[MS-OXWAVLS]:
Availability Web Service Protocol

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. For a list of Microsoft trademarks, visit www.microsoft.com/trademarks.

- **Fictitious Names.** The example companies, organizations, products, domain names, email 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.

Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1	Major	Initial Availability.
04/25/2008	0.2	Minor	Revised and updated property names and other technical content.
06/27/2008	1.0	Major	Initial Release.
08/06/2008	1.0.1	Editorial	Updated references to reflect date of initial release.
09/03/2008	1.0.2	Editorial	Revised and edited technical content.
12/03/2008	1.0.3	Editorial	Revised and edited technical content.
03/04/2009	1.0.4	Editorial	Revised and edited technical content.
04/10/2009	2.0	Major	Updated technical content and applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	3.1.0	Minor	Updated the technical content.
02/10/2010	4.0.0	Major	Updated and revised the technical content.
05/05/2010	5.0.0	Major	Updated and revised the technical content.
08/04/2010	5.1	Minor	Clarified the meaning of the technical content.
11/03/2010	5.2	Minor	Clarified the meaning of the technical content.
03/18/2011	6.0	Major	Significantly changed the technical content.
08/05/2011	6.1	Minor	Clarified the meaning of the technical content.
10/07/2011	7.0	Major	Significantly changed the technical content.
01/20/2012	8.0	Major	Significantly changed the technical content.
04/27/2012	8.0	No change	No changes to the meaning, language, or formatting of the technical content.
07/16/2012	8.1	Minor	Clarified the meaning of the technical content.
10/08/2012	9.0	Major	Significantly changed the technical content.
02/11/2013	9.0	No change	No changes to the meaning, language, or formatting of the technical content.
07/26/2013	10.0	Major	Significantly changed the technical content.
11/18/2013	10.0	No change	No changes to the meaning, language, or formatting of the technical content.

Date	Revision History	Revision Class	Comments
02/10/2014	10.0	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1   Introduction

The Availability Web Service Protocol enables a client to get status information for a set of users, rooms, and resources within a specified time window.

This protocol also enables a client to get suggestions for alternate meeting times.

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

1.1   Glossary

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

> **Coordinated Universal Time (UTC)**
> **Hypertext Transfer Protocol (HTTP)**
> **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**
> **SOAP**
> **SOAP action**
> **SOAP body**
> **SOAP fault**
> **SOAP header**
> **SOAP message**
> **XML**
> **XML namespace**

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

> **calendar**
> **Calendar folder**
> **distribution list**
> **endpoint**
> **entry ID**
> **free/busy status**
> **mailbox**
> **Out of Office (OOF)**
> **Web Services Description Language (WSDL)**
> **working hours**
> **WSDL message**
> **XML schema**

The following terms are specific to this document:

> **meeting suggestions:** A possible meeting time based on the availability of the meeting attendees.

> **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 Specifications documentation 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.

[MS-OXCPERM] Microsoft Corporation, "Exchange Access and Operation Permissions Protocol".

[MS-OXOCAL] Microsoft Corporation, "Appointment and Meeting Object Protocol".

[MS-OXORMDR] Microsoft Corporation, "Reminder Settings Protocol".

[MS-OXPROPS] Microsoft Corporation, "Exchange Server Protocols Master Property List".

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

[MS-OXWSGTZ] Microsoft Corporation, "Get Server Time Zone Web Service Protocol".

[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., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/

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

1.2.2 Informative References

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

[MS-OXDSCLI] Microsoft Corporation, "Autodiscover Publishing and Lookup Protocol".

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

[MS-OXPROTO] Microsoft Corporation, "Exchange Server Protocols System Overview".

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

[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 Availability Web Service Protocol enables the retrieval of up-to-date free/busy information and **meeting suggestions** for a set of **mailboxes**. Typically, this set of mailboxes represents a meeting's attendees and resources.

1.4 Relationship to Other Protocols

A client that implements this protocol can use 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], 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 that is exchanged between the client and server. This protocol uses the XML Protocol, as described in [XMLSCHEMA1] and [XMLSCHEMA2], to describe the message content that is sent to and from the server.

Clients can contact this protocol by using SOAP over **HTTP**, as described in [RFC2616], and SOAP over **HTTPS**, as described in [RFC2818], as shown in the following layering diagram.
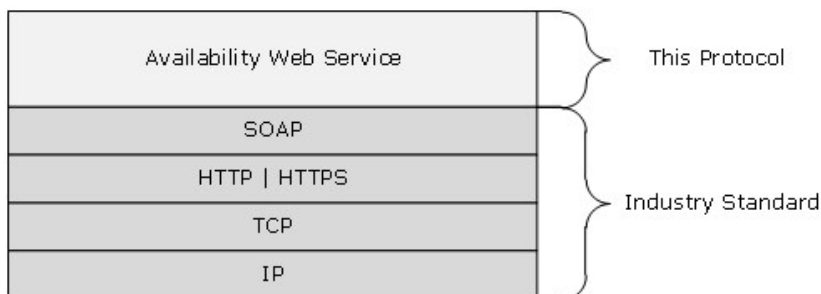
Figure 1: This protocol in relation to other protocols

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 (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

This protocol is applicable to client applications that use Web services to request calendar availability information from the server.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

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

- **Protocol Versions:** This protocol has only one **WSDL** port type version. The version of the server responding to the request is identified by using the **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 dates and times in various messages. Local time zone considerations for such dates and times are specified in section 3.1.4.1.3.19.

- **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. Protocol servers SHOULD additionally support SOAP over HTTPS for securing communications with clients, as specified in [RFC2818].

Protocol messages MUST be formatted as specified in [SOAP1.1] section 4.

2.1.1   X-ClientStatistics Header

The **X-ClientStatistics** header SHOULD<1> be sent by the client to the server to report free/busy status request statistics to the server. The following table lists the fields that are included in the **X-ClientStatistics** header.

