

[MS-OXWSTASK]: Tasks Web Service Protocol Specification

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

Preliminary Documentation. This Open Specification provides documentation for past and current releases and/or for the pre-release (beta) version of this technology. This Open Specification is final

documentation for past or current releases as specifically noted in the document, as applicable; it is preliminary documentation for the pre-release (beta) versions. Microsoft will release final documentation in connection with the commercial release of the updated or new version of this technology. As the documentation may change between this preliminary version and the final version of this technology, there are risks in relying on preliminary documentation. To the extent that you incur additional development obligations or any other costs as a result of relying on this preliminary documentation, you do so at your own risk.

Revision Summary

Date	Revision History	Revision Class	Comments
07/15/2009	1.0	Major	Initial Availability.
11/04/2009	1.1.0	Minor	Updated the technical content.
02/10/2010	1.1.0	None	Version 1.1.0 release
05/05/2010	1.1.1	Editorial	Revised and edited the technical content.
08/04/2010	1.2	Minor	Clarified the meaning of the technical content.
11/03/2010	2.0	Major	Significantly changed the technical content.
03/18/2011	2.1	Minor	Clarified the meaning of the technical content.
08/05/2011	3.0	Major	Significantly changed the technical content.
10/07/2011	3.0	No change	No changes to the meaning, language, or formatting of the technical content.
01/20/2012	4.0	Major	Significantly changed the technical content.

Table of Contents

1 Introduction	5
1.1 Glossary	5
1.2 References	5
1.2.1 Normative References	5
1.2.2 Informative References	6
1.3 Overview	6
1.4 Relationship to Other Protocols	6
1.5 Prerequisites/Preconditions	7
1.6 Applicability Statement	7
1.7 Versioning and Capability Negotiation	7
1.8 Vendor Extensible Fields	8
1.9 Standards Assignments	8
2 Messages	9
2.1 Transport	9
2.2 Common Message Syntax	9
2.2.1 Namespaces	9
2.2.2 Messages	9
2.2.3 Elements	9
2.2.4 Complex Types	10
2.2.4.1 t:TaskRecurrenceType Complex Type	10
2.2.4.2 t:TasksFolderType Complex Type	10
2.2.4.3 t:TaskType Complex Type	11
2.2.4.4 t:DailyRegeneratingPatternType Complex Type	14
2.2.4.5 t:MonthlyRegeneratingPatternType Complex Type	14
2.2.4.6 t:RegeneratingPatternBaseType Complex Type	15
2.2.4.7 t:WeeklyRegeneratingPatternType Complex Type	15
2.2.4.8 t:YearlyRegeneratingPatternType Complex Type	15
2.2.5 Simple Types	15
2.2.5.1 t:TaskDelegateStateType Simple Type	16
2.2.5.2 t:TaskStatusType Simple Type	17
2.2.6 Attributes	17
2.2.7 Groups	17
2.2.7.1 TaskRecurrencePatternTypes Group	18
2.2.8 Attribute Groups	19
2.2.9 Common Data Structures	19
3 Protocol Details	20
3.1 ExchangeServicePortType Server Details	20
3.1.1 Abstract Data Model	20
3.1.2 Timers	20
3.1.3 Initialization	20
3.1.4 Message Processing Events and Sequencing Rules	20
3.1.4.1 CopyItem Operation	20
3.1.4.2 CreateItem Operation	21
3.1.4.3 DeleteItem Operation	22
3.1.4.3.1 Simple Types	23
3.1.4.3.1.1 t:AffectedTaskOccurrencesType Simple Type	23
3.1.4.4 GetItem Operation	23
3.1.4.5 MoveItem Operation	24

3.1.4.6 UpdateItem Operation.....	25
3.1.5 Timer Events	26
3.1.6 Other Local Events	26
4 Protocol Examples.....	27
5 Security.....	28
5.1 Security Considerations for Implementers.....	28
5.2 Index of Security Parameters	28
6 Appendix A: Full WSDL.....	29
7 Appendix B: Full XML Schema	34
7.1 Messages Schema.....	34
7.2 Types Schema.....	34
8 Appendix C: Product Behavior	37
9 Change Tracking.....	38
10 Index	40

1 Introduction

The Tasks Web Service Protocol enables clients to create, update, and delete task items on a server.

Sections 1.8, 2, and 3 of this specification are normative and contain RFC 2119 language. Sections 1.5 and 1.9 are also normative but cannot contain RFC 2119 language. All other sections and examples in this specification are informative.

