMetadataResponseMessageType | Specifies the response message from the GetSharingMetadata operation (section 3.1.4.4).
RefreshSharingFolderResponseMessageType | Specifies the response message from the RefreshSharingFolder operation (section 3.1.4.5).
ArrayOfEncryptedSharedFolderDataType | Specifies an array of encrypted folder data that is passed between servers by the client.
ArrayOfInvalidRecipientsType | Specifies a list of sharing request recipients with whom a sharing relationship could not be created.
EncryptedDataContainerType | Specifies an opaque container for encrypted data passed between servers by the client.
EncryptedSharedFolderDataType | Specifies encrypted folder information that is passed between servers by the client.
InvalidRecipientType | Specifies a recipient with whom a sharing relationship could not be created.

### 2.2.4.1 m:GetSharingFolderResponseMessageType Complex Type

The GetSharingFolderResponseMessageType complex type specifies the response message from the GetSharingFolder operation, as specified in section 3.1.4.3. The GetSharingFolderResponseMessageType complex type extends the ResponseMessageType complex type, as specified in [MS-OXWSCDATA] section 2.2.4.66.

```xml
<xs:complexType name="GetSharingFolderResponseMessageType">
  <xs:complexContent>
    <xs:extension base="m:ResponseMessageType">
      <xs:sequence minOccurs="0">
        <xs:element name="SharingFolderId" type="t:FolderIdType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

<table>
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<tr>
<th>Prefix</th>
<th>Namespace URI</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td><a href="http://schemas.microsoft.com/exchange/services/2006/messages">http://schemas.microsoft.com/exchange/services/2006/messages</a></td>
<td></td>
</tr>
</tbody>
</table>

The following table lists the child elements of the GetSharingFolderResponseMessageType complex type.
Element name | Type | Description
--- | --- | ---
SharingFolderId | t:FolderIdType ([MS-OXWSCDATA] section 2.2.4.35) | Specifies the local folder identifier for a shared folder.

### 2.2.4.2 m:GetSharingMetadataResponseMessageType Complex Type

The `GetSharingMetadataResponseMessageType` complex type specifies the response message from the `GetSharingMetadata` operation, as specified in section 3.1.4.4. The `GetSharingMetadataResponseMessageType` complex type extends the `ResponseMessageType` complex type, as specified in [MS-OXWSCDATA] section 2.2.4.66.

```xml
<xs:complexType name="GetSharingMetadataResponseMessageType">
  <xs:complexContent>
    <xs:extension base="m:ResponseMessageType">
      <xs:sequence minOccurs="0">
        <xs:element name="EncryptedSharedFolderDataCollection" type="t:ArrayOfEncryptedSharedFolderDataType"/>
        <xs:element name="InvalidRecipients" type="t:ArrayOfInvalidRecipientsType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child elements of the `GetSharingMetadataResponseMessageType` complex type.

<table>
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<th>Type</th>
<th>Description</th>
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</thead>
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<td>EncryptedSharedFolderDataCollection</td>
<td>t:ArrayOfEncryptedSharedFolderDataType (section 2.2.4.4)</td>
<td>Specifies an encrypted payload from the server.</td>
</tr>
<tr>
<td>InvalidRecipients</td>
<td>t:ArrayOfInvalidRecipientsType (section 2.2.4.5)</td>
<td>Specifies recipients that belong to an organization that does not enable sharing.</td>
</tr>
</tbody>
</table>

### 2.2.4.3 m:RefreshSharingFolderResponseMessageType Complex Type

The `RefreshSharingFolderResponseMessageType` complex type specifies the response from the `RefreshSharingFolder` operation, as specified in section 3.1.4.5. The `RefreshSharingFolderResponseMessageType` complex type extends the `ResponseMessageType` complex type, as specified in [MS-OXWSCDATA] section 2.2.4.66.
2.2.4.4 **t:ArrayOfEncryptedSharedFolderDataType Complex Type**

The `ArrayOfEncryptedSharedFolderDataType` complex type specifies an array of encrypted folder data that is passed between servers by the client.

```
<xs:complexType name="t:ArrayOfEncryptedSharedFolderDataType">
  <xs:choice maxOccurs="unbounded" minOccurs="0">
    <xs:element name="EncryptedSharedFolderData" type="t:EncryptedSharedFolderDataType"/>
  </xs:choice>
</xs:complexType>
```

The following table lists the child elements of the `ArrayOfEncryptedSharedFolderDataType` complex type.

<table>
<thead>
<tr>
<th>Element name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EncryptedSharedFolderData</td>
<td>t:EncryptedSharedFolderDataType (section 2.2.4.7)</td>
<td>Specifies zero or more encrypted shared folder data items.</td>
</tr>
</tbody>
</table>

2.2.4.5 **t:ArrayOfInvalidRecipientsType Complex Type**

The `ArrayOfInvalidRecipientsType` complex type specifies a list of sharing request recipients with whom a sharing relationship could not be created.

```
<xs:complexType name="ArrayOfInvalidRecipientsType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="InvalidRecipient" type="t:InvalidRecipientType"/>
  </xs:choice>
</xs:complexType>
```

The following table lists the child elements of the `ArrayOfInvalidRecipientsType` complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>InvalidRecipient</td>
<td>t:InvalidRecipientType (section 2.2.4.5)</td>
<td>Specifies a recipient whose organization is not valid.</td>
</tr>
</tbody>
</table>
2.2.4.6 t:EncryptedDataContainerType Complex Type

The EncryptedDataContainerType complex type specifies an opaque container for encrypted data that is passed between servers by the client.

```xml
<xs:complexType name="EncryptedDataContainerType">
    <xs:sequence>
        <xs:any process_contents="skip"/>
    </xs:sequence>
</xs:complexType>
```

2.2.4.7 t:EncryptedSharedFolderDataType Complex Type

The EncryptedSharedFolderDataType complex type specifies encrypted folder information that is passed between servers by the client.

```xml
<xs:complexType name="EncryptedSharedFolderDataType">
    <xs:sequence>
        <xs:element name="Token" type="t:EncryptedDataContainerType"/>
        <xs:element name="Data" type="t:EncryptedDataContainerType"/>
    </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the EncryptedSharedFolderDataType complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Token</td>
<td>t:EncryptedDataContainerType (section 2.2.4.6)</td>
<td>Specifies an identification token.</td>
</tr>
<tr>
<td>Data</td>
<td>t:EncryptedDataContainerType</td>
<td>Specifies the encrypted data.</td>
</tr>
</tbody>
</table>

2.2.4.8 t:InvalidRecipientType Complex Type

The InvalidRecipientType complex type specifies a recipient with whom a sharing relationship could not be created.