Field name	Data format	Description
MessageID	GUID	A unique identifier for a free/busy data request.
RequstTime	ISO8601 date format	The **Coordinated Universal Time (UTC)** time when the request was sent.
ResponseTime	milliseconds	The round-trip response time for the request.
ResponseSize	kilobytes	The size of the data received.
HTTPResponseCode	HTTP response code	The HTTP response that is returned by the server.
ErrorCode	Error code	When the HTTP response is 200 (HTTP STATUS OK), additional errors can be reported for individual users.
Overflow	Integer	The number of additional errors that occurred, but the details of which are not included in the report.

Multiple reports included in the same **X-ClientStatistics** header MUST be separated by semicolons.

2.2   Common Message Syntax

The request header for this protocol SHOULD<2> contain a **MessageID** header, as specified in [SOAP1.1].

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** using the mechanisms specified in [XMLNS]. Although this specification associates a specific XML namespace prefix for each XML namespace that is used, the choice of any 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	
xs	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	
m	http://schemas.microsoft.com/exchange/services/2006/messages	

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

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

2.2.5 Simple Types

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

2.2.6 Attributes

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

2.2.7 Groups

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

2.2.8 Attribute Groups

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

3   Protocol Details

This protocol specifies a way of getting **calendar** data for a set of mailboxes, which can represent users, rooms, or resources, from a server.

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

3.1   ExchangeServicePortType Server Details

This protocol defines a single port type with one operation that enables client implementations to query a server for user availability information.

3.1.1   Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that specified in this document.

The availability information that is returned by this protocol is taken from the data store and can be generated in response to each request.

3.1.2   Timers

None.

3.1.3   Initialization

None.

3.1.4   Message Processing Events and Sequencing Rules

This protocol includes the operation listed in the following table. This operation is stateless and does not have sequencing rules.

Operation name	Description
GetUserAvailability	Provides up-to-date availability information for a set of users.

3.1.4.1   GetUserAvailability Operation

The **GetUserAvailability** operation provides current user availability information at a specified level of detail.<3>

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

```
<wsdl:operation name="GetUserAvailability">
    <wsdl:input message="tns:GetUserAvailabilitySoapIn" />
    <wsdl:output message="tns:GetUserAvailabilitySoapOut" />
```

```
        </wsdl:operation>
```

The following is the WSDL binding specification of this operation.<4>

```
    <wsdl:operation name="GetUserAvailability">
        <soap:operation soapAction="http://schemas.microsoft.com/exchange/
services/2006/messages/GetUserAvailability"/>
        <wsdl:input>
            <soap:header message="tns:GetUserAvailabilitySoapIn" part="Impersonation"
use="literal"/>
            <soap:header message="tns:GetUserAvailabilitySoapIn" part="TimeZoneContext"
use="literal"/>
            <soap:header message="tns:GetUserAvailabilitySoapIn" part="RequestVersion"
use="literal"/>
            <soap:body parts="GetUserAvailabilityRequest" use="literal"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body parts="GetUserAvailabilityResult" use="literal"/>
            <soap:header message="tns:GetUserAvailabilitySoapOut"
part="ServerVersion" use="literal"/>
        </wsdl:output>
    </wsdl:operation>
```

For a successful request, the **GetUserAvailability** operation MUST return a
GetUserAvailabilityResponse element with the **ResponseClass** attribute of the
ResponseMessage element set to "Success". The **ResponseCode** attribute of the
ResponseMessage element MUST be set to "NoError".

If one or more of the mailboxes in the **MailboxDataArray** element in the
GetUserAvailabilityRequest element is not found in the directory service, the server MUST return
a **ResponseMessage** element in the **FreeBusyResponseArray** element of the
GetUserAvailabilityResponse element with the **ResponseClass** attribute of the
ResponseMessage element set to "Error" and the **MessageText** element of the
ResponseMessage element set to "Unable to resolve email address <SMTP address> to an Active
Directory object", where <SMTP address> is replaced with the email address that cannot be
resolved.

If there are no mailboxes specified in the request, the server MUST return a **SOAP fault**. The
following XML specifies the **SOAP body** that MUST be returned.

```
    <?xml version="1.0" encoding="utf-8" ?>
    <soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <soap:Header>
    <t:ServerVersionInfo MajorVersion="8" MinorVersion="1" MajorBuildNumber="240"
    MinorBuildNumber="5" xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types" />
    </soap:Header>
    <soap:Body>
    <soap:Fault>
    <faultcode>soap:Client</faultcode>
    <faultstring>Microsoft.Exchange.InfoWorker.Common.Availability.IdentityArrayEmptyException:
    The MailboxData array is empty. ---> The MailboxData array is empty.</faultstring>
    <faultactor>https://server/ews/exchange.asmx</faultactor>
    <detail>
```

```
<ErrorCode
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">5001</ErrorCode>
</detail>
</soap:Fault>
</soap:Body>
</soap:Envelope>
```

3.1.4.1.1   Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

Message name	Description
GetUserAvailabilitySoapIn	Specifies the **SOAP message** that requests the user availability information.
GetUserAvailabilitySoapOut	Specifies the SOAP message that is returned by the server in response.

3.1.4.1.1.1   GetUserAvailabilitySoapIn Message

The **GetUserAvailabilitySoapIn** WSDL message specifies the **GetUserAvailability** operation request to return availability information.

```
<wsdl:message name="GetUserAvailabilitySoapIn">
  <wsdl:part name="GetUserAvailabilityRequest"
    element="tns:GetUserAvailabilityRequest"/>
  <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
  <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
  <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
</wsdl:message>
```

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

The parts of the **GetUserAvailabilitySoapIn** WSDL message are described in the following table.

