[MS-OXWSTASK]:
Tasks Web Service Protocol

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## Revision Summary

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Tasks Web Service Protocol  
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1 Introduction

The Tasks Web Service Protocol enables clients to create, update, move, copy, and delete task items on a server. The protocol also enables clients to get the properties of an existing task item.

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:

- **delegate**: A user or resource that has permissions to act on behalf of another user or resource.
- **endpoint**: A communication port that is exposed by an application server for a specific shared service and to which messages can be addressed.

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

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

**Inbox folder**: A special folder that is the default location for Message objects received by a user or resource.

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

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

**Sent Items folder**: A special folder that is the default location for storing copies of Message objects after they are submitted or sent.

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

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

**Tasks folder**: A Folder object that contains Task objects.

**Uniform Resource Locator (URL)**: A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [RFC1738].

**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 operation**: A single action or function of a web service. The execution of a WSDL operation typically requires the exchange of messages between the service requestor and the service provider.

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

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

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

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

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

### 1.2 References

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

#### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information.

- [MS-OXWSCDATA] Microsoft Corporation, "Common Web Service Data Types".
- [MS-OXWSCORE] Microsoft Corporation, "Core Items Web Service Protocol".
- [MS-OXWSFOLD] Microsoft Corporation, "Folders and Folder Permissions Web Service Protocol".
The Tasks Web Service Protocol provides clients with the ability to create, update, and delete task items on the server. Clients create task items by using the CreateItem operation, as described in [MS-OXWSCORE] section 3.1.4.2, or get properties of an existing task item by using the GetItem operation, as described in [MS-OXWSCORE] section 3.1.4.4. Clients can update, delete, or copy tasks on the server by using the UpdateItem operation [MS-OXWSCORE] section 3.1.4.9, the DeleteItem operation ([MS-OXWSCORE] section 3.1.4.3), and the CopyItem operation ([MS-OXWSCORE] section Error! Hyperlink reference not valid.), respectively. Clients can move task items on the server by using the MoveItem operation, as described in [MS-OXWSCORE] section 3.1.4.7.

1.4 Relationship to Other Protocols

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

This protocol uses the SOAP Protocol, as described in [SOAP1.1], to specify the structure information exchanged between the client and server. This protocol uses the XML Protocol, as described in [XMLSCHEMA1/2] and [XMLSCHEMA2/2], to describe the message content sent to and from the server.

The Tasks Web Service Protocol uses SOAP over HTTP, as described in [RFC2616], and SOAP over HTTPS, as described in [RFC2818], as shown in the following layering diagram.
When requests are made by using the Core Items Web Service Protocol [MS-OXWSCORE], the task information that is returned by the Tasks Web Service Protocol will be used if the targets of the requests are task items.

This protocol can use the Task item identifier returned by the Mailbox Search Web Service Protocol, as described in [MS-OXWSSRCH], to manipulate the Task item.

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

1.5 Prerequisites/Preconditions

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

To access this protocol, all callers are authenticated. This protocol relies on the web server that hosts the application to perform authentication.

1.6 Applicability Statement

The protocol specified in this document is applicable to environments that create, delete, and update task items.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports:** This protocol uses multiple transports with SOAP 1.1, as specified in section 2.1.

- **Protocol Versions:** This protocol has 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.

- **Localization:** This protocol includes text strings in various messages. Localization considerations for such strings are specified in sections 2.2 and 3.1.4.

- **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 relies on the web server that hosts the application to perform authentication. The protocol SHOULD use secure communications by means of HTTPS, as specified in [RFC2818]. The protocol server SHOULD additionally support SOAP over HTTP, as specified in [RFC2616], as a transport means.

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 [XMLSCHEMA1/2] and [XMLSCHEMA2/2], and WSDL as defined in [WSDL].

2.2.1 Namespaces

This specification defines and references various XML namespaces by using the mechanisms that are 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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<tr>
<td>s</td>
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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 defined by this specification. XML schema complex type definitions that are specific to a particular operation are described with the operation.

<table>
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<tr>
<th>Complex type name</th>
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<td>DailyRegeneratingPatternType</td>
<td>Specifies the interval, in days, at which a task is regenerated.</td>
</tr>
<tr>
<td>MonthlyRegeneratingPatternType</td>
<td>Specifies the interval, in months, at which a task is regenerated.</td>
</tr>
<tr>
<td>RegeneratingPatternBaseType</td>
<td>Specifies the base type for all regenerating patterns.</td>
</tr>
<tr>
<td>TaskRecurrenceType</td>
<td>Specifies the recurrence pattern for tasks.</td>
</tr>
<tr>
<td>TasksFolderType</td>
<td>Specifies a Tasks folder that is contained in a mailbox.</td>
</tr>
<tr>
<td>TaskType</td>
<td>Specifies a task in the message store.</td>
</tr>
<tr>
<td>WeeklyRegeneratingPatternType</td>
<td>Specifies the interval, in weeks, at which a task is regenerated.</td>
</tr>
<tr>
<td>YearlyRegeneratingPatternType</td>
<td>Specifies the interval, in years, at which a task is regenerated.</td>
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2.2.4.1 t:DailyRegeneratingPatternType Complex Type

The DailyRegeneratingPatternType complex type specifies the interval, in days, at which a task is regenerated. The DailyRegeneratingPatternType complex type extends the RegeneratingPatternBaseType complex type, as specified in section 2.2.4.3.

```xml
<xs:complexType name="DailyRegeneratingPatternType">
  <xs:complexContent>
    <xs:extension base="t:RegeneratingPatternBaseType"/>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.2 t:MonthlyRegeneratingPatternType Complex Type

The MonthlyRegeneratingPatternType complex type specifies the interval, in months, at which a task is regenerated. The MonthlyRegeneratingPatternType complex type extends the RegeneratingPatternBaseType complex type, as specified in section 2.2.4.3.