1.1 Glossary

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

Hypertext Transfer Protocol (HTTP)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)
XML

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

delegate
endpoint
Inbox folder
mailbox
Sent Items folder
Simple Object Access Protocol (SOAP)
SOAP message
Tasks folder
Uniform Resource Locator (URL)
Web Services Description Language (WSDL)
WSDL message
WSDL port type
XML namespace
XML schema

The following terms are specific to this document:

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

1.2 References

References to Microsoft Open Specification documents do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

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

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

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

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

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

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

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

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

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

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

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)".

[MS-OXDCLI] Microsoft Corporation, "[Autodiscover Publishing and Lookup Protocol Specification](#)".

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

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

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

1.3 Overview

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 also update, delete, or copy tasks on the server by the using **UpdateItem** operation ([\[MS-OXWSCORE\]](#) section 3.1.4.8), the **DeleteItem** operation ([\[MS-OXWSCORE\]](#) section 3.1.4.3), and the **CopyItem** operation ([\[MS-OXWSCORE\]](#) section 3.1.4.1), respectively.

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 [\[MS-OXDCLI\]](#), to identify the target **endpoint (4)** 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 [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#), 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.

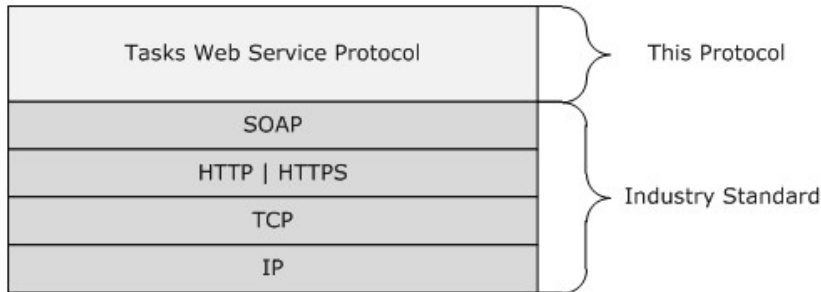


Figure 1: This protocol in relation to other protocols.

The task information that is returned by the Tasks Web Service Protocol is used when requests are made by using the Core Items Web Service Protocol [\[MS-OXWSCORE\]](#).

1.5 Prerequisites/Preconditions

The endpoint(4) **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 (4) is identified in the HTTP Web requests that target this protocol.

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 2.2.4.9, and the version of the server responding to the request is identified by using the **t:ServerVersionInfo** element, as described in [\[MS-OXWSCDATA\]](#) section 2.2.4.10.
- **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.

Preliminary

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 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 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.

Prefix	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
tns	http://schemas.microsoft.com/exchange/services/2006/messages	
s	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
targetNamespace	http://schemas.microsoft.com/exchange/services/2006/messages	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
t	http://schemas.microsoft.com/exchange/services/2006/types	

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 name	Description
TaskRecurrenceType	Specifies the recurrence pattern for tasks.
TasksFolderType	Specifies a Tasks folder that is contained in a mailbox .
TaskType	Specifies a task in the server store.
DailyRegeneratingPatternType	Specifies the interval, in days, at which a task is regenerated.
MonthlyRegeneratingPatternType	Specifies the interval, in months, at which a task is regenerated.
RegeneratingPatternBaseType	Specifies the base type for all regenerating patterns.
WeeklyRegeneratingPatternType	Specifies the interval, in weeks, at which a task is regenerated.
YearlyRegeneratingPatternType	Specifies the interval, in years, at which a task is regenerated.

2.2.4.1 t:TaskRecurrenceType Complex Type

The **TaskRecurrenceType** complex type specifies the recurrence pattern for tasks.

```
<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.

Reference name	Description
t:TaskRecurrencePatternTypes (section 2.2.7.1)	Specifies recurrence information for recurring tasks.
t:RecurrenceRangeTypes ([MS-OXWSCDATA] section 2.2.6.2)	Specifies recurrence patterns with numbered recurrences, nonending recurrence patterns, and recurrence patterns with a set start date and end date.

2.2.4.2 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 2.2.4.10.

```

<xs:complexType name="TasksFolderType">
  <xs:complexContent>
    <xs:extension
      base="t:FolderType"
    />
  </xs:complexContent>
</xs:complexType>

```

2.2.4.3 t:TaskType Complex Type

The **TaskType** complex type specifies a task in the server store. The **TaskType** complex type extends the **ItemType** complex type, as specified in [\[MS-OXWScore\]](#) section 2.2.4.6.