Part name	Element/type	Description
GetUserAvailabilityRequest	**m:GetUserAvailabilityRequest** (section 3.1.4.1.2.2)	Specifies the SOAP body of the request containing the information that is required to query for availability.
Impersonation	**t:ExchangeImpersonation** ([MS-OXWSCDATA] section 2.2.3.3)	Specifies a **SOAP header** that identifies the user whom the client is impersonating.<5>
TimezoneContext	**t:TimeZoneContext** ([MS-OXWSGTZ] section 2.2.3.4)	Specifies a SOAP header that identifies the time zone to use for all responses from the server. All times that are returned from the server will be converted to the specified time zone.<6>

Part name	Element/type	Description
RequestVersion	**t:RequestServerVersion** ([MS-OXWSCDATA] section 2.2.3.9)	Specifies a SOAP header that identifies the schema version for the **GetUserAvailability** operation request.<7>

3.1.4.1.1.2 GetUserAvailabilitySoapOut Message

The **GetUserAvailabilitySoapOut** WSDL message specifies the server response to a **GetUserAvailability** operation request.

```
<wsdl:message name="GetUserAvailabilitySoapOut">
   <wsdl:part name="GetUserAvailabilityResult" element="tns:GetUserAvailabilityResponse"/>
   <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
</wsdl:message>
```

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

The parts of the **GetUserAvailabilitySoapOut** WSDL message are described in the following table.

Part name	Element/type	Description
GetUserAvailabilityResult	**t:GetUserAvailabilityResponse** (section 3.1.4.1.3.15)	Specifies the SOAP body of the response that contains the requested availability information.
ServerVersion	**t:ServerVersionInfo** ([MS-OXWSCDATA] section 2.2.3.10)	Specifies a SOAP header that identifies the server version for the response.

3.1.4.1.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

Element name	Description
FreeBusyViewOptions	Specifies the type of free/busy status information that is returned in the response.
GetUserAvailabilityRequest	Specifies the root element in a **GetUserAvailability** operation request.
GetUserAvailabilityResponse	Specifies the root element in the response from a **GetUserAvailability** operation request.
SuggestionsViewOptions	Contains the options for obtaining meeting suggestion information.
TimeZone	Specifies time-zone related information.

3.1.4.1.2.1   t:FreeBusyViewOptions Element

The **FreeBusyViewOptions** element specifies the type of **free/busy status** information that is returned in the response.

```
<xs:element name="FreeBusyViewOptions"
  type="t:FreeBusyViewOptionsType"
 />
```

3.1.4.1.2.2   m:GetUserAvailabilityRequest Element

The **GetUserAvailabilityRequest** element specifies the root element in a **GetUserAvailability** operation request.

```
<xs:element name="GetUserAvailabilityRequest"
  type="m:GetUserAvailabilityRequestType"
 />
```

3.1.4.1.2.3   m:GetUserAvailabilityResponse Element

The **GetUserAvailabilityResponse** element specifies the root element in a **GetUserAvailability** operation response.

```
<xs:element name="GetUserAvailabilityResponse"
  type="m:GetUserAvailabilityResponseType"
 />
```

3.1.4.1.2.4   t:SuggestionsViewOptions Element

The **SuggestionsViewOptions** element contains the options for obtaining meeting suggestion information.

```
<xs:element name="SuggestionsViewOptions"
  type="t:SuggestionsViewOptionsType"
 />
```

3.1.4.1.2.5   t:TimeZone Element

The **TimeZone** element specifies time zone–related information.

```
<xs:element name="TimeZone"
  type="t:SerializableTimeZone"
 />
```

3.1.4.1.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

Complex type name	Description
ArrayOfAttendeeConflictData	Specifies an array of conflict data for queried attendees while retrieving suggested meeting times.
ArrayOfCalendarEvent	Specifies an array of calendar events for the attendee.
ArrayOfFreeBusyResponse	Specifies the requested users' availability information.
ArrayOfMailboxData	Specifies a list of mailboxes to query for availability information.
ArrayOfSuggestion	Specifies an array of meeting suggestions.
ArrayOfSuggestionDayResult	Specifies an array of meeting suggestions organized by date.
ArrayOfWorkingPeriod	Specifies the working period information for a mailbox user.
AttendeeConflictData	Specifies the abstract base type used for conflict data.
CalendarEvent	Specifies an item on the calendar.
CalendarEventDetails	Specifies additional information about a calendar event.
FreeBusyResponseType	Specifies the returned response from the Availability Web Service Protocol.
FreeBusyView	Specifies the free/busy status information that is returned in the response.
FreeBusyViewOptions	Specifies the data to be returned in the response.
GetUserAvailabilityRequestType	Specifies the parameters that are used to obtain user availability information.
GetUserAvailabilityResponseType	Specifies the information that is returned in a response.
GroupAttendeeConflictData	Specifies aggregate conflict information.
IndividualAttendeeConflictData	Specifies a user's or contact's free/busy status.
MailboxData	Specifies details about an attendee.
SerializableTimeZone	Specifies elements that identify time zone information.
SerializableTimeZoneTime	Specifies the start and end dates of daylight saving time.
Suggestion	Specifies a single meeting suggestion.
SuggestionDayResult	Specifies a single day that contains suggested meeting times.
SuggestionsResponseType	Specifies the response that is returned with meeting suggestions.
SuggestionsViewOptionsType	Specifies the options for obtaining meeting suggestion information.
TooBigGroupAttendeeConflictData	Specifies an attendee that was resolved as a **distribution list**,

Complex type name	Description
	but the list was too large to expand.
UnknownAttendeeConflictData	Specifies an attendee that cannot be found or used.
WorkingHours	Specifies the time zone settings and working hours for a mailbox user.
WorkingPeriod	Specifies the work days and hours of the mailbox user.