```xml
<xs:complexType name="MonthlyRegeneratingPatternType">
  <xs:complexContent>
    <xs:extension base="t:RegeneratingPatternBaseType"/>
  </xs:complexContent>
</xs:complexType>
```
2.2.4.3 t:RegeneratingPatternBaseType Complex Type

The RegeneratingPatternBaseType complex type specifies the base type for all regenerating patterns. The RegeneratingPatternBaseType complex type extends the IntervalRecurrencePatternBaseType complex type, as specified in [MS-OXWSCDATA] section 2.2.4.42.

```xml
<xs:complexType name="RegeneratingPatternBaseType"
    abstract="true">
    <xs:complexContent>
        <xs:extension
            base="t:IntervalRecurrencePatternBaseType"/>
    </xs:complexContent>
</xs:complexType>
```

2.2.4.4 t:TaskRecurrenceType Complex Type

The TaskRecurrenceType complex type specifies the recurrence pattern for tasks.

```xml
<xs:complexType name="TaskRecurrenceType">
    <xs:sequence>
        <xs:group
            ref="t:TaskRecurrencePatternTypes"/>
        <xs:group
            ref="t:RecurrenceRangeTypes"/>
    </xs:sequence>
</xs:complexType>
```

The following table lists and describes the groups of the TaskRecurrenceType complex type.

<table>
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<tr>
<th>Reference name</th>
<th>Description</th>
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<tr>
<td>t:TaskRecurrencePatternTypes (section 2.2.7.1)</td>
<td>Specifies recurrence information for recurring tasks.</td>
</tr>
<tr>
<td>t:RecurrenceRangeTypes ([MS-OXWSCDATA] section 2.2.7.2)</td>
<td>Specifies recurrence patterns with numbered recurrences, nonending recurrence patterns, and recurrence patterns with a set start date and end date.</td>
</tr>
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</table>

2.2.4.5 t:TasksFolderType Complex Type

The TasksFolderType complex type specifies a Tasks folder that is contained in a mailbox. The TasksFolderType complex type extends the FolderType complex type, as specified in [MS-OXWSFOLD] section 2.2.4.12.

```xml
<xs:complexType name="TasksFolderType">
    <xs:complexContent>
        <xs:extension
            base="t:FolderType"/>
    </xs:complexContent>
</xs:complexType>
```
2.2.4.6 t:TaskType Complex Type

The TaskType complex type specifies a task in the message store. The TaskType complex type extends the ItemType complex type, as specified in [MS-OXWSCORE] section 2.2.4.24.