```

<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"
    type="xs:boolean"
    minOccurs="0"
    />
<xs:element name="Mileage"
    type="xs:string"
    minOccurs="0"
    />
<xs:element name="Owner"
    type="xs:string"
    minOccurs="0"
    />
<xs:element name="PercentComplete"
    type="xs:double"
    minOccurs="0"
    />
<xs:element name="Recurrence"
    type="t:TaskRecurrenceType"
    minOccurs="0"
    />
<xs:element name="StartDate"
    type="xs:dateTime"
    minOccurs="0"
    />
<xs:element name="Status"
    type="t:TaskStatusType"
    minOccurs="0"
    />
<xs:element name="StatusDescription"
    type="xs:string"
    minOccurs="0"
    />
<xs:element name="TotalWork"
    type="xs:int"
    minOccurs="0"
    />
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

The following table lists and describes the child elements of the **TaskType** complex type.

Element name	Type	Description
ActualWork	xs:int [XMLSCHEMA2]	Specifies an integer value that specifies the actual amount of time that is spent on a task.
AssignedTime	xs:dateTime [XMLSCHEMA2]	Specifies an instance of the DateTime structure that contains the time when a task is assigned to a contact.
BillingInformation	xs:string [XMLSCHEMA2]	Specifies a string value that contains billing information for a task.
ChangeCount	xs:int	Specifies an integer value that specifies the version of a task.
Companies	t:ArrayOfStringsType ([MS-OXWSCDATA] section 2.2.3.11)	Specifies an instance of an array of type string that represents a collection of companies that are associated with a task.
CompleteDate	xs:dateTime	Specifies an instance of the DateTime structure that represents the date on which a task was completed.
Contacts	t:ArrayOfStringsType	Specifies an instance of an array of type string that contains a list of contacts that are associated with a task.
DelegationState	t:TaskDelegateStateType (section 2.2.5.1)	Specifies one of the valid TaskDelegateStateType simple type enumeration values that represent the status of a delegated task.
Delegator	xs:string	Specifies a string value that contains the name of the delegator who assigned a task.
DueDate	xs:dateTime	Specifies an instance of the DateTime structure that represents the date when a task is due.
IsAssignmentEditable	xs:int	Specifies an integer value that represents the task type.
IsComplete	xs:boolean [XMLSCHEMA2]	Specifies a Boolean value that indicates whether a task has been completed.
IsRecurring	xs:boolean	Specifies a Boolean value that indicates whether a task is part of a recurring task.
IsTeamTask	xs:boolean	Specifies a Boolean value that indicates whether a task is owned by a team.
Mileage	xs:string	Specifies a string value that represents the mileage for a task.
Owner	xs:string	Specifies a string value that represents the owner of a task.
PercentComplete	xs:double [XMLSCHEMA2]	Specifies a double value from 0 through

Element name	Type	Description
		100 that describes the completion status of a task.
Recurrence	t:TaskRecurrenceType (section 2.2.5.1)	Specifies an instance of the TaskRecurrenceType complex type that contains recurrence information for a recurring task.
StartDate	xs:dateTime	Specifies an instance of the DateTime structure that represents the start date of a task.
Status	t:TaskStatusType (section 2.2.5.2)	Specifies one of the valid TaskStatusType simple type enumeration values that represent the status of a task.
StatusDescription	xs:string	Specifies a string value that contains an explanation of the status of a task.
TotalWork	xs:int	Specifies an integer value that represents the total amount of work that is associated with a task.

2.2.4.4 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 [2.2.4.6](#).

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

2.2.4.5 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 [2.2.4.6](#).

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

2.2.4.6 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 2.2.3.36.

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

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 [2.2.4.6](#).

```
<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 [2.2.4.6](#).

```
<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 that are defined by this specification. XML schema simple type definitions that are specific to a particular operation are defined with the operation.

Simple type name	Description
TaskDelegateStateType	Specifies the status types of a delegated task. This enumeration is never set.
TaskStatusType	Specifies the status types of a task item.