3.1.4.1.3.1   t:ArrayOfAttendeeConflictData Complex Type

The **ArrayOfAttendeeConflictData** complex type specifies an array of conflict data for queried attendees while retrieving suggested meeting times.

```
<xs:complexType name="ArrayOfAttendeeConflictData">
  <xs:choice
    maxOccurs="unbounded"
    minOccurs="0"
  >
    <xs:element name="UnknownAttendeeConflictData"
      type="t:UnknownAttendeeConflictData"
      maxOccurs="1"
      minOccurs="1"
      nillable="true"
     />
    <xs:element name="IndividualAttendeeConflictData"
      type="t:IndividualAttendeeConflictData"
      maxOccurs="1"
      minOccurs="1"
      nillable="true"
     />
    <xs:element name="TooBigGroupAttendeeConflictData"
      type="t:TooBigGroupAttendeeConflictData"
     />
    <xs:element name="GroupAttendeeConflictData"
      type="t:GroupAttendeeConflictData"
      maxOccurs="1"
      minOccurs="1"
      nillable="true"
     />
  </xs:choice>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfAttendeeConflictData** complex type.

Element name	Type	Description
UnknownAttendeeConflictData	**t:UnknownAttendeeConflictDat a** (section 3.1.4.1.3.26)	Specifies an attendee that is not recognized (not a user, distribution list, or contact). Can be present, but the value can be null. If present, MUST only appear once. When a meeting request contains

Element name	Type	Description
		an invalid e-mail address, an **UnknownAttendeeConflictData** element MUST be present with the value null when more than one user is requested.
IndividualAttendeeConflictData	**t:IndividualAttendeeConflictData** (section 3.1.4.1.3.17)	Specifies the attendee's free/busy status for a window of time that occurs at the same time as the suggested meeting time. Can be present, but the value can be null. If present, MUST appear only once.
TooBigGroupAttendeeConflictData	**t:TooBigGroupAttendeeConflictData** (section 3.1.4.1.3.25)	Specifies an attendee that is a distribution list that exceeds the maximum group size. If the maximum group size is larger than 100, the **GroupAttendeeConflictData** element will contain only the default maximum group size members, and a **TooBigAttendeeConflictData** element will not be returned. Can be present, but the value can be null. If present, MUST appear only once. The default maximum group size is either 20 or 100.<8>
GroupAttendeeConflictData	**t:GroupAttendeeConflictData** (section 3.1.4.1.3.16)	Specifies the conflict information about the number of attendees that are available, the number of attendees that have conflicts, and the number of attendees that do not have free/busy status information in a distribution list. If the distribution list is larger than the default maximum group size, the server MUST return a **TooBigGroupAttendeeConflictData** element for the distribution list. If the maximum group size is larger than 100, the **GroupAttendeeConflictData** element will contain only the default maximum group size members, and a **TooBigAttendeeConflictData** element will not be returned. Can be present, but the value can be null. If present, MUST appear only once.

3.1.4.1.3.2   t:ArrayOfCalendarEvent Complex Type

The **ArrayOfCalendarEvent** complex type specifies an array of calendar events for the attendee.

```
<xs:complexType name="ArrayOfCalendarEvent">
  <xs:sequence>
    <xs:element name="CalendarEvent"
      type="t:CalendarEvent"
      maxOccurs="unbounded"
      minOccurs="0"
    />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfCalendarEvent** complex type.

Element name	Type	Description
CalendarEvent	**t:CalendarEvent** (section 3.1.4.1.3.9)	Specifies a unique calendar time occurance. Can be present.

3.1.4.1.3.3   m:ArrayOfFreeBusyResponse Complex Type

The **ArrayOfFreeBusyResponse** complex type contains the requested users' availability information. The order of the individual elements of this array MUST match the order of the users in the **GetUserAvailabilityRequest** element (section 3.1.4.1.2.2).

```
<xs:complexType name="ArrayOfFreeBusyResponse">
  <xs:sequence>
    <xs:element name="FreeBusyResponse"
      type="m:FreeBusyResponseType"
      maxOccurs="unbounded"
      minOccurs="0"
    />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfFreeBusyResponse** complex type.

Element name	Type	Description
FreeBusyResponse	**m:FreeBusyResponseType** (section 3.1.4.1.3.11)	Specifies the free/busy status information for a single mailbox user and the response status.

3.1.4.1.3.4   t:ArrayOfMailboxData Complex Type

The **ArrayOfMailboxData** complex type contains a list of mailboxes to query for availability information.

```
<xs:complexType name="ArrayOfMailboxData">
```

```
  <xs:sequence>
    <xs:element name="MailboxData"
      type="t:MailboxData"
      maxOccurs="unbounded"
      minOccurs="0"
      nillable="true"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfMailboxData** complex type.

Element name	Type	Description
MailboxData	**t:MailboxData** (section 3.1.4.1.3.18)	Specifies a mailbox. While the **maxOccurs** attribute is unbounded, the **GetUserAvailability** operation restricts the total number of **MailboxData** elements to 100 entries by default. Can be present, but the value can be null.

3.1.4.1.3.5   t:ArrayOfSuggestion Complex Type

The **ArrayOfSuggestion** complex type specifies an array of meeting suggestions in an Availability response.

```
<xs:complexType name="ArrayOfSuggestion">
  <xs:sequence>
    <xs:element name="Suggestion"
      type="t:Suggestion"
      maxOccurs="unbounded"
      minOccurs="0"
      nillable="true"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfSuggestion** complex type.

Element name	Type	Description
Suggestion	**t:Suggestion** (section 3.1.4.1.3.21)	Specifies a meeting suggestion. While the **maxOccurs** attribute is unbounded, the **GetUserAvailability** operation restricts the total number of **Suggestion** elements to 48 entries by default. Can be present, but the value can be null.

3.1.4.1.3.6   t:ArrayOfSuggestionDayResult Complex Type

The **ArrayOfSuggestionDayResult** complex type specifies an array of meeting suggestions organized by date.

```
<xs:complexType name="ArrayOfSuggestionDayResult">
  <xs:sequence>
    <xs:element name="SuggestionDayResult"
      type="t:SuggestionDayResult"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfSuggestionDayResult** complex type.

Element name	Type	Description
SuggestionDayResult	**t:SuggestionDayResult** (section 3.1.4.1.3.22)	Specifies zero or more **SuggestionDayResult** entities. Can be present.