```xml
<xs:complexType name="TaskType">
  <xs:complexContent>
    <xs:extension base="t:ItemType">
      <xs:sequence>
        <xs:element name="ActualWork"
          type="xs:int"
          minOccurs="0" />
        <xs:element name="AssignedTime"
          type="xs:dateTime"
          minOccurs="0" />
        <xs:element name="BillingInformation"
          type="xs:string"
          minOccurs="0" />
        <xs:element name="ChangeCount"
          type="xs:int"
          minOccurs="0" />
        <xs:element name="Companies"
          type="t:ArrayOfStringsType"
          minOccurs="0" />
        <xs:element name="CompleteDate"
          type="xs:dateTime"
          minOccurs="0" />
        <xs:element name="Contacts"
          type="t:ArrayOfStringsType"
          minOccurs="0" />
        <xs:element name="DelegationState"
          type="t:TaskDelegateStateType"
          minOccurs="0" />
        <xs:element name="Delegator"
          type="xs:string"
          minOccurs="0" />
        <xs:element name="DueDate"
          type="xs:dateTime"
          minOccurs="0" />
        <xs:element name="IsAssignmentEditable"
          type="xs:int"
          minOccurs="0" />
        <xs:element name="IsComplete"
          type="xs:boolean"
          minOccurs="0" />
        <xs:element name="IsRecurring"
          type="xs:boolean"
          minOccurs="0" />
        <xs:element name="IsTeamTask"
```
The following table lists and describes the child elements of the TaskType complex type.

<table>
<thead>
<tr>
<th>Element name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActualWork</td>
<td>xs:int</td>
<td>[XMLSCHEMA2/2] section 3.3.17 Specifies an integer value that specifies the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>actual amount of time that is spent on a task.</td>
</tr>
<tr>
<td>AssignedTime</td>
<td>xs:dateTime</td>
<td>[XMLSCHEMA2/2] section 3.2.7 Specifies an instance of the DateTime structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>that contains the time when a task is assigned to a contact. This element</td>
</tr>
<tr>
<td></td>
<td></td>
<td>is read-only for the client.</td>
</tr>
<tr>
<td>BillingInformation</td>
<td>xs:string</td>
<td>[XMLSCHEMA2/2] section 3.2.1 Specifies a string value that contains billing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>information for a task.</td>
</tr>
<tr>
<td>ChangeCount</td>
<td>xs:int</td>
<td>Specifies an integer value that specifies the number of times the task has</td>
</tr>
<tr>
<td></td>
<td></td>
<td>changed since it was created. This element is read-only for the client.</td>
</tr>
<tr>
<td>Companies</td>
<td>t:ArrayOfStringsType</td>
<td>(MS-OXWSCDATA) section 2.2.4.13 Specifies an instance of an array of type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>string that represents a collection of companies that are associated with a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>task.</td>
</tr>
<tr>
<td>CompleteDate</td>
<td>xs:dateTime</td>
<td>Specifies an instance of the DateTime structure</td>
</tr>
<tr>
<td>Element name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Contacts</td>
<td>t:ArrayOfStringsType</td>
<td>Specifies an instance of an array of type <code>string</code> that contains a list of contacts that are associated with a task.</td>
</tr>
<tr>
<td>DelegationState</td>
<td>t:TaskDelegateStateType (section 2.2.5.1)</td>
<td>Specifies one of the valid <code>TaskDelegateStateType</code> simple type enumeration values that represent the status of a delegated task.</td>
</tr>
<tr>
<td>Delegator</td>
<td>xs:string</td>
<td>Specifies a <code>string</code> value that contains the name of the delegator who assigned a task. This element is read-only for the client.</td>
</tr>
<tr>
<td>DueDate</td>
<td>xs:dateTime</td>
<td>Specifies an instance of the <code>DateTime</code> structure that represents the date when a task is due.</td>
</tr>
<tr>
<td>IsAssignmentEditable</td>
<td>xs:int</td>
<td>Specifies an <code>integer</code> value that represents whether the assignment of the task is editable. This element is read-only for the client.</td>
</tr>
<tr>
<td>IsComplete</td>
<td>xs:boolean [XMLSCHEMA2/2] section 3.2.2</td>
<td>Specifies a <code>Boolean</code> value that indicates whether a task has been completed. This element is read-only for the client.</td>
</tr>
<tr>
<td>IsRecurring</td>
<td>xs:boolean</td>
<td>Specifies a <code>Boolean</code> value that indicates whether a task is part of a recurring task. This element is read-only for the client.</td>
</tr>
<tr>
<td>IsTeamTask</td>
<td>xs:boolean</td>
<td>Specifies a <code>Boolean</code> value that indicates whether a task is owned by a team. This element is read-only for the client.</td>
</tr>
<tr>
<td>Mileage</td>
<td>xs:string</td>
<td>Specifies a <code>string</code> value that represents the mileage for a task.</td>
</tr>
<tr>
<td>Owner</td>
<td>xs:string</td>
<td>Specifies a <code>string</code> value that represents the owner of a task. Once the task item is created, this property is read-only for the client.</td>
</tr>
<tr>
<td>PercentComplete</td>
<td>xs:double [XMLSCHEMA2/2] section 3.2.5</td>
<td>Specifies a <code>double</code> value from 0 through 100 that describes the completion status of a task.</td>
</tr>
<tr>
<td>Recurrence</td>
<td>t:TaskRecurrenceType section 2.2.4.4</td>
<td>Specifies an instance of the <code>TaskRecurrenceType</code> complex type that contains recurrence information for a recurring task.</td>
</tr>
<tr>
<td>StartDate</td>
<td>xs:dateTime</td>
<td>Specifies an instance of the <code>DateTime</code> structure that represents the start date of a task.</td>
</tr>
<tr>
<td>Status</td>
<td>t:TaskStatusType (section 2.2.5.2)</td>
<td>Specifies one of the valid <code>TaskStatusType</code> simple type enumeration values that represent the status of a task.</td>
</tr>
<tr>
<td>StatusDescription</td>
<td>xs:string</td>
<td>Specifies a <code>string</code> value that contains an explanation of the status of a task. This element is read-only for the client.</td>
</tr>
<tr>
<td>TotalWork</td>
<td>xs:int</td>
<td>Specifies an <code>integer</code> value that represents the total amount of work that is associated with a task.</td>
</tr>
</tbody>
</table>
Setting **CompleteDate** has the same effect as setting **PercentComplete** to 100 or **Status** to **Completed**. In a request that sets at least two of these properties, the last processed property will determine the value that is set for these elements. For example, if **PercentComplete** is 100, **CompleteDate** is January 1, 2007, and **Status** is **NotStarted**, and the properties are streamed in that order, the effect will be to set the **Status** of the task to **NotStarted**, the **CompleteDate** to **null**, and **PercentComplete** to 0.

### 2.2.4.7 t:WeeklyRegeneratingPatternType Complex Type

The **WeeklyRegeneratingPatternType** complex type specifies the interval, in weeks, at which a task is regenerated. The **WeeklyRegeneratingPatternType** complex type extends the **RegeneratingPatternBaseType** complex type, as specified in section 2.2.4.3.

```xml
<xs:complexType name="WeeklyRegeneratingPatternType">
  <xs:complexContent>
    <xs:extension base="t:RegeneratingPatternBaseType"/>
  </xs:complexContent>
</xs:complexType>
```

### 2.2.4.8 t:YearlyRegeneratingPatternType Complex Type

The **YearlyRegeneratingPatternType** complex type specifies the interval, in years, at which a task is regenerated. The **YearlyRegeneratingPatternType** complex type extends the **RegeneratingPatternBaseType** complex type, as specified in section 2.2.4.3.

```xml
<xs:complexType name="YearlyRegeneratingPatternType">
  <xs:complexContent>
    <xs:extension base="t:RegeneratingPatternBaseType"/>
  </xs:complexContent>
</xs:complexType>
```

### 2.2.5 Simple Types

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

<table>
<thead>
<tr>
<th>Simple type name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TaskDelegateStateType</td>
<td>Specifies the status types of a delegated task. This enumeration is never set.</td>
</tr>
<tr>
<td>TaskStatusType</td>
<td>Specifies the status types of a task item.</td>
</tr>
</tbody>
</table>
2.2.5.1 TaskDelegateStateType Simple Type

The TaskDelegateStateType simple type specifies the status types of a delegated task. The values for this simple type are never set.