```xml
<xs:complexType name="InvalidRecipientType">
    <xs:sequence>
        <xs:element name="SmtpAddress" type="t:NonEmptyStringType"/>
    </xs:sequence>
</xs:complexType>
```
The following table lists the child elements of the `InvalidRecipientType` complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmtpAddress</td>
<td><code>t:NonEmptyStringType</code> (<a href="#">MS-OXWSCDATA</a> section 2.2.5.20)</td>
<td>Specifies the SMTP e-mail address of the recipient.</td>
</tr>
<tr>
<td>ResponseCode</td>
<td><code>t:InvalidRecipientResponseCodeType</code> (section 2.2.5.2)</td>
<td>Specifies the reason why the recipient is invalid.</td>
</tr>
<tr>
<td>MessageText</td>
<td><code>xs:string</code> (<a href="#">XMLSCHEMA2</a>)</td>
<td>Specifies the text of an error message. This element can be present.</td>
</tr>
</tbody>
</table>

### 2.2.5 Simple Types

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

<table>
<thead>
<tr>
<th>Simple Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SharingDataType</td>
<td>Specifies the type of data that is shared by a shared folder.</td>
</tr>
<tr>
<td>InvalidRecipientResponseCodeType</td>
<td>Specifies the reason why a recipient of a folder sharing request was invalid.</td>
</tr>
</tbody>
</table>

#### 2.2.5.1 `t:SharingDataType` Simple Type

The `SharingDataType` simple type specifies the type of data that is shared by the shared folder.

```xml
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:enumeration value="Calendar" />
      <xs:enumeration value="Contacts" />
    </xs:restriction>
  </xs:simpleType>
```
The following values are defined by the `SharingDataType` simple type:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calendar</td>
<td>Specifies that the shared folder contains calendar information.</td>
</tr>
<tr>
<td>Contacts</td>
<td>Specifies that the shared folder contains contact information.</td>
</tr>
</tbody>
</table>

### 2.2.5.2 `t:InvalidRecipientResponseCodeType` Simple Type

The `InvalidRecipientResponseCodeType` simple type specifies the reason why a recipient of a folder sharing request was invalid.

```xml
<xs:simpleType name="InvalidRecipientResponseCodeType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="CannotObtainTokenFromSTS"/>
    <xs:enumeration value="RecipientOrganizationNotFederated"/>
    <xs:enumeration value="SystemPolicyBlocksSharingWithThisRecipient"/>
    <xs:enumeration value="RecipientOrganizationFederatedWithUnknownTokenIssuer"/>
  </xs:restriction>
</xs:simpleType>
```

The following values are defined by the `InvalidRecipientResponseCodeType` simple type:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>CannotObtainTokenFromSTS</code></td>
<td>Specifies that there was a problem obtaining a security token from the security token service (STS).</td>
</tr>
<tr>
<td><code>RecipientOrganizationNotFederated</code></td>
<td>Specifies that a sharing relationship is not available with the organization specified in the recipient's SMTP e-mail address.</td>
</tr>
<tr>
<td><code>SystemPolicyBlocksSharingWithThisRecipient</code></td>
<td>Specifies that the system administrator has set a system policy that blocks sharing with the specified recipient.</td>
</tr>
<tr>
<td><code>RecipientOrganizationFederatedWithUnknownTokenIssuer</code></td>
<td>Specifies that the security token service (STS) that is used by the specified recipient is unknown.</td>
</tr>
</tbody>
</table>

### 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 that are 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 with three operations. In addition, this protocol uses one operation, CreateItem, specified in [MS-OXWSCORE] and two operations, GetFolder and UpdateFolder, specified in [MS-OXWSFOLD]. These operations enable client implementations to establish a sharing relationship between two servers and to manage the folders necessary for that sharing relationship.

3.1.1 Abstract Data Model

This protocol uses a sharing message, as defined in [MS-OXSHRMSG], to establish folder sharing. The GetSharingMetadata operation, as specified in section 3.1.4.4, gets the EncryptedSharedFolderDataType complex type elements, as specified in section 2.2.4.7, that are required to populate the SharingMessage element in the XML sharing message, as specified in [MS-OXSHRMSG] section 2.1.11.

This protocol requires two clients: a publishing client that is sharing information on behalf of a user, and a subscribing client that is accessing the shared information. To establish the relationship, the two clients perform the following actions.

Publisher actions:

- Call the GetSharingMetadata operation to get an opaque authentication token that identifies the sharing invitation.
- Construct a Sharing Message Attachment XML document, as specified in [MS-OXSHRMSG], from the response from the GetSharingMetadata operation. The EncryptedSharedFolderDataCollection element of the GetSharingMetaDataResponse element, as specified in section 3.1.4.4.2.2, is inserted into the Sharing Message Attachment XML document as the EncryptedSharedFolderDataCollection element of the ProviderType element, as specified in [MS-OXSHRMSG] section 2.1.8.
- Use the GetFolder operation, as specified in [MS-OXWSFOLD] section 3.1.4.6, to get the permission list for the shared folder.
- Use the UpdateFolder operation, as specified in [MS-OXWSFOLD] section 3.1.4.8, to add the new subscriber to the permission list.
- Send the Sharing Message Attachment XML document to the subscriber as an attachment on an e-mail message. The attachment requires the following headers:
  - Content-Type: application/x-sharing-metadata-xml;
  - Content-Disposition: attachment; filename="sharing_metadata.xml"

Subscriber actions:

- Call the CreateItem operation, as specified in [MS-OXWSCORE] section 3.1.4.2, with an AcceptSharingInvitationType element, as specified in [MS-OXWSCDATA] section 2.2.4.3.
Get the local sharing folder identifier by calling the **GetSharingFolder** operation, as specified in section **3.1.4.3**. The local sharing folder is created by the previous call to the **CreateItem** operation.

Start synchronizing the local sharing folder on the server by calling the **RefreshSharingFolder** operation, as specified in section **3.1.4.5**, with the local sharing folder identifier that is returned by the **GetSharingFolder** operation.

### 3.1.2 Timers

None.

### 3.1.3 Initialization

None.

### 3.1.4 Message Processing Events and Sequencing Rules

This protocol specifies the operations that are listed in the following table.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingFolder</td>
<td>Gets the folder identifier of a specified shared folder.</td>
</tr>
<tr>
<td>GetSharingMetadata</td>
<td>Requests an encrypted XML payload that identifies the participants in a shared folder exchange.</td>
</tr>
<tr>
<td>RefreshSharingFolder</td>
<td>Requests that the server update shared folder information.</td>
</tr>
</tbody>
</table>

This protocol uses the operations that are listed in the following table.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Specified in</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CreateItem</td>
<td>[MS-OXWSCORE] section 3.1.4.2</td>
<td>Creates a folder sharing response message.</td>
</tr>
<tr>
<td>GetFolder</td>
<td>[MS-OXWSFOLD] section 3.1.4.6</td>
<td>Gets a specified folder so that the access permissions can be changed.</td>
</tr>
<tr>
<td>UpdateFolder</td>
<td>[MS-OXWSFOLD] section 3.1.4.8</td>
<td>Updates the access permissions on the specified folder to enable folder sharing.</td>
</tr>
</tbody>
</table>

#### 3.1.4.1 CreateItem Operation

The **CreateItem** operation, as specified in [MS-OXWSCORE] section 3.1.4.2, creates **AcceptSharingInvitationType** complex type elements, as specified in [MS-OXWSCDATA] section 2.2.4.3.