3.1.4.1.3.7   t:ArrayOfWorkingPeriod Complex Type

The **ArrayOfWorkingPeriod** complex type specifies the working period information for the mailbox user.

```
<xs:complexType name="ArrayOfWorkingPeriod">
  <xs:sequence>
    <xs:element name="WorkingPeriod"
      type="t:WorkingPeriod"
      maxOccurs="unbounded"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **ArrayOfWorkingPeriod** complex type.

Element name	Type	Description
WorkingPeriod	**t:WorkingPeriod** (section 3.1.4.1.3.28)	Specifies the workweek days and hours of the mailbox user.

3.1.4.1.3.8   t:AttendeeConflictData Complex Type

The **AttendeeConflictData** complex type specifies the abstract base type that is used for the **UnknownAttendeeConflictData**, **TooBigGroupAttendeeConflictData**, **IndividualAttendeeConflictData**, and **GroupAttendeeConflictData** complex types.

```
<xs:complexType name="AttendeeConflictData"
  abstract="true"
 />
```

3.1.4.1.3.9   t:CalendarEvent Complex Type

The **CalendarEvent** complex type represents an item in the calendar.

```
<xs:complexType name="CalendarEvent">
  <xs:sequence>
    <xs:element name="StartTime"
      type="xs:dateTime"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="EndTime"
      type="xs:dateTime"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="BusyType"
      type="t:LegacyFreeBusyType"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="CalendarEventDetails"
      type="t:CalendarEventDetails"
      maxOccurs="1"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **CalendarEvent** complex type.

Element name	Type	Description
StartTime	**xs:dateTime** [XMLSCHEMA2]	Specifies the start of a calendar event. MUST be present.
EndTime	**xs:dateTime**	Specifies the end of a calendar event. MUST be present.
BusyType	**t:LegacyFreeBusyType** ([MS-OXWSCDATA] section 2.2.5.17)	Specifies the free/busy status set for the calendar event. MUST be present.
CalendarEventDetails	**t:CalendarEventDetails** (section 3.1.4.1.3.10)	Specifies additional information for a calendar event. Can be present. The level of detail provided by this element depends on the permissions granted to the requester. This element SHOULD<9> be included when the **FreeBusyViewType** element is set to "FreeBusy", "FreeBusyMerged", "Detailed", or "DetailedMerged". If no calendar items are present in the requested time window, this element can be empty.

3.1.4.1.3.10   t:CalendarEventDetails Complex Type

The **CalendarEventDetails** complex type specifies additional information about a calendar event.

```
<xs:complexType name="CalendarEventDetails">
  <xs:sequence>
    <xs:element name="ID"
      type="xs:string"
      minOccurs="0"
      maxOccurs="1"
     />
    <xs:element name="Subject"
      type="xs:string"
      minOccurs="0"
      maxOccurs="1"
     />
    <xs:element name="Location"
      type="xs:string"
      minOccurs="0"
      maxOccurs="1"
     />
    <xs:element name="IsMeeting"
      type="xs:boolean"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="IsRecurring"
      type="xs:boolean"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="IsException"
      type="xs:boolean"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="IsReminderSet"
      type="xs:boolean"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="IsPrivate"
      type="xs:boolean"
      maxOccurs="1"
      minOccurs="1"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **CalendarEventDetails** complex type.

Element name	Type	Description
ID	**xs:string** [XMLSCHEMA2]	Specifies the **entry ID** of the calendar item. Can be present.

Element name	Type	Description
Subject	**xs:string**	Specifies the subject of the calendar item. Can be present.
Location	**xs:string**	Specifies the location field of the calendar item. Can be present.
IsMeeting	**xs:boolean** [XMLSCHEMA2]	Specifies whether the calendar event is a meeting or an appointment. MUST be present and can only occur once.
IsRecurring	**xs:boolean**	Specifies whether the calendar event is an instance of a recurring calendar item or a single calendar item. MUST be present, and can only occur once.
IsException	**xs:boolean**	Specifies whether an instance of a recurring calendar item is changed from the master calendar. MUST be present, and can only occur once.
IsReminderSet	**xs:boolean**	Specifies whether a reminder has been set for the calendar event. MUST be present, and can only occur once.
IsPrivate	**xs:boolean**	Specifies whether the calendar item is private. MUST be present, and can only occur once.

The following restrictions apply to the **CalendarEventDetails** complex type:

1. All the child elements are listed in the sequence in which they occur.

2. If the **IsPrivate** element is set to "TRUE", the required elements (**IsMeeting**, **IsRecurring**, **IsException**, **IsReminderSet**, **IsPrivate**) MUST be returned and the optional elements (**ID**, **Subject**, **Location**) MUST NOT be returned. If the **IsPrivate** element is set to "FALSE", the required elements MUST be returned and the optional elements can be present.

The following table maps the information in the **CalendarEvent** complex type to properties on a calendar item, as specified in [MS-OXOCAL].

Element	Property	Flags used
ID	**PidTagEntryId** ([MS-OXPROPS] section 2.674)	N/A
Subject	**PidTagSubject** ([MS-OXPROPS] section 2.1021)	N/A
Location	**PidLidLocation** ([MS-OXOCAL] section 2.2.1.4)	N/A
IsMeeting	**PidLidAppointmentStateFlags** ([MS-OXOCAL] section 2.2.1.10)	Flag used is **asfMeeting**.
IsRecurring	**PidLidRecurring** ([MS-OXOCAL] section 2.2.1.12)	N/A
IsException	**PidLidIsException** ([MS-OXOCAL]	N/A

Element	Property	Flags used
	section 2.2.1.35)	
IsReminderSet	**PidLidReminderSet** ([MS-OXORMDR] section 2.2.1.1)	N/A
IsPrivate	**PidTagSensitivity** ([MS-OXPROPS] section 2.999)	If the **PidTagSensitivity** property is set to **SENSITIVITY_PRIVATE**, the **IsPrivate** element returns "TRUE".

3.1.4.1.3.11   m:FreeBusyResponseType Complex Type

The **FreeBusyResponseType** complex type specifies the returned response from the service.