```xml
<xs:simpleType name="TaskDelegateStateType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Accepted" />
    <xs:enumeration value="Declined" />
    <xs:enumeration value="Max" />
    <xs:enumeration value="NoMatch" />
    <xs:enumeration value="Owned" />
    <xs:enumeration value="OwnNew" />
  </xs:restriction>
</xs:simpleType>
```

The following table lists the values that are defined by the TaskDelegateStateType simple type.

<table>
<thead>
<tr>
<th>Value name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>Specifies that the task has been accepted.</td>
</tr>
<tr>
<td>Declined</td>
<td>Specifies that the task has been declined.</td>
</tr>
<tr>
<td>Max</td>
<td>Not used.</td>
</tr>
<tr>
<td>NoMatch</td>
<td>Not used.</td>
</tr>
<tr>
<td>Owned</td>
<td>Specifies that this is a new task request that has been sent, but the delegate has not yet responded to the request.</td>
</tr>
<tr>
<td>OwnNew</td>
<td>Specifies that this is not a delegated task or that the task request has been created but not sent. This value is also used for a task request message, whether it’s in the owner’s Sent Items folder or the delegate’s Inbox folder.</td>
</tr>
</tbody>
</table>

2.2.5.2 TaskStatusType Simple Type

The TaskStatusType simple type specifies the status of a task item.

```xml
<xs:simpleType name="TaskStatusType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Accepted" />
    <xs:enumeration value="Declined" />
    <xs:enumeration value="Max" />
    <xs:enumeration value="NoMatch" />
    <xs:enumeration value="Owned" />
    <xs:enumeration value="OwnNew" />
  </xs:restriction>
</xs:simpleType>
```
The following table lists the values that are defined by the `TaskStatusType` simple type.

<table>
<thead>
<tr>
<th>Value name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed</td>
<td>Specifies that the task is completed.</td>
</tr>
<tr>
<td>Deferred</td>
<td>Specifies that the task is deferred.</td>
</tr>
<tr>
<td>InProgress</td>
<td>Specifies that the task is in progress.</td>
</tr>
<tr>
<td>NotStarted</td>
<td>Specifies that the task is not started.</td>
</tr>
<tr>
<td>WaitingOnOthers</td>
<td>Specifies that the task is waiting on other tasks.</td>
</tr>
</tbody>
</table>

2.2.6 Attributes

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

2.2.7 Groups

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

<table>
<thead>
<tr>
<th>Group name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TaskRecurrencePatternTypes</td>
<td>Specifies recurrence information for recurring tasks.</td>
</tr>
</tbody>
</table>

2.2.7.1 TaskRecurrencePatternTypes Group

The `TaskRecurrencePatternTypes` group specifies recurrence information for recurring tasks.

```xml
<xs:group name="TaskRecurrencePatternTypes">
  <xs:sequence>
    <xs:choice>
    <xs:element name="RelativeYearlyRecurrence" type="t:RelativeYearlyRecurrencePatternType"
```
The following table lists and describes the child elements of the `TaskRecurrencePatternTypes` group.

<table>
<thead>
<tr>
<th>Element name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RelativeYearlyRecurrence</td>
<td><code>t:RelativeYearlyRecurrencePatternType</code> ([MS-OXWSCDATA] section 2.2.4.63)</td>
<td>Specifies a relative yearly recurrence pattern for a recurring task.</td>
</tr>
<tr>
<td>AbsoluteYearlyRecurrence</td>
<td><code>t:AbsoluteYearlyRecurrencePatternType</code> ([MS-OXWSCDATA] section 2.2.4.2)</td>
<td>Specifies a yearly recurrence pattern for a recurring task.</td>
</tr>
<tr>
<td>RelativeMonthlyRecurrence</td>
<td><code>t:RelativeMonthlyRecurrencePatternType</code> ([MS-OXWSCDATA] section 2.2.4.62)</td>
<td>Specifies a relative monthly recurrence pattern for a recurring task.</td>
</tr>
<tr>
<td>AbsoluteMonthlyRecurrence</td>
<td><code>t:AbsoluteMonthlyRecurrencePatternType</code> ([MS-OXWSCDATA] section 2.2.4.1)</td>
<td>Specifies a monthly recurrence pattern for a recurring task.</td>
</tr>
<tr>
<td>WeeklyRecurrence</td>
<td><code>t:WeeklyRecurrencePatternType</code> ([MS-OXWSCDATA] section 2.2.4.77)</td>
<td>Specifies the weekly interval at which and the days on which a task recurs.</td>
</tr>
<tr>
<td>DailyRecurrence</td>
<td><code>t:DailyRecurrencePatternType</code> ([MS-OXWSCDATA] section 2.2.4.24)</td>
<td>Specifies the interval, in days, at which a task recurs.</td>
</tr>
<tr>
<td>Element name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DailyRegeneration</td>
<td>t:DailyRegeneratingPatternType (section 2.2.4.1)</td>
<td>Specifies how many days after the completion of the current task the next occurrence will happen.</td>
</tr>
<tr>
<td>WeeklyRegeneration</td>
<td>t:WeeklyRegeneratingPatternType (section 2.2.4.7)</td>
<td>Specifies how many weeks after the completion of the current task the next occurrence will happen.</td>
</tr>
<tr>
<td>MonthlyRegeneration</td>
<td>t:MonthlyRegeneratingPatternType (section 2.2.4.2)</td>
<td>Specifies how many months after the completion of the current task the next occurrence will happen.</td>
</tr>
<tr>
<td>YearlyRegeneration</td>
<td>t:YearlyRegeneratingPatternType (section 2.2.4.8)</td>
<td>Specifies how many years after the completion of the current task the next occurrence will happen.</td>
</tr>
</tbody>
</table>

**2.2.8 Attribute Groups**

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

**2.2.9 Common Data Structures**

This specification does not define any common XML schema data structures.
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 Tasks Web Service Protocol defines a single port type with six operations. The operations enable client implementations to get, create, delete, update, move, and copy tasks on the server.

3.1.1 Abstract Data Model

None.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

The following table summarizes the WSDL operations as defined by this specification.

<table>
<thead>
<tr>
<th>Operation name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CopyItem</td>
<td>Copies task items on the server.</td>
</tr>
<tr>
<td>CreateItem</td>
<td>Creates task items on the server.</td>
</tr>
<tr>
<td>DeleteItem</td>
<td>Deletes task items on the server.</td>
</tr>
<tr>
<td>GetItem</td>
<td>Gets task items on the server.</td>
</tr>
<tr>
<td>MoveItem</td>
<td>Moves task items on the server.</td>
</tr>
<tr>
<td>UpdateItem</td>
<td>Updates task items on the server.</td>
</tr>
</tbody>
</table>

3.1.4.1 CopyItem Operation

This protocol uses the **CopyItem** operation, as specified in [MS-OXWSCORE] section 3.1.4.1, to copy task items.

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