2.2.5.1 t:TaskDelegateStateType Simple Type

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

```
<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 tables lists the values that are defined by the **TaskDelegateStateType** simple type.

Value name	Meaning
Accepted	Specifies that the task has been declined.
Declined	Not used.
Max	Not used.
NoMatch	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 .
Owned	Specifies that the task has been accepted. This value cannot be in the simple type.
OwnNew	Specifies that this is a new task request that has been sent, but the delegate has not yet responded to the request.

2.2.5.2 t:TaskStatusType Simple Type

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

```
<xs:simpleType name="TaskStatusType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Completed"
    />
    <xs:enumeration
      value="Deferred"
    />
    <xs:enumeration
      value="InProgress"
    />
    <xs:enumeration
      value="NotStarted"
    />
    <xs:enumeration
      value="WaitingOnOthers"
    />
  </xs:restriction>
</xs:simpleType>
```

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

Value name	Meaning
Completed	Specifies that the task is completed.
Deferred	Specifies that the task is deferred.
InProgress	Specifies that the task is in progress.
NotStarted	Specifies that the task is not started.
WaitingOnOthers	Specifies that the task is waiting on other tasks.

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 that are defined by this specification. XML schema group definitions that are specific to a particular operation are defined with the operation.

Group name	Description
TaskRecurrencePatternTypes	Specifies recurrence information for recurring tasks.

2.2.7.1 TaskRecurrencePatternTypes Group

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

```
<xs:group name="TaskRecurrencePatternTypes">
  <xs:sequence>
    <xs:choice>
      <xs:element name="RelativeYearlyRecurrence"
        type="t:RelativeYearlyRecurrencePatternType"
      />
      <xs:element name="AbsoluteYearlyRecurrence"
        type="t:AbsoluteYearlyRecurrencePatternType"
      />
      <xs:element name="RelativeMonthlyRecurrence"
        type="t:RelativeMonthlyRecurrencePatternType"
      />
      <xs:element name="AbsoluteMonthlyRecurrence"
        type="t:AbsoluteMonthlyRecurrencePatternType"
      />
      <xs:element name="WeeklyRecurrence"
        type="t:WeeklyRecurrencePatternType"
      />
      <xs:element name="DailyRecurrence"
        type="t:DailyRecurrencePatternType"
      />
      <xs:element name="DailyRegeneration"
        type="t:DailyRegeneratingPatternType"
      />
      <xs:element name="WeeklyRegeneration"
        type="t:WeeklyRegeneratingPatternType"
      />
      <xs:element name="MonthlyRegeneration"
        type="t:MonthlyRegeneratingPatternType"
      />
      <xs:element name="YearlyRegeneration"
        type="t:YearlyRegeneratingPatternType"
      />
    </xs:choice>
  </xs:sequence>
</xs:group>
```

The following table lists and describes the child elements of the **TaskRecurrencePatternTypes** group.

Element name	Type	Description
RelativeYearlyRecurrence	t:RelativeYearlyRecurrencePatternType ([MS-OXWSCDATA] section 2.2.3.53)	Specifies a relative yearly recurrence pattern for a recurring task.
AbsoluteYearlyRecurrence	t:AbsoluteYearlyRecurrencePatternType ([MS-OXWSCDATA] section 2.2.3.2)	Specifies a yearly recurrence pattern for a recurring task.
RelativeMonthlyRecurrence	t:RelativeMonthlyRecurrencePatternType ([MS-	Specifies a relative monthly recurrence

Element name	Type	Description
	OXWSCDATA section 2.2.3.52)	pattern for a recurring task.
AbsoluteMonthlyRecurrence	t:AbsoluteMonthlyRecurrencePatternType ([MS-OXWSCDATA] section 2.2.3.1)	Specifies a monthly recurrence pattern for a recurring task.
WeeklyRecurrence	t:WeeklyRecurrencePatternType ([MS-OXWSCDATA] section 2.2.3.64)	Specifies the weekly interval at which and the days on which a task recurs.
DailyRecurrence	t:DailyRecurrencePatternType ([MS-OXWSCDATA] section 2.2.3.21)	Specifies the interval, in days, at which a task recurs.
DailyRegeneration	t:DailyRegeneratingPatternType (section 2.2.4.4)	Specifies how many days after the completion of the current task the next occurrence will happen.
WeeklyRegeneration	t:WeeklyRegeneratingPatternType (section 2.2.4.7)	Specifies how many weeks after the completion of the current task the next occurrence will happen.
MonthlyRegeneration	t:MonthlyRegeneratingPatternType (section 2.2.4.5)	Specifies how many months after the completion of the current task the next occurrence will happen.
YearlyRegeneration	t:YearlyRegeneratingPatternType (section 2.2.4.8)	Specifies how many years after the completion of the current task the next occurrence will happen.

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.

Operation name	Description
GetItem	Gets items on the server.
CreateItem	Creates items on the server.
DeleteItem	Deletes items on the server.
UpdateItem	Updates items on the server.
MoveItem	Moves items on the server.
CopyItem	Copies items on the server.

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.