```xml
<wSDL:operation name="CreateItem">
   <wSDL:input message="tns:CreateItemSoapIn" />
   <wSDL:output message="tns:CreateItemSoapOut" />
</wSDL:operation>
```
The **Items** child element of the **CreateItem** child element, as specified in [MS-OXWSCORE] section 3.1.4.2.2.1, that specifies the XML request MUST contain one **AcceptSharingInvitationType** complex type element. All other elements MUST be empty.

### 3.1.4.2 GetFolder Operation

The **GetFolder** operation, as specified in [MS-OXWSFOLD] section 3.1.4.6, gets a **shared folder** so that the access permissions on a shared folder can be modified.

```xml
<wsdl:operation name="GetFolder">
  <wsdl:input message="tns:GetFolderSoapIn"/>
  <wsdl:output message="tns:GetFolderSoapOut"/>
</wsdl:operation>
```

### 3.1.4.3 GetSharingFolder Operation

The **GetSharingFolder** operation gets the local folder identifier of a specified **shared folder**.

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

```xml
<wsdl:operation name="GetSharingFolder">
  <wsdl:input message="tns:GetSharingFolderSoapIn"/>
  <wsdl:output message="tns:GetSharingFolderSoapOut"/>
</wsdl:operation>
```

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

```xml
<wsdl:operation name="GetSharingFolder">
  <wsdl:input>
    <soap:body parts="request" use="literal"/>
    <soap:header message="tns:GetSharingFolderSoapIn" part="RequestVersion" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="GetSharingFolderResult" use="literal"/>
    <soap:header message="tns:GetSharingFolderSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>
```

The **GetSharingFolder** operation returns the local folder identifier of a specified shared folder. After the local folder identifier is returned, the **RefreshSharingFolder** operation, as specified in section 3.1.4.5, is used to request that the server synchronize the shared folder information.

### 3.1.4.3.1 Messages

The **WSDL message** definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Message name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingFolderSoapIn</td>
<td>Specifies the <strong>SOAP message</strong> that requests the local identifier of a <strong>shared folder</strong>.</td>
</tr>
<tr>
<td>GetSharingFolderSoapOut</td>
<td>Specifies the <strong>SOAP message</strong> that is returned in response.</td>
</tr>
</tbody>
</table>
3.1.4.3.1.1  tns:GetSharingFolderSoapIn Message

The **GetSharingFolderSoapIn** WSDL message specifies a request to the **GetSharingFolder** operation.

```xml
<wsdl:message name="GetSharingFolderSoapIn">
  <wsdl:part name="request" element="tns:GetSharingFolder"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
```

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

The parts of the **GetSharingFolderSoapIn** WSDL message are listed and described in the following table.

<table>
<thead>
<tr>
<th>Part name</th>
<th>Element/type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>tns:GetSharingFolder (section 3.1.4.3.2.2)</td>
<td>Specifies the SOAP body of the request for a local identifier of a shared folder.</td>
</tr>
<tr>
<td>RequestVersion</td>
<td>t:RequestServerVersion ([MS-OXWSCDATA] section 2.2.3.9)</td>
<td>Specifies a SOAP header that identifies the schema version for the GetSharingFolder operation request.</td>
</tr>
</tbody>
</table>

3.1.4.3.1.2  tns:GetSharingFolderSoapOut Message

The **GetSharingFolderSoapOut** WSDL message specifies the server response to the **GetSharingFolder** operation request to return the local identifier of a shared folder.

```xml
<wsdl:message name="GetSharingFolderSoapOut">
  <wsdl:part name="GetSharingFolderResult" element="tns:GetSharingFolderResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

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

The parts of the **GetSharingFolderSoapOut** WSDL message are listed and described in the following table.

<table>
<thead>
<tr>
<th>Part name</th>
<th>Element/type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingFolderResult</td>
<td>tns:GetSharingFolderResponse (section 3.1.4.3.2.1)</td>
<td>Specifies the SOAP body of the response to a GetSharingFolder operation request.</td>
</tr>
<tr>
<td>ServerVersion</td>
<td>t:ServerVersionInfo ([MS-OXWSCDATA] section 2.2.3.10)</td>
<td>Specifies a SOAP header that identifies the server version for the response.</td>
</tr>
</tbody>
</table>

3.1.4.3.2 Elements

The **XML schema** element definitions listed in the following table are specific to this operation.
<table>
<thead>
<tr>
<th>Element name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingFolder</td>
<td>Specifies the base request element for the GetSharingFolder operation.</td>
</tr>
<tr>
<td>GetSharingFolderResponse</td>
<td>Specifies the response message from the GetSharingFolder operation.</td>
</tr>
</tbody>
</table>