```xml
<wsdl:operation name="CopyItem">
    <wsdl:input message="tns:CopyItemSoapIn" />
    <wsdl:output message="tns:CopyItemSoapOut" />
</wsdl:operation>
```
The following is the **WSDL** binding specification for the **CopyItem** operation.

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

<table>
<thead>
<tr>
<th>Message format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tns:CopyItemSoapIn ([MS-OXWScore] section 3.1.4.1.1.1)</td>
<td>Specifies the SOAP message that defines the task item to be copied. The <strong>CopyItem</strong> operation (as specified in [MS-OXWScore] section 3.1.4.1.1.1) that specifies the XML request MUST contain the <strong>t:TargetFolderIdType</strong> complex type (as specified in [MS-OXWSFolder] section 2.2.4.16) and the <strong>t:ItemIdType</strong> complex type (as specified in [MS-OXWScore] section 2.2.4.25). All other type elements in <strong>t:NonEmptyArrayOfBaseItemIdsType</strong> element MUST NOT be included.</td>
</tr>
<tr>
<td>tns:CopyItemSoapOut ([MS-OXWScore] section 3.1.4.1.1.2)</td>
<td>Specifies the SOAP message that is returned by the server in response.</td>
</tr>
</tbody>
</table>

**3.1.4.1.1 Messages**
None.

**3.1.4.1.2 Elements**
None.

**3.1.4.1.3 Complex Types**
None.

**3.1.4.1.4 Simple Types**
None.

**3.1.4.1.5 Attributes**
None.

**3.1.4.1.6 Groups**
None.
3.1.4.1.7 Attribute Groups
None.

3.1.4.2 CreateItem Operation

This protocol uses the CreateItem operation, as specified in [MS-OXWSCORE] section 3.1.4.2, to create task items.

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

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

The following is the WSDL binding specification for the CreateItem operation.

```xml
<wsdl:operation name="CreateItem">
    <wsdl:input>
        <soap:header message="tns:CreateItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:CreateItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:CreateItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:header message="tns:CreateItemSoapIn" part="TimeZoneContext" use="literal"/>
        <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body parts="CreateItemResult" use="literal"/>
        <soap:header message="tns:CreateItemSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
</wsdl:operation>
```

<table>
<thead>
<tr>
<th>Message format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tns:CreateItemSoapIn (MS-OXWSCORE section 3.1.4.2.1.1)</td>
<td>Specifies the SOAP message that defines the task item to be created. The t:NonEmptyArrayOfAllItemsType complex type (as specified in [MS-OXWSCDATA] section 2.2.4.48) of the CreateItem operation (as specified in [MS-OXWSCORE] section 3.1.4.2) that specifies the XML request MUST contain one or more t:TaskType complex types (as specified in section 2.2.4.6). All other elements MUST be empty.</td>
</tr>
<tr>
<td>tns:CreateItemSoapOut (MS-OXWSCORE section 3.1.4.2.1.2)</td>
<td>Specifies the SOAP message that is returned by the server in response.</td>
</tr>
</tbody>
</table>

3.1.4.2.1 Messages
None.

3.1.4.2.2 Elements
None.

3.1.4.2.3 Complex Types
None.

### 3.1.4.2.4 Simple Types

None.

### 3.1.4.2.5 Attributes

None.

### 3.1.4.2.6 Groups

None.

### 3.1.4.2.7 Attribute Groups

None.

### 3.1.4.3 DeleteItem Operation

This protocol uses the `DeleteItem` operation, as specified in [MS-OXWSCORE] section 3.1.4.3, to delete task items.

The following is the WSDL port type specification for the `DeleteItem` operation.

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

The following is the WSDL binding specification for the `DeleteItem` operation.