```
<xs:complexType name="FreeBusyResponseType">
  <xs:sequence>
    <xs:element name="ResponseMessage"
      type="m:ResponseMessageType"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="FreeBusyView"
      type="t:FreeBusyView"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **FreeBusyResponseType** complex type.

Element name	Type	Description
ResponseMessage	**m:ResponseMessageType** ([MS-OXWSCDATA] section 2.2.4.57)	Specifies descriptive information about the response status. Can be present.
FreeBusyView	**t:FreeBusyView** (section 3.1.4.1.3.12)	Specifies availability information for a specific user. Can be present.

3.1.4.1.3.12   t:FreeBusyView Complex Type

The **FreeBusyView** complex type specifies the free/busy status information that is returned in the response.

```
<xs:complexType name="FreeBusyView">
  <xs:sequence>
    <xs:element name="FreeBusyViewType"
      type="t:FreeBusyViewType"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="MergedFreeBusy"
      type="xs:string"
```

```
        maxOccurs="1"
        minOccurs="0"
     />
   <xs:element name="CalendarEventArray"
      type="t:ArrayOfCalendarEvent"
        maxOccurs="1"
        minOccurs="0"
     />
   <xs:element name="WorkingHours"
      type="t:WorkingHours"
        maxOccurs="1"
        minOccurs="0"
     />
   </xs:sequence>
 </xs:complexType>
```

The following table lists the child elements of the **FreeBusyView** complex type.

Element name	Type	Description
FreeBusyViewType	**t:FreeBusyViewType** (section 3.1.4.1.3.12)	Specifies the type of the free/busy status information that is returned in the response. MUST be present.
MergedFreeBusy	**xs:string** [XMLSCHEMA2]	Specifies the Merged Free/Busy information. Can be present but MUST be present if there is free/busy information in the response and one of the following was specified in the **RequestedView** element of the request: ▪ MergedOnly ▪ FreeBusyMerged ▪ DetailedMerged
CalendarEventArray	**t:ArrayOfCalendarEvent** (section 3.1.4.1.3.2)	Specifies the array of calendar appointments in the mailbox. Can be present, but MUST be present if there is free/busy status information in the response and one of the following was specified in the **RequestedView** element of the request: ▪ FreeBusy ▪ FreeBusyMerged ▪ DetailedMerged
WorkingHours	**t:WorkingHours** (section 3.1.4.1.3.27)	Specifies the time zone settings and **working hours** for the requested mailbox user. Can be present.

3.1.4.1.3.13   t:FreeBusyViewOptionsType Complex Type

The **FreeBusyViewOptionsType** complex type indicates what data is to be returned in the response.

```
<xs:complexType name="FreeBusyViewOptionsType">
  <xs:sequence>
    <xs:element name="TimeWindow"
      type="t:Duration"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="MergedFreeBusyIntervalInMinutes"
      type="xs:int"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="RequestedView"
      type="t:FreeBusyViewType"
      maxOccurs="1"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **FreeBusyViewOptionsType** complex type.

Element name	Type	Description
TimeWindow	**t:Duration** ([MS-OXWSCDATA] section 2.2.4.24)	Specifies the time span for the queried user's availability. MUST occur once. Maximum time period is 42 or 62 days.<10>
MergedFreeBusyIntervalInMinutes	**xs:int** [XMLSCHEMA2]	Specifies the time difference between two successive slots in the Merged Free/Busy view. Can be present. Minimum value = 5, Maximum value = 1440 (represents a day). Default is 30.
RequestedView	**t:FreeBusyViewType** (section 3.1.4.1.3.12)	Specifies the type of calendar information that a client requests. Can be present, but if it is present it MUST be a string with one of the following values: ▪ MergedOnly ▪ FreeBusy ▪ FreeBusyMerged

Release: February 10, 2014

Element name	Type	Description
		▪ Detailed
		▪ DetailedMerged
		MUST NOT be a string with a value of "None".

3.1.4.1.3.14 m:GetUserAvailabilityRequestType Complex Type

The **GetUserAvailabilityRequestType** complex type specifies the arguments that are used to obtain user availability information.

```
<xs:complexType name="GetUserAvailabilityRequestType">
  <xs:complexContent
    mixed="false"
  >
    <xs:extension
      base="m:BaseRequestType"
    >
      <xs:sequence>
        <xs:element
          ref="t:TimeZone"
         />
        <xs:element name="MailboxDataArray"
          type="t:ArrayOfMailboxData"
         />
        <xs:element
          maxOccurs="1"
          minOccurs="0"
          ref="t:FreeBusyViewOptions"
         />
        <xs:element
          maxOccurs="1"
          minOccurs="0"
          ref="t:SuggestionsViewOptions"
         />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child elements of the **GetUserAvailabilityRequestType** complex type.

Element name	Type	Description
TimeZone	**t:TimeZone** (section 3.1.4.1.2.5)	Specifies elements that identify time zone information. This element also contains information about the transition between standard time and daylight saving time. All times that are returned in the **GetUserAvailability** operation response will be in this time zone.

Element name	Type	Description
		MUST be present.
MailboxDataArray	**t:ArrayOfMailboxData** (section 3.1.4.1.3.4)	Specifies a list of mailboxes to query for availability information. MUST be present.
FreeBusyViewOptions	**t:FreeBusyViewOptions** (section 3.1.4.1.2.1)	Specifies the type of free/busy status information that is returned in the response. Can be present.
SuggestionsViewOptions	**t:SuggestionsViewOptions** (section 3.1.4.1.2.4)	Specifies the options that obtain meeting suggestion information. Can be present.