### 3.1.4.3.2.1 GetSharingFolderResponse Element

The **GetSharingFolderResponse** element specifies the response message from the GetSharingFolder operation.

```xml
<xs:element name="GetSharingFolderResponse"
            type="m:GetSharingFolderResponseMessageType"/>
```

### 3.1.4.3.2.2 GetSharingFolder Element

The **GetSharingFolder** element specifies the base request element for the GetSharingFolder operation.

```xml
<xs:element name="GetSharingFolder"
            type="m:GetSharingFolderType"/>
```

### 3.1.4.3.3 Complex Types

The XML schema complex type definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Complex type name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingFolderType</td>
<td>Specifies the shared folder to be returned from the GetSharingFolder operation.</td>
</tr>
</tbody>
</table>

#### 3.1.4.3.3.1 t:GetSharingFolderType Complex Type

The **GetSharingFolderType** complex type specifies the shared folder to be returned from the GetSharingFolder operation.

```xml
<xs:complexType name="GetSharingFolderType">
  <xs:complexContent>
    <xs:extension base="m:BaseRequestType">
      <xs:sequence>
        <xs:element name="SmtpAddress"
                     type="t:NonEmptyStringType"/>
        <xs:element name="DataType"
                     type="t:SharingDataType"
                     minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```
The following table lists the child elements of the `GetSharingFolderType` complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmtpAddress</td>
<td>t:NonEmptyStringType ([MS-OXWSCDATA] section 2.2.5.20)</td>
<td>Specifies the SMTP e-mail address of the other party in the sharing relationship.</td>
</tr>
<tr>
<td>DataType</td>
<td>t:SharingDataType (section 2.2.5.1)</td>
<td>Specifies the type of folder to be returned. This element can be present.</td>
</tr>
<tr>
<td>SharedFolderId</td>
<td>t:NonEmptyStringType</td>
<td>Specifies the identifier of the shared folder for which the local folder is to be returned. This element can be present.</td>
</tr>
</tbody>
</table>

A `GetSharingFolderType` element MUST include either the SmtpAddress and DataType elements, or the SharedFolderId element. The `GetSharingFolderType` element MUST NOT contain all of those elements.

### 3.1.4.4 GetSharingMetadata Operation

The `GetSharingMetadata` operation gets an encrypted XML payload that identifies the participants in a shared folder exchange.

The following is the WSDL port type specification for this operation.

```xml
<wsdl:operation name="GetSharingMetadata">
    <wsdl:input message="tns:GetSharingMetadataSoapIn"/>
    <wsdl:output message="tns:GetSharingMetadataSoapOut"/>
</wsdl:operation>
```

The following is the WSDL binding specification for this operation.

```xml
<wsdl:operation name="GetSharingMetadata">
    <wsdl:input>
        <soap:body parts="request" use="literal"/>
        <soap:header message="tns:GetSharingMetadataSoapIn" part="RequestVersion" use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body parts="GetSharingMetadataResult" use="literal"/>
        <soap:header message="tns:GetSharingMetadataSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
</wsdl:operation>
```
3.1.4.4.1 Messages

The **WSDL message** definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Message name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingMetadataSoapIn</td>
<td>Specifies the <strong>SOAP message</strong> that requests encrypted sharing data from the server.</td>
</tr>
<tr>
<td>GetSharingMetadataSoapOut</td>
<td>Specifies the <strong>SOAP message</strong> that is returned by the server in response.</td>
</tr>
</tbody>
</table>

3.1.4.4.1.1  tns:GetSharingMetadataSoapIn Message

The **GetSharingMetadataSoapIn** **WSDL message** specifies the request for an encrypted XML message that identifies the participants in a **shared folder** exchange.

```xml
<wsdl:message name="GetSharingMetadataSoapIn">
  <wsdl:part name="request" element="tns:GetSharingMetadata"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
```

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

The parts of the **GetSharingMetadataSoapIn** WSDL message are listed and described in the following table.

<table>
<thead>
<tr>
<th>Part name</th>
<th>Element/type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>tns:GetSharingMetadata (section 3.1.4.4.2.1)</td>
<td>Specifies the <strong>SOAP body</strong> of the request for folder sharing data.</td>
</tr>
<tr>
<td>RequestVersion</td>
<td>t:RequestServerVersion ([MS-OXWSCDATA] section 2.2.3.9)</td>
<td>Specifies a <strong>SOAP header</strong> that identifies the schema version for the GetSharingMetadata operation request.</td>
</tr>
</tbody>
</table>

3.1.4.4.1.2  tns:GetSharingMetadataSoapOut Message

The **GetSharingMetadataSoapOut** **WSDL message** specifies the server response to the GetSharingMetadata operation.

```xml
<wsdl:message name="GetSharingMetadataSoapOut">
  <wsdl:part name="GetSharingMetadataResult" element="tns:GetSharingMetadataResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

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

The parts of the **GetSharingMetadataSoapOut** WSDL message are listed and described in the following table.
### 3.1.4.4.2 Elements

The **XML schema** element definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Element name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetSharingMetadata</td>
<td>Specifies the base request for the <code>GetSharingMetadata</code> operation.</td>
</tr>
<tr>
<td>GetSharingMetadataResponse</td>
<td>Specifies the response from the <code>GetSharingMetadata</code> operation.</td>
</tr>
</tbody>
</table>

### 3.1.4.4.2.1 GetSharingMetadata Element

The `GetSharingMetadata` element specifies the base request for the `GetSharingMetadata` operation.

```xml
<xs:element name="GetSharingMetadata"
    type="m:GetSharingMetadataType"/>
```

### 3.1.4.4.2.2 GetSharingMetadataResponse Element

The `GetSharingMetadataResponse` element specifies the response from the `GetSharingMetadata` operation.

```xml
<xs:element name="GetSharingMetadataResponse"
    type="m:GetSharingMetadataResponseMessageType"/>
```

### 3.1.4.4.3 Complex Types

The **XML schema** complex type definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Complex type name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArrayOfSmtpAddressType</td>
<td>Specifies an array of SMTP e-mail addresses.</td>
</tr>
<tr>
<td>GetSharingMetadataType</td>
<td>Specifies the sharing folder and recipients for the <code>GetSharingMetadata</code> operation.</td>
</tr>
</tbody>
</table>
3.1.4.4.3.1 \textbf{\texttt{t:ArrayOfSmtpAddressType} Complex Type}