```xml
<wsdl:operation name="DeleteItem">
    <soap:operation
    <wsdl:input>
        <soap:header message="tns:DeleteItemSoapIn" part="Impersonation" use="literal"/>
        <soap:header message="tns:DeleteItemSoapIn" part="MailboxCulture" use="literal"/>
        <soap:header message="tns:DeleteItemSoapIn" part="RequestVersion" use="literal"/>
        <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body parts="DeleteItemResult" use="literal"/>
        <soap:header message="tns:DeleteItemSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
</wsdl:operation>
```

<table>
<thead>
<tr>
<th>Message format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tns:DeleteItemSoapIn ([MS-OXWSCORE] section 3.1.4.3.1.1)</td>
<td>Specifies the SOAP message that defines the task item to be deleted. The <code>t:NonEmptyArrayOfBaseItemIdsType</code> complex type (as specified in [MS-OXWSCORE] section 2.2.4.31) of the <code>DeleteItem</code> operation (as specified in [MS-OXWSCORE] section 3.1.4.3) that specifies the XML request MUST contain one or more <code>t:ItemIdType</code> complex type elements (as specified in [MS-OXWSCORE] section 2.2.4.25). All other elements MUST be empty.</td>
</tr>
<tr>
<td>tns:DeleteItemSoapOut ([MS-OXWSCORE] section)</td>
<td>Specifies the SOAP message that is returned by the server in response.</td>
</tr>
</tbody>
</table>
3.1.4.3.1 Messages
None.

3.1.4.3.2 Elements
None.

3.1.4.3.3 Complex Types
None.

3.1.4.3.4 Simple Types
The following table lists and describes the XML schema simple type definitions that are specific to the DeleteItem operation.

<table>
<thead>
<tr>
<th>Simple type name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AffectedTaskOccurrencesType</td>
<td>Specifies whether an occurrence of a task or a master task with all recurring tasks associated with the master task is deleted.</td>
</tr>
</tbody>
</table>

3.1.4.3.4.1 t:AffectedTaskOccurrencesType Simple Type
The AffectedTaskOccurrencesType simple type specifies whether an occurrence of a task or a master task with all recurring tasks associated with the master task is deleted.

```xml
<xs:simpleType name="AffectedTaskOccurrencesType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="AllOccurrences" />
    <xs:enumeration value="SpecifiedOccurrenceOnly" />
  </xs:restriction>
</xs:simpleType>
```

The following table lists and describes the values that are defined by the AffectedTaskOccurrencesType simple type.

<table>
<thead>
<tr>
<th>Value name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AllOccurrences</td>
<td>Specifies that a DeleteItem operation request, as specified in [MS-OXWSCORE] section 3.1.4.3, deletes the master task and all recurring tasks that are associated with the master task.</td>
</tr>
<tr>
<td>Value name</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SpecifiedOccurrenceOnly</td>
<td>Specifies that a <strong>DeleteItem</strong> operation request, as specified in [MS-OXWSCORE] section 3.1.4.3, deletes only the current occurrence of a task.</td>
</tr>
</tbody>
</table>

### 3.1.4.3.5 Attributes

None.

### 3.1.4.3.6 Groups

None.

### 3.1.4.3.7 Attribute Groups

None.

### 3.1.4.4 GetItem Operation

This protocol uses the **GetItem** operation, as specified in [MS-OXWSCORE] section 3.1.4.4, to get task items.

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

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

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

```xml
<wsdl:operation name="GetItem">
  <soap:operation
  <wsdl:input>
    <soap:header message="tns:GetItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:GetItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:GetItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:header message="tns:GetItemSoapIn" part="TimeZoneContext" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="GetItemResult" use="literal"/>
    <soap:header message="tns:GetItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>
```

<table>
<thead>
<tr>
<th>Message format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tns:GetItemSoapIn</td>
<td>Specifies the <strong>SOAP message</strong> that defines the task item to be retrieved. The <strong>t:NonEmptyArrayOfBaseItemIdsType</strong> complex type (as specified in [MS-OXWSCORE] section 2.2.4.31) of the <strong>GetItem</strong> operation (as specified in [MS-OXWSCORE] section 3.1.4.4) that specifies the <strong>XML</strong> request MUST contain the <strong>t:ItemResponseShapeType</strong> complex type element (as specified in [MS-OXWSCDATA] section 2.2.4.44) and the <strong>t:ItemIdType</strong> complex type element (as specified in [MS-OXWSCORE] section 2.2.4.25).</td>
</tr>
<tr>
<td>Message format</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>tns:GetItemSoapOut</strong> ([MS-OXWSCORE] section 3.1.4.4.1.2)</td>
<td>Specifies the SOAP message that is returned by the server in response. The server returns a <strong>t:GetItemResponseType</strong> complex type element, which extends the <strong>BaseResponseMessageType</strong> complex type, as specified in [MS-OXWSCDATA] section 2.2.4.18, that contains properties associated with the task item.</td>
</tr>
</tbody>
</table>

### 3.1.4.4.1 Messages
None.

### 3.1.4.4.2 Elements
None.

### 3.1.4.4.3 Complex Types
None.

### 3.1.4.4.4 Simple Types
None.

### 3.1.4.4.5 Attributes
None.

### 3.1.4.4.6 Groups
None.

### 3.1.4.4.7 Attribute Groups
None.

### 3.1.4.5 MoveItem Operation
This protocol uses the **MoveItem** operation, as specified in [MS-OXWSCORE] section 3.1.4.7, to move task item elements.

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

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

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

```xml
<wsdl:operation name="MoveItem">
  <wsdl:input>
    <soap:header message="tns:MoveItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:MoveItemSoapIn" part="MailboxCulture" use="literal"/>
  </wsdl:input>
</wsdl:operation>
```
<soap:header message="tns:MoveItemSoapIn" part="RequestVersion" use="literal"/>
<soap:body parts="request" use="literal"/>
</wsdl:input>
<wsdl:output>
<soap:body parts="MoveItemResult" use="literal"/>
<soap:header message="tns:MoveItemSoapOut" part="ServerVersion" use="literal"/>
</wsdl:output>
</wsdl:operation>

<table>
<thead>
<tr>
<th>Message format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tns:MoveItemSoapIn ([MS-OXWS CORE] section 3.1.4.7.1.1)</td>
<td>Specifies the SOAP message that defines the task item to be moved. The MoveItem operation (as specified in [MS-OXWS CORE] section 3.1.4.7) that specifies the XML request MUST contain the t:TargetFolderIdType complex type element (as specified in [MS-OXWS FOLD] section 2.2.4.16) and t:ItemIdType complex type element (as specified in [MS-OXWS CORE] section 2.2.4.25). All other type elements in t:NonEmptyArrayOfBaseItemIdsType element MUST be empty.</td>
</tr>
<tr>
<td>tns:MoveItemSoapOut ([MS-OXWS CORE] section 3.1.4.7.1.2)</td>
<td>Specifies the SOAP message that is returned by the server in response.</td>
</tr>
</tbody>
</table>

### 3.1.4.5.1 Messages
None.

### 3.1.4.5.2 Elements
None.

### 3.1.4.5.3 Complex Types
None.

### 3.1.4.5.4 Simple Types
None.

### 3.1.4.5.5 Attributes
None.

### 3.1.4.5.6 Groups
None.

### 3.1.4.5.7 Attribute Groups
None.

### 3.1.4.6 UpdateItem Operation
This protocol uses the UpdateItem operation, as specified in [MS-OXWS CORE] section 3.1.4.9, to update task item elements.
The following is the **WSDL port type** specification for the **UpdateItem** operation.

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

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