3.1.4.1.3.15   m:GetUserAvailabilityResponseType Complex Type

The **GetUserAvailabilityResponseType** complex type specifies which information is returned in a **GetUserAvailability** operation response.

```
<xs:complexType name="GetUserAvailabilityResponseType">
  <xs:sequence>
    <xs:element name="FreeBusyResponseArray"
      type="m:ArrayOfFreeBusyResponse"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="SuggestionResponse"
      type="m:SuggestionsResponseType"
      maxOccurs="1"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **GetUserAvailabilityResponseType** complex type.

Element name	Type	Description
FreeBusyResponseArray	**m:ArrayOfFreeBusyRessponse** (section 3.1.4.1.3.3)	Specifies the requested user's availability information and the response status. Can be present. MUST be present if the **FreeBusyViewOptions** element is present in the request.
SuggestionResponse	**m:SuggestionsResponseType** (section 3.1.4.1.3.23)	Specifies the suggested data for requested meeting suggestions. Can be present. MUST be present if the **SuggestionsViewOptions** element is present in the request.

3.1.4.1.3.16   t:GroupAttendeeConflictData Complex Type

The **GroupAttendeeConflictData** complex type specifies aggregate conflict information about the number of users who are available, the number of users who have conflicts, and the number of users who do not have availability information in a distribution list for a suggested meeting time.

```xml
<xs:complexType name="GroupAttendeeConflictData">
  <xs:complexContent
    mixed="false"
  >
    <xs:extension
      base="t:AttendeeConflictData"
    >
      <xs:sequence>
        <xs:element name="NumberOfMembers"
          type="xs:int"
          maxOccurs="1"
          minOccurs="1"
        />
        <xs:element name="NumberOfMembersAvailable"
          type="xs:int"
          maxOccurs="1"
          minOccurs="1"
        />
        <xs:element name="NumberOfMembersWithConflict"
          type="xs:int"
          maxOccurs="1"
          minOccurs="1"
        />
        <xs:element name="NumberOfMembersWithNoData"
          type="xs:int"
          maxOccurs="1"
          minOccurs="1"
        />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child elements of the **GroupAttendeeConflictData** complex type.

Element name	Type	Description
NumberOfMembers	**xs:int** [XMLSCHEMA2]	Specifies the number of attendees in the distribution list. If the number of members in the distribution list exceeds 100, the **GroupAttendeeConflictData** element will only return information for the first 100 members. The value of the **NumberOfMembersAvailable**, **NumberOfMembersWithConflict**, and **NumberOfMembersWithNoData** elements MUST equal the value of this element. MUST be present.
NumberOfMembersAvailable	**xs:int**	Specifies the number of attendees who are

Element name	Type	Description
		available.
		MUST be present. The maximum value is 100.
NumberOfMembersWithConflict	**xs:int**	Specifies the number of attendees who have conflicts.
		MUST be present. The maximum value is 100.
NumberOfMembersWithNoData	**xs:int**	Specifies the number of attendees for which data could not be retrieved.
		MUST be present. The maximum value is 100.

3.1.4.1.3.17   t:IndividualAttendeeConflictData Complex Type

The **IndividualAttendeeConflictData** complex type specifies a user's or contact's free/busy status for a time window that occurs at the same time as the suggested meeting time that is identified in the **Suggestion** element.

```
<xs:complexType name="IndividualAttendeeConflictData">
  <xs:complexContent
    mixed="false"
  >
    <xs:extension
      base="t:AttendeeConflictData"
    >
      <xs:sequence>
        <xs:element name="BusyType"
          type="t:LegacyFreeBusyType"
          maxOccurs="1"
          minOccurs="1"
         />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

The following table lists the child elements of the **IndividualAttendeeConflictData** complex type.

Element name	Type	Description
BusyType	**t:LegacyFreeBusyType** ([MS-OXWSCDATA] section 2.2.2.15)	Specifies the free/busy status of an attendee for a suggested meeting time. MUST be present.

3.1.4.1.3.18   t:MailboxData Complex Type

The **MailboxData** complex type specifies details about an attendee.

```
<xs:complexType name="MailxboxData">
  <xs:sequence>
    <xs:element name="Email"
      type="t:EmailAddress"
```

```
             maxOccurs="1"
             minOccurs="1"
          />
        <xs:element name="AttendeeType"
          type="t:MeetingAttendeeType"
          maxOccurs="1"
          minOccurs="1"
         />
        <xs:element name="ExcludeConflicts"
          type="xs:boolean"
          maxOccurs="1"
          minOccurs="0"
         />
      </xs:sequence>
   </xs:complexType>
```

The following table lists the child elements of the **MailboxData** complex type.

Element name	Type	Description
Email	**t:EmailAddress** ([MS-OXWSCDATA] section 2.2.4.26)	Specifies an attendee. MUST be present.
AttendeeType	**t:MeetingAttendeeType** (section 3.1.4.1.4.2)	Specifies the type of attendee identified in the **Email** element. This element is used in requests for meeting suggestions. MUST be present.
ExcludeConflicts	**xs:boolean** [XMLSCHEMA2]	Specifies whether to return suggested times for calendar times that conflict among the attendees. This is used to calculate meeting suggestions. Can be present.

3.1.4.1.3.19   t:SerializableTimeZone Complex Type

The **SerializableTimeZone** complex type contains elements that identify time zone information. This element also contains information about the transition between standard time and daylight saving time. The **TimeZone** element in the **GetUserAvailabilityRequest** WSDL message represents the time zone in which the **DateTime** values in the request are specified. The **DateTime** values that are returned by this protocol are also in this time zone. The exception is that working hours in a response are returned in the time zone of the attendee.

```
  <xs:complexType name="SerializableTimeZone">
    <xs:sequence>
      <xs:element name="Bias"
        type="xs:int"
        maxOccurs="1"
        minOccurs="1"
       />
      <xs:element name="StandardTime"
        type="t:SerializableTimeZoneTime"
        maxOccurs="1"
        minOccurs="1"
```

```
    />
    <xs:element name="DaylightTime"
      type="t:SerializableTimeZoneTime"
      maxOccurs="1"
      minOccurs="1"
      />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **SerializableTimeZone** complex type.