The \texttt{ArrayOfSmtpAddressType} complex type specifies an array of SMTP e-mail addresses.

```xml
<xs:complexType name="ArrayOfSmtpAddressType">
  <xs:choice maxOccurs="unbounded">
    <xs:element name="SmtpAddress" type="t:NonEmptyStringType"/>
  </xs:choice>
</xs:complexType>
```

The following table lists the child elements of the \texttt{ArrayOfSmtpAddressType} complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmtpAddress</td>
<td>t:NonEmptyStringType ([MS-OXWSCDATA] section 2.2.5.20)</td>
<td>Specifies an SMTP e-mail address.</td>
</tr>
</tbody>
</table>

3.1.4.4.3.2 \textbf{\texttt{m:GetSharingMetadataType} Complex Type}

The \texttt{GetSharingMetadataType} complex type specifies the sharing folder and recipients for the \texttt{GetSharingMetadata} operation. The \texttt{GetSharingMetadataType} complex type extends the \texttt{BaseRequestType} complex type, as specified in [MS-OXWSCDATA] section 2.2.4.17.

```xml
<xs:complexType name="GetSharingMetadataType">
  <xs:complexContent>
    <xs:extension base="m:BaseRequestType">
      <xs:sequence>
        <xs:element name="IdOfFolderToShare" type="t:FolderIdType"/>
        <xs:element name="SenderSmtpAddress" type="t:NonEmptyStringType"/>
        <xs:element name="Recipients" type="t:ArrayOfSmtpAddressType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child elements of the \texttt{GetSharingMetadataType} complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IdOfFolderToShare</td>
<td>t:FolderIdType ([MS-OXWSCDATA] section 2.2.4.35)</td>
<td>Specifies the identifier for an existing folder on the server that will be shared.</td>
</tr>
<tr>
<td>SenderSmtpAddress</td>
<td>t:NonEmptyStringType ([MS-OXWSCDATA] section 2.2.5.20)</td>
<td>Specifies a user e-mail address. The address MUST correspond to the mailbox that contains the folder that is identified in the...</td>
</tr>
</tbody>
</table>
### 3.1.4.5 RefreshSharingFolder Operation

The **RefreshSharingFolder** operation requests that the server synchronize *shared folder* information to the local sharing folder.

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

```xml
<wsdl:operation name="RefreshSharingFolder">
    <wsdl:input message="tns:RefreshSharingFolderSoapIn"/>
    <wsdl:output message="tns:RefreshSharingFolderSoapOut"/>
</wsdl:operation>
```

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

```xml
<wsdl:operation name="RefreshSharingFolder">
    <wsdl:input>
        <soap:body parts="request" use="literal"/>
        <soap:header message="tns:RefreshSharingFolderSoapIn" part="RequestVersion" use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body part="RefreshSharingFolderResult" use="literal"/>
        <soap:header message="tns:RefreshSharingFolderSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
</wsdl:operation>
```

### 3.1.4.5.1 Messages

The **WSDL** message definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Message name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RefreshSharingFolderSoapIn</td>
<td>Specifies the <strong>SOAP message</strong> that requests that a local <em>shared folder</em> be synchronized with the remote server.</td>
</tr>
<tr>
<td>RefreshSharingFolderSoapOut</td>
<td>Specifies the SOAP message that is returned by the server in response.</td>
</tr>
</tbody>
</table>

#### 3.1.4.5.1.1 tns:RefreshSharingFolderSoapIn Message
The RefreshSharingFolderSoapIn WSDL message specifies a request to synchronize a shared folder with a remote server.

```xml
<wsdl:message name="RefreshSharingFolderSoapIn">
  <wsdl:part name="request" element="tns:RefreshSharingFolder"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
```

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

The parts of the RefreshSharingFolderSoapIn WSDL message are listed and described in the following table.

<table>
<thead>
<tr>
<th>Part name</th>
<th>Element/type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>tns:RefreshSharingFolder (section 3.1.4.5.2.1)</td>
<td>Specifies the SOAP body of the request to synchronize a shared folder.</td>
</tr>
<tr>
<td>RequestVersion</td>
<td>t:RequestServerVersion ([MS-OXWSCDATA] section 2.2.3.9)</td>
<td>Specifies a SOAP header that identifies the schema version for the RefreshSharingFolder operation request.</td>
</tr>
</tbody>
</table>

3.1.4.5.1.2 tns:RefreshSharingFolderSoapOut Message

The RefreshSharingFolderSoapOut WSDL message specifies the server response to the RefreshSharingFolder operation.

```xml
<wsdl:message name="RefreshSharingFolderSoapOut">
  <wsdl:part name="RefreshSharingFolderResult" element="tns:RefreshSharingFolderResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

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

The parts of the RefreshSharingFolderSoapOut WSDL message are listed and described in the following table.

<table>
<thead>
<tr>
<th>Part name</th>
<th>Element/type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RefreshSharingFolderResult</td>
<td>tns:RefreshSharingFolderResponse (section 3.1.4.5.2.2)</td>
<td>Specifies the SOAP body of the response to the RefreshSharingFolder operation.</td>
</tr>
<tr>
<td>ServerVersion</td>
<td>t:ServerVersionInfo ([MS-OXWSCDATA] section 2.2.3.10)</td>
<td>Specifies a SOAP header that identifies the server version for the response.</td>
</tr>
</tbody>
</table>

3.1.4.5.2 Elements

The XML schema element definitions listed in the following table are specific to this operation.
<table>
<thead>
<tr>
<th>Element name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RefreshSharingFolder</td>
<td>Specifies the base request for the RefreshSharingFolder operation.</td>
</tr>
<tr>
<td>RefreshSharingFolderResponse</td>
<td>Specifies the response from the RefreshSharingFolder operation.</td>
</tr>
</tbody>
</table>

### 3.1.4.5.2.1 RefreshSharingFolder Element

The `RefreshSharingFolder` element specifies the base request for the RefreshSharingFolder operation.

```xml
<xs:element name="RefreshSharingFolder"
type="m:RefreshSharingFolderType"/>
```

### 3.1.4.5.2.2 RefreshSharingFolderResponse Element

The `RefreshSharingFolderResponse` element specifies the response from the RefreshSharingFolder operation.

```xml
<xs:element name="RefreshSharingFolderResponse"
type="m:RefreshSharingFolderResponseMessageType"/>
```

### 3.1.4.5.3 Complex Types

The XML schema complex type definitions listed in the following table are specific to this operation.