```xml
<wsdl:operation name="UpdateItem">
  <wsdl:input>
    <soap:header message="tns:UpdateItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:UpdateItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:UpdateItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:header message="tns:UpdateItemSoapIn" part="TimeZoneContext" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="UpdateItemResult" use="literal"/>
    <soap:header message="tns:UpdateItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>
```

<table>
<thead>
<tr>
<th>Message format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>tns:UpdateItemSoapIn</code> ([MS-OXWSCORE] section 3.1.4.9.1.1)</td>
<td>Specifies the SOAP message that defines the task item to be updated.</td>
</tr>
<tr>
<td><code>tns:UpdateItemSoapOut</code> ([MS-OXWSCORE] section 3.1.4.9.1.2)</td>
<td>Specifies the SOAP message that is returned by the server in response.</td>
</tr>
</tbody>
</table>

### 3.1.4.6.1 Messages
None.

### 3.1.4.6.2 Elements
None.

### 3.1.4.6.3 Complex Types
None.

### 3.1.4.6.4 Simple Types
None.

### 3.1.4.6.5 Attributes
None.

### 3.1.4.6.6 Groups
None.
3.1.4.6.7 Attribute Groups
None.

3.1.5 Timer Events
None.

3.1.6 Other Local Events
None.
4 Protocol Examples

None.
5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.
Appendix A: Full WSDL

The XML files that are listed in the following table are required in order to implement the functionality described in this document.

<table>
<thead>
<tr>
<th>File name</th>
<th>Description</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-OXWSTASK.wsdl</td>
<td>Contains the <strong>WSDL</strong> for the implementation of this protocol.</td>
<td>6</td>
</tr>
<tr>
<td>MS-OXWSTASK-types.xsd</td>
<td>Contains the <strong>XML schema</strong> type definitions that are used in this protocol.</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-OXWSTASK-types.xsd schema have to be placed in the common folder along with the files listed in the table.

This section contains the contents of the MS-OXWSTASK.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:xmlls="http://www.w3.org/2001/XMLSchema"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
    targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
  <wsdl:types>
    <xs:schema id="messages" elementFormDefault="qualified" version="Exchange2016"
        xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
        xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
        xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
        xmlns:xs="http://www.w3.org/2001/XMLSchema"
        targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
      <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
          schemaLocation="MS-OXWScore-types.xsd"/>
      <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
          schemaLocation="MS-OXWScore-messages.xsd"/>
      <!-- Add global elements and types from messages.xsd -->
      </xs:schema>
    </xs:schema>
    <xs:schema id="types" elementFormDefault="qualified" version="Exchange2016"
        xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
        xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
        xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
        xmlns:xs="http://www.w3.org/2001/XMLSchema"
        targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
      <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
          schemaLocation="MS-OXWScore-messages.xsd"/>
      <!-- Add global elements and types from types.xsd -->
      </xs:schema>
  </wsdl:types>
  <wsdl:message name="GetItemSoapIn">
    <wsdl:part name="request" element="tns:GetItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
  </wsdl:message>
  <wsdl:message name="GetItemSoapOut">
    <wsdl:part name="GetItemResult" element="tns:GetItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:message name="CreateItemSoapIn">
    <wsdl:part name="request" element="tns:CreateItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
  </wsdl:message>
</wsdl:definitions>
```
<wsdl:message name="CreateItemSoapOut">
  <wsdl:part name="CreateItemResult" element="tns:CreateItemResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

<wsdl:message name="DeleteItemSoapIn">
  <wsdl:part name="request" element="tns:DeleteItem"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>

<wsdl:message name="DeleteItemSoapOut">
  <wsdl:part name="DeleteItemResult" element="tns:DeleteItemResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

<wsdl:message name="UpdateItemSoapIn">
  <wsdl:part name="request" element="tns:UpdateItem"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
  <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
</wsdl:message>

<wsdl:message name="UpdateItemSoapOut">
  <wsdl:part name="UpdateItemResult" element="tns:UpdateItemResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

<wsdl:message name="MoveItemSoapIn">
  <wsdl:part name="request" element="tns:MoveItem"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>

<wsdl:message name="MoveItemSoapOut">
  <wsdl:part name="MoveItemResult" element="tns:MoveItemResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

<wsdl:message name="CopyItemSoapIn">
  <wsdl:part name="request" element="tns:CopyItem"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>

<wsdl:message name="CopyItemSoapOut">
  <wsdl:part name="CopyItemResult" element="tns:CopyItemResponse"/>
  <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