```
<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.

```
<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>
```

Message format	Description
tns:CopyItemSoapIn ([MS-OXWSCORE] 3.1.4.1.3.1)	Specifies the SOAP message that defines the task item to be copied. The t:NonEmptyArrayOfAllItemsType complex type (as specified in [MS-OXWSCDATA] section 2.2.3.42) of the CopyItem operation (as specified in [MS-OXWSCORE] section 3.1.4.1) that specifies the XML request MUST contain the t:TargetFolderIdType complex type (as specified in [MS-OXWSFOLD] section 2.2.4.14) and t:ItemIdType complex type (as specified in [MS-OXWSCORE] section 2.2.4.15). All other elements MUST be empty.
tns:CopyItemSoapOut ([MS-OXWSCORE] section 3.1.4.1.1.2)	Specifies the SOAP message that is returned by the server in response.

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.

```
<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.

```
<wsdl:operation name="CreateItem">
  <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/CreateItem"/>
  <wsdl:input>
    <soap:header message="tns:CreateItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:CreateItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:CreateItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:header message="tns:CreateItemSoapIn" part="TimeZoneContext" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
```

```

<wsdl:output>
  <soap:body parts="CreateItemResult" use="literal"/>
  <soap:header message="tns:CreateItemSoapOut" part="ServerVersion" use="literal"/>
</wsdl:output>
</wsdl:operation>

```

Message format	Description
tns:CreateItemSoapIn ([MS-OXWSCORE] section 3.1.4.2.1.1)	Specifies the SOAP message that defines the task item to be created. The t:NonEmptyArrayOfAllItemsType complex type (as specified in [MS-OXWSCDATA] section 2.2.3.42) 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 2.2.4.3). All other elements MUST be empty.
tns:CreateItemSoapOut ([MS-OXWSCORE] section 3.1.4.2.1.2)	Specifies the SOAP message that is returned by the server in response.

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.

```

<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.

```

<wsdl:operation name="DeleteItem">
  <soap:operation
  soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/DeleteItem"/>
  <wsdl:input>
    <soap:header message="tns:DeleteItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:DeleteItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:DeleteItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="DeleteItemResult" use="literal"/>
    <soap:header message="tns:DeleteItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>

```

Message format	Description
tns>DeleteItemSoapIn ([MS-OXWSCORE] section 3.1.4.3.1.1)	Specifies the SOAP message that defines the task item to be deleted. The t:NonEmptyArrayOfAllItemsType complex type (as specified in [MS-OXWSCDATA] section 2.2.3.42) of the DeleteItem operation (as specified in [MS-OXWSCORE] section 3.1.4.3) that specifies the XML request MUST contain one or more t:ItemIdType complex type elements (as specified in [MS-OXWSCORE] section 2.2.4.15). All other

Message format	Description
	elements MUST be empty.
tns:DeleteItemSoapOut ([MS-OXWSCORE] section 3.1.4.3.1.2)	Specifies the SOAP message that is returned by the server in response.

3.1.4.3.1 Simple Types

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

Simple type name	Description
AffectedTaskOccurrencesType	Specifies whether an occurrence of a task or a master task is deleted.

3.1.4.3.1.1 t:AffectedTaskOccurrencesType Simple Type

The **AffectedTaskOccurrencesType** simple type specifies whether an occurrence of a task or a master task is deleted.

```
<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.

Value name	Description
AllOccurrences	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.
SpecifiedOccurrenceOnly	Specifies that a DeleteItem operation request, as specified in [MS-OXWSCORE] section 3.1.4.3, deletes only the current occurrence of a task.

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.

```

<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.

```

<wsdl:operation name="GetItem">
  <soap:operation
  soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/GetItem"/>
  <wsdl:input>
    <soap:header message="tns:GetItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:GetItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:GetItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:header message="tns:GetItemSoapIn" part="TimeZoneContext" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="GetItemResult" use="literal"/>
    <soap:header message="tns:GetItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>

```

Message format	Description
tns:GetItemSoapIn ([MS-OXWSCORE] section 3.1.4.4.1.1)	Specifies the SOAP message that defines the task item to be retrieved. The t:NonEmptyArrayOfAllItemsType complex type (as specified in [MS-OXWSCDATA] section 2.2.3.42) of the GetItem operation (as specified in [MS-OXWSCORE] section 3.1.4.4) that specifies the XML request MUST contain the t:ItemResponseShapeType complex type element (as specified in [MS-OXWSCDATA] section 2.2.3.38) and the t:ItemIdType complex type element (as specified in [MS-OXWSCORE] section 2.2.4.15).
tns:GetItemSoapOut ([MS-OXWSCORE] section 3.1.4.4.1.2)	Specifies the SOAP message that is returned by the server in response. The server returns a t:ItemResponseShapeType complex type element, as specified in [MS-OXWSCDATA] section 2.2.3.38, that contains properties associated with the task item.