<table>
<thead>
<tr>
<th>Complex type name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RefreshSharingFolderType</td>
<td>Specifies the base request for the RefreshSharingFolder operation.</td>
</tr>
</tbody>
</table>

### 3.1.4.5.3.1 m:RefreshSharingFolderType Complex Type

The `RefreshSharingFolderType` complex type specifies the request for the RefreshSharingFolder operation. The `RefreshSharingFolderType` complex type extends the `BaseRequestType` complex type, as specified in [MS-OXWSCDATA] section 2.2.4.17.

```xml
<xs:complexType name="RefreshSharingFolderType">
  <xs:complexContent>
    <xs:extension base="m:BaseRequestType">
      <xs:sequence>
        <xs:element name="SharingFolderId"
type="t:FolderIdType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```
The following table lists the child elements of the `RefreshSharingFolder` complex type.

<table>
<thead>
<tr>
<th>Element</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SharingFolderId</td>
<td><code>t:FolderIdType</code> ([MS-OXWSCDATA] section 2.2.4.35)</td>
<td>Specifies the local identifier of the shared folder to refresh from the associated server.</td>
</tr>
</tbody>
</table>

### 3.1.4.6 UpdateFolder Operation

The **UpdateFolder** operation, as specified in [MS-OXWSFOLD] section 3.1.4.8, updates the access permissions on a shared folder when a sharing relationship is created.

```xml
<wsdl:operation name="UpdateFolder">
  <wsdl:input message="tns:UpdateFolderSoapIn"/>
  <wsdl:output message="tns:UpdateFolderSoapOut"/>
</wsdl:operation>
```

### 3.1.5 Timer Events

None.

### 3.1.6 Other Local Events

None.
4  Protocol Examples

4.1  GetSharingMetadata Request

The following XML example is a request to the GetSharingMetadata operation, as described in section 3.1.4.4. The Id attribute of the IdOfFolderToShare element has been shortened for readability.

```xml
<q:Envelope xmlns:ext="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:exm="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:q="http://schemas.xmlsoap.org/soap/envelope/">
  <q:Header>
  </q:Header>
  <q:Body>
    <exm:GetSharingMetadata>
      <exm:IdOfFolderToShare Id="AAMkADc1YjI="/>
      <exm:SenderSmtpAddress>user1@contoso.com</exm:SenderSmtpAddress>
      <exm:Recipients>
        <ext:SmtpAddress>user2@contoso.com</ext:SmtpAddress>
      </exm:Recipients>
    </exm:GetSharingMetadata>
  </q:Body>
</q:Envelope>
```

4.2  GetSharingMetadata Response

The following XML example is the response from the GetSharingMetadata operation, as described in section 3.1.4.4. The contents of the KeyIdentifier, CypherValue, and CypherData elements has been shortened for readability.

```xml
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Header>
    <h:ServerVersionInfo MajorVersion="14" MinorVersion="1" MajorBuildNumber="225"
MinorBuildNumber="45" Version="Exchange2010_SP1"
xmlns:h="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <GetSharingMetadataResponse ResponseClass="Success"
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <ResponseCode>NoError</ResponseCode>
      <EncryptedSharedFolderDataCollection>
        <EncryptedSharedFolderData
xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
          <Token>
            <EncryptedData Id="Assertion0" Type="http://www.w3.org/2001/04/xmlenc#Element"
xmlns="http://www.w3.org/2001/04/xmlenc#">
              <EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#tripledes-cbc"></EncryptionMethod>
              <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
                <EncryptedKey>
                  <EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#rsa-oaep-mgf1p"></EncryptionMethod>
                  <ds:KeyInfo Id="keyinfo">
                      <wss:KeyIdentifier
                        EncodingType="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
                    </wss:KeyIdentifier>
                  </wss:SecurityTokenReference>
                </EncryptedKey>
              </ds:KeyInfo>
            </EncryptionMethod>
          </EncryptedData>
        </EncryptedSharedFolderData>
      </EncryptedSharedFolderDataCollection>
    </GetSharingMetadataResponse>
  </s:Header>
</s:Body>
</s:Envelope>
```
nR+jNSYQR9eSk0pEog/xQ==</wsse:KeyIdentifier>
</ds:KeyInfo>
</CipherData>
</EncryptedKey>
</ds:KeyInfo>
</CipherData>
</EncryptedData>
</Token>
</Data>
<EncryptedData Type="http://www.w3.org/2001/04/xmlenc#Element"
xmlns="http://www.w3.org/2001/04/xmlenc#">
<EncryptionData Algorithm="http://www.w3.org/2001/04/xmlenc#aes256-cbc"/>
<KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
<EncryptedKey xmlns="http://www.w3.org/2001/04/xmlenc#">
<EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#kw-tripledes"/>
<KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
<KeyName>key</KeyName>
</KeyInfo>
</CipherData>
</EncryptedKey>
</ds:KeyInfo>
</CipherData>
</EncryptedData>
</Data>
</GetSharingMetadataResponse>
</s:Body>
</s:Envelope>
5 Security

5.1 Security Considerations for Implementers

This protocol does not use any additional security mechanisms.

5.2 Index of Security Parameters

None.
## 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.

<table>
<thead>
<tr>
<th>File name</th>
<th>Description</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-OXWSMSHR.wsdl</td>
<td>Contains the WSDL for the implementation of this protocol.</td>
<td>6</td>
</tr>
<tr>
<td>MS-OXWSMSHR-messages.xsd</td>
<td>Contains the XML schema message definitions that are used in this protocol.</td>
<td>7.1</td>
</tr>
<tr>
<td>MS-OXWSMSHR-types.xsd</td>
<td>Contains the XML schema type definitions that are used in this protocol.</td>
<td>7.2</td>
</tr>
<tr>
<td>MS-OXWSCORE-messages.xsd</td>
<td>Contains XML schema message definitions that are referred to by this protocol.</td>
<td>[MS-OXWSCORE] section 7.1</td>
</tr>
<tr>
<td>MS-OXWSFOLD-types.xsd</td>
<td>Contains XML schema type definitions that are referred to by this protocol.</td>
<td>[MS-OXWSFOLD] section 7.2</td>
</tr>
</tbody>
</table>

These files have to be placed in a common folder in order for the WSDL to validate and operate. Also, any schema files that are referenced in XML `include` or `import` elements by the MS-OXWSMSHR-types.xsd or MS-OXWSMSHR-messages.xsd schemas have to be placed in the common folder.

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