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

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

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

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

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

  <wsdl:operation name="CopyItem">
    <wsdl:input message="tns:CopyItemSoapIn"/>
    <wsdl:output message="tns:CopyItemSoapOut"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="ExchangeServiceBinding" type="tns:ExchangeServicePortType">
  <wsdl:documentation>
    <wsi:Claim conformsTo="http://ws-i.org/profiles/basic/1.0"
      xmlns:wsi="http://ws-i.org/schemas/conformanceClaim"/>
  </wsdl:documentation>
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="GetItem">
    <wsdl:input>
      <soap:header message="tns:GetItemSoapIn" part="Impersonation" use="literal"/>
      <soap:header message="tns:GetItemSoapIn" part="MailboxCulture" use="literal"/>
      <soap:header message="tns:GetItemSoapIn" part="RequestVersion" use="literal"/>
      <soap:header message="tns:GetItemSoapIn" part="TimeZoneContext" use="literal"/>
      <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body parts="GetItemResult" use="literal"/>
      <soap:header message="tns:GetItemSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="CreateItem">
    <wsdl:input>
      <soap:header message="tns:CreateItemSoapIn" part="Impersonation" use="literal"/>
      <soap:header message="tns:CreateItemSoapIn" part="MailboxCulture" use="literal"/>
      <soap:header message="tns:CreateItemSoapIn" part="RequestVersion" use="literal"/>
      <soap:header message="tns:CreateItemSoapIn" part="TimeZoneContext" use="literal"/>
      <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body parts="CreateItemResult" use="literal"/>
      <soap:header message="tns:CreateItemSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="DeleteItem">
    <wsdl:input>
      <soap:header message="tns:DeleteItemSoapIn" part="Impersonation" use="literal"/>
      <soap:header message="tns:DeleteItemSoapIn" part="MailboxCulture" use="literal"/>
      <soap:header message="tns:DeleteItemSoapIn" part="RequestVersion" use="literal"/>
      <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body parts="DeleteItemResult" use="literal"/>
      <soap:header message="tns:DeleteItemSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="UpdateItem">
    <wsdl:input>
      <soap:header message="tns:UpdateItemSoapIn" part="Impersonation" use="literal"/>
      <soap:header message="tns:UpdateItemSoapIn" part="MailboxCulture" use="literal"/>
      <soap:header message="tns:UpdateItemSoapIn" part="RequestVersion" use="literal"/>
      <soap:body parts="request" use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body parts="UpdateItemResult" use="literal"/>
      <soap:header message="tns:UpdateItemSoapOut" part="ServerVersion" use="literal"/>
    </wsdl:output>
  </wsdl:operation>
</wsdl:binding>
<wsdl:input>
  <soap:header message="tns:UpdateItemSoapIn" part="Impersonation" use="literal"/>
  <soap:header message="tns:UpdateItemSoapIn" part="MailboxCulture" use="literal"/>
  <soap:header message="tns:UpdateItemSoapIn" part="RequestVersion" use="literal"/>
  <soap:body parts="request" use="literal"/>
</wsdl:input>

<wsdl:output>
  <soap:body parts="UpdateItemResult" use="literal"/>
  <soap:header message="tns:UpdateItemSoapOut" part="ServerVersion" use="literal"/>
</wsdl:output>

<wsdl:operation name="MoveItem">
  <wsdl:input>
    <soap:header message="tns:MoveItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:MoveItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:MoveItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="MoveItemResult" use="literal"/>
    <soap:header message="tns:MoveItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>

<wsdl:operation name="CopyItem">
  <wsdl:input>
    <soap:header message="tns:CopyItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:CopyItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:CopyItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="CopyItemResult" use="literal"/>
    <soap:header message="tns:CopyItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>

</wsdl:binding>
</wsdl:definitions>
7 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>Types schema</td>
<td>t:</td>
<td>7.2</td>
</tr>
</tbody>
</table>

This file has 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-OWSNTIF-types.xsd schema have to be placed in the common folder along with the files listed in the table.

7.1 Messages Schema

This protocol does not use a messages schema file.

7.2 Types Schema

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

MS-OWSTASK-types.xsd includes the file listed in the following table. To operate correctly, this file has to be present in the folder that contains the WSDL and the types schema file for this protocol.

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
elementFormDefault="qualified" version="Exchange2016" id="types">
  <xs:include schemaLocation="MS-OWWSFOLD-types.xsd"/>
  <xs:simpleType name="AffectedTaskOccurrencesType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="AllOccurrences"/>
      <xs:enumeration value="SpecifiedOccurrenceOnly"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="RegeneratingPatternBaseType" abstract="true">
    <xs:complexContent>
      <xs:extension base="t:IntervalRecurrencePatternBaseType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="DailyRegeneratingPatternType">
    <xs:complexContent>
      <xs:extension base="t:IntervalRecurrencePatternBaseType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="WeeklyRegeneratingPatternType">
    <xs:complexContent>
      <xs:extension base="t:IntervalRecurrencePatternBaseType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="MonthlyRegeneratingPatternType">
    <xs:complexContent>
      <xs:extension base="t:IntervalRecurrencePatternBaseType"/>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
```
<xs:extension base="t:FolderType"/>
</xs:complexContent>
</xs:complexType>
</xs:schema>
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 2007
- Microsoft Exchange Server 2010
- Microsoft Exchange Server 2013
- Microsoft Exchange Server 2016
- Microsoft Exchange Server 2019

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.

<1> Section 2.2.4.6: The Owner element is read-only for the client on Exchange 2007 and Exchange 2010.
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.

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<th>Description</th>
<th>Revision class</th>
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<td>Updated references.</td>
<td>Minor</td>
</tr>
<tr>
<td>2.2.5.1 t:TaskDelegateStateType Simple Type</td>
<td>Updated the definition of the Accepted value.</td>
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