3.1.4.5 MoveItem Operation

This protocol uses the **MoveItem** operation, as specified in [\[MS-OXWSCORE\]](#) section 3.1.4.6, to move task item elements.

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

```

<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.

```

<wsdl:operation name="MoveItem">
  <soap:operation
  soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/MoveItem"/>

```



```

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

```

Message format	Description
tns:MoveItemSoapIn ([MS-OXWSCORE] section 3.1.4.6.1.1)	Specifies the SOAP message that defines the task item to be moved. The t:NonEmptyArrayOfAllItemsType complex type (as specified in [MS-OXWSCDATA] section 2.2.3.42) of the MoveItem operation (as specified in [MS-OXWSCORE] section 3.1.4.6) that specifies the XML request MUST contain the t:TargetFolderIdType complex type element (as specified in [MS-OXWSFOLD] section 2.2.4.14) and t:ItemIdType complex type element (as specified in [MS-OXWSCORE] section 2.2.4.15). All other elements MUST be empty.
tns:MoveItemSoapOut ([MS-OXWSCORE] section 3.1.4.6.1.2)	Specifies the SOAP message that is returned by the server in response.

3.1.4.6 UpdateItem Operation

This protocol uses the **UpdateItem** operation, as specified in [\[MS-OXWSCORE\]](#) section 3.1.4.8, to update task item elements.

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

```

<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.

```

<wsdl:operation name="UpdateItem">
  <soap:operation
    soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/UpdateItem"/>
  <wsdl:input>
    <soap:header message="tns:UpdateItemSoapIn" part="Impersonation" use="literal"/>
    <soap:header message="tns:UpdateItemSoapIn" part="MailboxCulture" use="literal"/>
    <soap:header message="tns:UpdateItemSoapIn" part="RequestVersion" use="literal"/>
    <soap:header message="tns:UpdateItemSoapIn" part="TimeZoneContext" use="literal"/>
    <soap:body parts="request" use="literal"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body parts="UpdateItemResult" use="literal"/>
    <soap:header message="tns:UpdateItemSoapOut" part="ServerVersion" use="literal"/>
  </wsdl:output>
</wsdl:operation>

```

Message format	Description
tns:UpdateItemSoapIn ([MS-OXWSCORE] section 3.1.4.8.1.1)	Specifies the SOAP message that defines the task item to be updated.
tns:UpdateItemSoapOut ([MS-OXWSCORE] section 3.1.4.8.1.2)	Specifies the SOAP message that is returned by the server in response.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

Preliminary

4 Protocol Examples

None.

Preliminary

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

Preliminary

6 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.

File name	Description	Section
MS-OXWSTASK.wsdl	Contains the WSDL for the implementation of this protocol.	6
MS-OXWSTASK-types.xsd	Contains the XML schema type definitions that are used in this protocol.	7.2

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 version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:s="http://www.w3.org/2001/XMLSchema" xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
  <wsdl:types>
    <xs:schema id="messages" elementFormDefault="qualified" version="Exchange2010"
xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <xs:import
namespace="http://schemas.microsoft.com/exchange/services/2006/types" schemaLocation="MS-
OXWSCORE-types.xsd"/>
      <xs:include schemaLocation="MS-OXWSCORE-messages.xsd"/>
      <!-- Add global elements and types from messages.xsd -->
    </xs:schema>
    <xs:schema id="types" elementFormDefault="qualified" version="Exchange2010"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
      <!-- Add global elements and types from types.xsd -->
    </xs:schema>
  </wsdl:types>
  <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:operation>
  </wsdl:portType>

```