```xml
<?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: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="Exchange2015"
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
    <!-- Add global elements and types from messages.xsd -->
    <xs:include schemaLocation="MS-OXWSMSHR-messages.xsd"/>
    <xs:include schemaLocation="MS-OXWSCORE-messages.xsd"/>
    <xs:include schemaLocation="MS-OXWSFOLD-messages.xsd"/>
  </xs:schema>

  <xs:schema id="types" elementFormDefault="qualified" version="Exchange2015"
xmlns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
    <!-- Add global elements and types from types.xsd -->
    <xs:include schemaLocation="MS-OXWSMSHR-types.xsd"/>
    <xs:include schemaLocation="MS-OXWSCORE-types.xsd"/>
    <xs:include schemaLocation="MS-OXWSFOLD-types.xsd"/>
  </xs:schema>
</wsdl:types>
<wsdl:portType name="ExchangeServicePortType">
  <wsdl:operation name="GetSharingMetadata">
    <wsdl:input message="tns:GetSharingMetadataSoapIn"/>
  </wsdl:operation>
</wsdl:portType>
```

---

[MS-OXWSMSHR] - v20220517
Folder Sharing Web Service Protocol
Copyright © 2022 Microsoft Corporation
Release: May 17, 2022
<wsdl:output message="tns:GetSharingMetadataSoapOut"/>
</wsdl:operation>

<wsdl:operation name="RefreshSharingFolder">
<wsdl:input message="tns:RefreshSharingFolderSoapIn"/>
<wsdl:output message="tns:RefreshSharingFolderSoapOut"/>
</wsdl:operation>

<wsdl:operation name="GetSharingFolder">
<wsdl:input message="tns:GetSharingFolderSoapIn"/>
<wsdl:output message="tns:GetSharingFolderSoapOut"/>
</wsdl:operation>

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

<wsdl:operation name="UpdateFolder">
<wsdl:input message="tns:UpdateFolderSoapIn"/>
<wsdl:output message="tns:UpdateFolderSoapOut"/>
</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="GetSharingMetadata">
<wsdl:input>
<soap:body parts="request" use="literal"/>
<soap:header message="tns:GetSharingMetadataSoapIn" part="RequestVersion" use="literal"/>
</wsdl:input>
<wsdl:output>
<soap:body parts="GetSharingMetadataResult" use="literal"/>
<soap:header message="tns:GetSharingMetadataSoapOut" part="ServerVersion" use="literal"/>
</wsdl:output>
</wsdl:operation>

<wsdl:operation name="RefreshSharingFolder">
<wsdl:input>
<soap:body parts="request" use="literal"/>
<soap:header message="tns:RefreshSharingFolderSoapIn" part="RequestVersion" use="literal"/>
</wsdl:input>
<wsdl:output>
<soap:body parts="RefreshSharingFolderResult" use="literal"/>
<soap:header message="tns:RefreshSharingFolderSoapOut" part="ServerVersion" use="literal"/>
</wsdl:output>
</wsdl:operation>

<wsdl:operation name="GetSharingFolder">
<wsdl:input>
<soap:body parts="request" use="literal"/>
<soap:header message="tns:GetSharingFolderSoapIn" part="RequestVersion" use="literal"/>
</wsdl:input>
<wsdl:output>
<soap:body parts="GetSharingFolderResult" use="literal"/>
<soap:header message="tns:GetSharingFolderSoapOut" part="ServerVersion" use="literal"/>
</wsdl:output>
</wsdl:operation>
<wsdl:output/>
<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="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>
  </soap:operation>
</wsdl:operation>
<wSDL:operation name="UpdateFolder">
    <wsdl:input>
      <soap:header message="tns:UpdateFolderSoapIn" part="Impersonation" use="literal"/>
      <soap:header message="tns:UpdateFolderSoapIn" part="MailboxCulture" use="literal"/>
      <soap:header message="tns:UpdateFolderSoapIn" part="RequestVersion" use="literal"/>
      <soap:header message="tns:UpdateFolderSoapIn" part="TimeZoneContext" use="literal"/>
      <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body parts="UpdateFolderResult" use="literal"/>
      <soap:header message="tns:UpdateFolderSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
  </soap:operation>
</wsdl:operation>
<wSDL:message name="UpdateFolderSoapIn">
  <wsdl:part name="request" element="tns:UpdateFolder"/>
  <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="UpdateFolderSoapOut">
  <wsdl:part name="UpdateFolderResult" element="tns:UpdateFolderResponse"/>
  <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="GetSharingMetadataSoapIn">
  <wsdl:part name="request" element="tns:GetSharingMetadata"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wSDL:message>
<wSDL:message name="GetSharingMetadataSoapOut">
  <wsdl:part name="GetSharingMetadataResult" element="tns:GetSharingMetadataResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wSDL:message>
<wSDL:message name="RefreshSharingFolderSoapIn">
  <wsdl:part name="request" element="tns:RefreshSharingFolder"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wSDL:message>
<wSDL:message name="RefreshSharingFolderSoapOut">
  <wsdl:part name="RefreshSharingFolderResult" element="tns:RefreshSharingFolderResponse"/>
<wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
<wsdl:message name="GetSharingFolderSoapIn">
  <wsdl:part name="request" element="tns:GetSharingFolder"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
<wsdl:message name="GetSharingFolderSoapOut">
  <wsdl:part name="GetSharingFolderResult" element="tns:GetSharingFolderResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
</wsdl:definitions>
# Appendix B: Full XML Schema

For ease of implementation, the following sections provide the full XML schema for this protocol.

<table>
<thead>
<tr>
<th>Schema name</th>
<th>Prefix</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messages schema</td>
<td>m</td>
<td>7.1</td>
</tr>
<tr>
<td>Types schema</td>
<td>t</td>
<td>7.2</td>
</tr>
</tbody>
</table>

These files have to be placed in a common folder in order for the WSDL to validate and operate. Also, any schema files that are included in or imported into the MS-OXWSMSHR-types.xsd or MS-OXWSMSHR-messages.xsd schemas have to be placed in the common folder along with the files listed in the table.

## 7.1 Messages Schema

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

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

<table>
<thead>
<tr>
<th>File name</th>
<th>Defined in</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-OXWSCDATA-messages.xsd</td>
<td>[MS-OXWSCDATA] section 7.1</td>
</tr>
<tr>
<td>MS-OXWSMSHR-types.xsd</td>
<td>7.2</td>
</tr>
</tbody>
</table>