```

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

```

```

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

```

```

        <wsdl:input>
            <soap:header message="tns:CopyItemSoapIn" part="Impersonation"
use="literal"/>
            <soap:header message="tns:CopyItemSoapIn" part="MailboxCulture"
use="literal"/>
            <soap:header message="tns:CopyItemSoapIn" part="RequestVersion"
use="literal"/>
            <soap:body parts="request" use="literal"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body parts="CopyItemResult" use="literal"/>
            <soap:header message="tns:CopyItemSoapOut" part="ServerVersion"
use="literal"/>
        </wsdl:output>
    </wsdl:operation>
</wsdl:binding>
<wsdl:message name="GetItemSoapIn">
    <wsdl:part name="request" element="tns:GetItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
</wsdl:message>
<wsdl:message name="GetItemSoapOut">
    <wsdl:part name="GetItemResult" element="tns:GetItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
<wsdl:message name="CreateItemSoapIn">
    <wsdl:part name="request" element="tns:CreateItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
</wsdl:message>
<wsdl:message name="CreateItemSoapOut">
    <wsdl:part name="CreateItemResult" element="tns:CreateItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
<wsdl:message name="DeleteItemSoapIn">
    <wsdl:part name="request" element="tns>DeleteItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
<wsdl:message name="DeleteItemSoapOut">
    <wsdl:part name="DeleteItemResult" element="tns>DeleteItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
<wsdl:message name="UpdateItemSoapIn">
    <wsdl:part name="request" element="tns:UpdateItem"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="MailboxCulture" element="t:MailboxCulture"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
</wsdl:message>
<wsdl:message name="UpdateItemSoapOut">
    <wsdl:part name="UpdateItemResult" element="tns:UpdateItemResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>

```



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

7 Appendix B: Full XML Schema

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

Schema name	Prefix	Section
Types schema	t:	7.2

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-OXWSNTIF-types.xsd schema has 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-OXWSTASK-types.xsd file and information about additional files that this schema file requires in order to operate correctly.

MS-OXWSTASK-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.

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

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
elementFormDefault="qualified" version="Exchange2010" id="types">
  <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
  <xs:include schemaLocation="MS-OXWSCFOLD-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:RegeneratingPatternBaseType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="WeeklyRegeneratingPatternType">
    <xs:complexContent>
      <xs:extension base="t:RegeneratingPatternBaseType"/>
    </xs:complexContent>
  </xs:complexType>
```

```

</xs:complexType>
<xs:complexType name="MonthlyRegeneratingPatternType">
  <xs:complexContent>
    <xs:extension base="t:RegeneratingPatternBaseType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="YearlyRegeneratingPatternType">
  <xs:complexContent>
    <xs:extension base="t:RegeneratingPatternBaseType"/>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="TaskStatusType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="NotStarted"/>
    <xs:enumeration value="InProgress"/>
    <xs:enumeration value="Completed"/>
    <xs:enumeration value="WaitingOnOthers"/>
    <xs:enumeration value="Deferred"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="TaskDelegateStateType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="NoMatch"/>
    <xs:enumeration value="OwnNew"/>
    <xs:enumeration value="Owned"/>
    <xs:enumeration value="Accepted"/>
    <xs:enumeration value="Declined"/>
    <xs:enumeration value="Max"/>
  </xs:restriction>
</xs:simpleType>
<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" type="xs:boolean" minOccurs="0"/>
        <xs:element name="Mileage" type="xs:string" minOccurs="0"/>
        <xs:element name="Owner" type="xs:string" minOccurs="0"/>
        <xs:element name="PercentComplete" type="xs:double" minOccurs="0"/>
        <xs:element name="Recurrence" type="t:TaskRecurrenceType"
minOccurs="0"/>
        <xs:element name="StartDate" type="xs:dateTime" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

```

        <xs:element name="Status" type="t:TaskStatusType" minOccurs="0"/>
        <xs:element name="StatusDescription" type="xs:string"
minOccurs="0"/>
        <xs:element name="TotalWork" type="xs:int" minOccurs="0"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="TaskRecurrenceType">
    <xs:sequence>
        <xs:group ref="t:TaskRecurrencePatternTypes"/>
        <xs:group ref="t:RecurrenceRangeTypes"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="TasksFolderType">
    <xs:complexContent>
        <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 released service packs:

- Microsoft® Exchange Server 2007
- Microsoft® Exchange Server 2010
- Microsoft® Exchange Server 15 Technical Preview

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product 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 the [MS-OXWSTASK] protocol document between the October 2011 and January 2012 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

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 or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

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 **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

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

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

- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.
- Content removed for template compliance.
- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated**.

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

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.
- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

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

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
8 Appendix C: Product Behavior	Added Exchange 15 Technical Preview to the list of applicable product versions.	Y	Content updated.