```xml
<?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="Exchange2015" id="messages">
  <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="MS-OXWSMSHR-types.xsd"/>
  <xs:include schemaLocation="MS-OXWSCDATA-messages.xsd"/>

  <xs:complexType name="GetSharingFolderType">
    <xs:complexContent>
      <xs:extension base="m:BaseRequestType">
        <xs:sequence>
          <xs:element name="SmtpAddress" type="t:NonEmptyStringType"/>
          <xs:element name="DataType" type="t:SharingDataType" minOccurs="0"/>
          <xs:element name="SharedFolderId" type="t:NonEmptyStringType" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

  <xs:element name="GetSharingFolder" type="m:GetSharingFolderType"/>

  <xs:complexType name="GetSharingFolderResponseMessageType">
    <xs:complexContent>
      <xs:extension base="m:ResponseMessageType">
        <xs:sequence minOccurs="0">
          <xs:element name="SharingFolderId" type="t:FolderIdType"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
```
<xs:element name="GetSharingFolderResponse" type="m:GetSharingFolderResponseMessageType"/>
<xs:complexType name="GetSharingMetadataType">
<xs:complexContent>
<xs:extension base="m:BaseRequestType">
<xs:sequence>
<xs:element name="IdOfFolderToShare" type="t:FolderIdType"/>
<xs:element name="SenderSmtpAddress" type="t:NonEmptyStringType"/>
<xs:element name="Recipients" type="t:ArrayOfSmtpAddressType"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="GetSharingMetadata" type="m:GetSharingMetadataType"/>
<xs:complexType name="GetSharingMetadataResponseMessageType">
<xs:complexContent>
<xs:extension base="m:ResponseMessageType">
<xs:sequence minOccurs="0">
<xs:element name="EncryptedSharedFolderDataCollection" type="t:ArrayOfEncryptedSharedFolderDataType"/>
<xs:element name="InvalidRecipients" type="t:ArrayOfInvalidRecipientsType"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="GetSharingMetadataResponse" type="m:GetSharingMetadataResponseMessageType"/>
<xs:complexType name="RefreshSharingFolderType">
<xs:complexContent>
<xs:extension base="m:BaseRequestType">
<xs:sequence>
<xs:element name="SharingFolderId" type="t:FolderIdType"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="RefreshSharingFolder" type="m:RefreshSharingFolderType"/>
<xs:complexType name="RefreshSharingFolderResponseMessageType">
<xs:complexContent>
<xs:extension base="m:ResponseMessageType"/>
</xs:complexContent>
</xs:complexType>
<xs:element name="RefreshSharingFolderResponse" type="m:RefreshSharingFolderResponseMessageType"/>
</xs:schema>

### 7.2 Types Schema

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

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

<table>
<thead>
<tr>
<th>File name</th>
<th>Defining specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-OXWSCDATA-types.xsd</td>
<td>[MS-OXWSCDATA] section 7.2</td>
</tr>
</tbody>
</table>

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xsi="http://www.w3.org/2001/XMLSchema"
            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="Exchange2015" id="types">
  <xs:import namespace="http://www.w3.org/1999/XMLSchema"/>
</xs:schema>
```
<xs:include schemaLocation="MS-OXWSCDATA-types.xsd"/>
<xs:complexType name="ArrayOfSmtpAddressType">
  <xs:choice maxOccurs="unbounded">
    <xs:element name="SmtpAddress" type="t:NonEmptyStringType"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="ArrayOfEncryptedSharedFolderDataType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="EncryptedSharedFolderData" type="t:EncryptedSharedFolderDataType"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="EncryptedSharedFolderDataType">
  <xs:sequence>
    <xs:element name="Token" type="t:EncryptedDataContainerType"/>
    <xs:element name="Data" type="t:EncryptedDataContainerType"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="EncryptedDataContainerType">
  <xs:sequence>
    <xs:any namespace="##other" processContents="skip"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ArrayOfInvalidRecipientsType">
  <xs:choice minOccurs="0" maxOccurs="unbounded">
    <xs:element name="InvalidRecipient" type="t:InvalidRecipientType"/>
  </xs:choice>
</xs:complexType>
<xs:complexType name="InvalidRecipientType">
  <xs:sequence>
    <xs:element name="SmtpAddress" type="t:NonEmptyStringType"/>
    <xs:element name="ResponseCode" type="t:InvalidRecipientResponseCodeType"/>
    <xs:element name="MessageText" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="InvalidRecipientResponseCodeType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="RecipientOrganizationNotFederated"/>
    <xs:enumeration value="CannotObtainTokenFromSTS"/>
    <xs:enumeration value="SystemPolicyBlocksSharingWithThisRecipient"/>
    <xs:enumeration value="RecipientOrganizationFederatedWithUnknownTokenIssuer"/>
  </xs:restriction>
</xs:simpleType>
<xs:element name="SharingSecurity" type="t:EncryptedDataContainerType"/>
<xs:simpleType name="SharingDataType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Calendar"/>
    <xs:enumeration value="Contacts"/>
  </xs:restriction>
</xs:simpleType>
8 Appendix C: 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 2010
- Microsoft Exchange Server 2013
- Microsoft Exchange Server 2016
- Microsoft Outlook 2010
- Microsoft Outlook 2013
- Microsoft Outlook 2016
- Microsoft Exchange Server 2019
- Microsoft Outlook 2019
- Microsoft Outlook 2021

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.
9 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.

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Revision class</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.4.5 t:ArrayOfInvalidRecipientsType Complex Type</td>
<td>Added minOccurs=&quot;0&quot; for ArrayOfInvalidRecipientsType.</td>
<td>Minor</td>
</tr>
<tr>
<td>2.2.5.2 t:InvalidRecipientResponseCodeType Simple Type</td>
<td>Added RecipientOrganizationFederatedWithUnknownTokenIssuer value and description for InvalidRecipientResponseCodeType.</td>
<td>Minor</td>
</tr>
</tbody>
</table>
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