10 Index

A

Abstract data model
[server](#) 20
[Applicability](#) 7
[Attribute groups](#) 19
[Attributes](#) 17

C

[Capability negotiation](#) 7
[Change tracking](#) 38
[Complex types](#) 10
[t:DailyRegeneratingPatternType Complex Type](#) 14
[t:MonthlyRegeneratingPatternType Complex Type](#) 14
[t:RegeneratingPatternBaseType Complex Type](#) 15
[t:TaskRecurrenceType Complex Type](#) 10
[t:TasksFolderType Complex Type](#) 10
[t:TaskType Complex Type](#) 11
[t:WeeklyRegeneratingPatternType Complex Type](#) 15
[t:YearlyRegeneratingPatternType Complex Type](#) 15

D

Data model - abstract
[server](#) 20

E

Events
[local - server](#) 26
[timer - server](#) 26

F

[Fields - vendor extensible](#) 8
[Full WSDL](#) 29

G

[Glossary](#) 5
[Groups](#) 17
[TaskRecurrencePatternTypes Group](#) 18

I

[Implementer - security considerations](#) 28
[Index of security parameters](#) 28
[Informative references](#) 6
Initialization
[server](#) 20
[Introduction](#) 5

L

Local events
[server](#) 26

M

Message processing
[server](#) 20
Messages
[attribute groups](#) 19
[attributes](#) 17
[complex types](#) 10
[elements](#) 9
[enumerated](#) 9
[groups](#) 17
[namespaces](#) 9
[simple types](#) 15
[syntax](#) 9
[t:DailyRegeneratingPatternType Complex Type complex type](#) 14
[t:MonthlyRegeneratingPatternType Complex Type complex type](#) 14
[t:RegeneratingPatternBaseType Complex Type complex type](#) 15
[t:TaskDelegateStateType Simple Type simple type](#) 16
[t:TaskRecurrenceType Complex Type complex type](#) 10
[t:TasksFolderType Complex Type complex type](#) 10
[t:TaskStatusType Simple Type simple type](#) 17
[t:TaskType Complex Type complex type](#) 11
[t:WeeklyRegeneratingPatternType Complex Type complex type](#) 15
[t:YearlyRegeneratingPatternType Complex Type complex type](#) 15
[TaskRecurrencePatternTypes Group group](#) 18
[transport](#) 9

N

[Namespaces](#) 9
[Normative references](#) 5

O

Operations
[CopyItem Operation](#) 20
[CreateItem Operation](#) 21
[DeleteItem Operation](#) 22
[GetItem Operation](#) 23
[MoveItem Operation](#) 24
[UpdateItem Operation](#) 25
[Overview \(synopsis\)](#) 6

P

[Parameters - security index](#) 28
[Product behavior](#) 37

R

[References](#) 5
 [informative](#) 6
 [normative](#) 5
[Relationship to other protocols](#) 6

S

Security
 [implementer considerations](#) 28
 [parameter index](#) 28
Sequencing rules
 [server](#) 20
Server
 [abstract data model](#) 20
 [CopyItem Operation operation](#) 20
 [CreateItem Operation operation](#) 21
 [DeleteItem Operation operation](#) 22
 [GetItem Operation operation](#) 23
 [initialization](#) 20
 [local events](#) 26
 [message processing](#) 20
 [MoveItem Operation operation](#) 24
 [sequencing rules](#) 20
 [timer events](#) 26
 [timers](#) 20
 [UpdateItem Operation operation](#) 25
[Simple types](#) 15
 [t:TaskDelegateStateType Simple Type](#) 16
 [t:TaskStatusType Simple Type](#) 17
[Standards assignments](#) 8
Syntax
 [messages - overview](#) 9

T

[t:DailyRegeneratingPatternType Complex Type](#)
 [complex type](#) 14
[t:MonthlyRegeneratingPatternType Complex Type](#)
 [complex type](#) 14
[t:RegeneratingPatternBaseType Complex Type](#)
 [complex type](#) 15
[t:TaskDelegateStateType Simple Type](#) [simple type](#)
 16
[t:TaskRecurrenceType Complex Type](#) [complex type](#)
 10
[t:TasksFolderType Complex Type](#) [complex type](#) 10
[t:TaskStatusType Simple Type](#) [simple type](#) 17
[t:TaskType Complex Type](#) [complex type](#) 11
[t:WeeklyRegeneratingPatternType Complex Type](#)
 [complex type](#) 15
[t:YearlyRegeneratingPatternType Complex Type](#)
 [complex type](#) 15
[TaskRecurrencePatternTypes Group](#) [group](#) 18
Timer events
 [server](#) 26
Timers
 [server](#) 20
[Tracking changes](#) 38
[Transport](#) 9

Types

[complex](#) 10
[simple](#) 15

V

[Vendor extensible fields](#) 8
[Versioning](#) 7

W

[WSDL](#) 29