Element name	Type	Description
Bias	**xs:int** [XMLSCHEMA2]	Represents the offset from **UTC** for standard and daylight saving time. This value is in minutes. Values can range from -1440 to 1440. MUST be present, and can occur only once.
StandardTime	**t:SerializableTimeZoneTime** (section 3.1.4.1.3.20)	Represents an offset from the time relative to UTC that is represented by the **Bias** element. This element also contains information about the transition to standard time from daylight saving time in countries/regions where daylight saving time is observed. MUST be present.
DaylightTime	**t:SerializableTimeZoneTime** (section 3.1.4.1.3.20)	Represents an offset from the time relative to UTC that is represented by the **Bias** element in countries/regions where daylight saving time is observed. This element also contains information about when the transition to daylight saving time from standard time occurs. MUST be present.

3.1.4.1.3.20   t:SerializableTimeZoneTime Complex Type

The **SerializableTimeZoneTime** complex type specifies a time and a time zone for a meeting suggestion.

```
<xs:complexType name="SerializableTimeZoneTime">
  <xs:sequence>
    <xs:element name="Bias"
      type="xs:int"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="Time"
      type="xs:string"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="DayOrder"
      type="xs:short"
      maxOccurs="1"
```

```
      minOccurs="1"
    />
   <xs:element name="Month"
     type="xs:short"
     maxOccurs="1"
     minOccurs="1"
    />
   <xs:element name="DayOfWeek"
     type="t:DayOfWeekType"
     maxOccurs="1"
     minOccurs="1"
    />
   <xs:element name="Year"
     type="xs:string"
     maxOccurs="1"
     minOccurs="1"
    />
  </xs:sequence>
 </xs:complexType>
```

The following table lists the child elements of the **SerializableTimeZoneTime** complex type.

Element name	Type	Description
Bias	**xs:int** [XMLSCHEMA2]	Represents the offset from UTC for standard and daylight saving time. This value is in minutes. Values can range from -1440 to 1440. MUST be present, and can only occur once.
Time	**xs:string** [XMLSCHEMA2]	Represents the transition of the time of day to and from standard time and daylight saving time. MUST be present, and can only occur once. Format: *hh:mm:ss* *hh*: hours ranging from 0 to 23. *mm*: minutes ranging from 0 to 59. *ss*: seconds ranging from 0 to 59.
DayOrder	**xs:short** [XMLSCHEMA2]	For relative time zones, represents the nth occurrence of the day that is specified in the **DayOfWeek** element that represents the date of transition from and to standard time and daylight saving time. For dynamic time zones, this represents the actual day of the month. MUST be present and can only occur once. Valid values for time zones with transitions are between 1-5 or 1-31. For time zones that do not have transitions, 0 (zero) SHOULD be used.
Month	**xs:short**	Represents the transition month of the year to and from standard time and daylight saving time. MUST be present and can occur only once.

Element name	Type	Description
		Valid values for time zones that have transitions: 1-12, where 1 represents January and 12 represents December.
		For time zones that do not have transitions, 0 (zero) SHOULD be used.
DayOfWeek	t:DayOfWeekType ([MS-OXWSCDATA] section 2.2.5.5)	Represents the day of the week when the transition to and from standard time and daylight saving time occurs.
		The **DayOfWeek** element MUST NOT contain the "Day", "WeekDay", or "WeekendDay" values specified in the **t:DayOfWeekType** simple type.
		MUST be present, and can only occur once.
Year	xs:string	Defines a time zone that changes, depending on the year.
		MUST be present and can occur only once.
		Minimum: 1601
		Maximum: 4500

When the **Year** element is present in the **SerializableTimeZoneTime** complex type (for dynamic time zones), the value of the **DayOrder** element MUST be between 1 and 31. When the **Year** element is not present (for relative time zones), the value of the **DayOrder** element MUST be between 1 and 5, where 1 represents the Sunday of the first week of the month and 5 represents the Sunday of the last week of the month.

3.1.4.1.3.21   t:Suggestion Complex Type

The **Suggestion** complex type specifies a single meeting suggestion in a **GetUserAvailability** operation response.

```
<xs:complexType name="Suggestion">
  <xs:sequence>
    <xs:element name="MeetingTime"
      type="xs:dateTime"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="IsWorkTime"
      type="xs:boolean"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="SuggestionQuality"
      type="t:SuggestionQuality"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="AttendeeConflictDataArray"
      type="t:ArrayOfAttendeeConflictData"
      maxOccurs="1"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **Suggestion** complex type.

Element name	Type	Description
MeetingTime	xs:dateTime [XMLSCHEMA2]	Represents a suggested meeting time. MUST be present.
IsWorkTime	xs:boolean [XMLSCHEMA2]	Represents whether the suggested meeting time occurs during the scheduled working hours of the organizer. MUST be present.
SuggestionQuality	t:SuggestionQuality (section 3.1.4.1.4.3)	Represents the quality of the suggested meeting time. SHOULD<11> be present.
AttendeeConflictDataArray	t:ArrayOfAttendeeConflictData (section 3.1.4.1.3.1)	Contains an array of conflicts between attendees and the suggested meeting time. Can be present.

3.1.4.1.3.22   t:SuggestionDayResult Complex Type

The **SuggestionDayResult** complex type specifies a single day that contains suggested meeting times in a **GetUserAvailability** operation response.

```
<xs:complexType name="SuggestionDayResult">
  <xs:sequence>
    <xs:element name="Date"
      type="xs:dateTime"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="DayQuality"
      type="t:SuggestionQuality"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="SuggestionArray"
      type="t:ArrayOfSuggestion"
      maxOccurs="1"
      minOccurs="0"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **SuggestionDayResult** complex type.

Element name	Type	Description
Date	xs:dateTime [XMLSCHEMA2]	Specifies the date that contains the suggested meeting times. MUST be present.

Element name	Type	Description
DayQuality	**t:SuggestionQuality** (section 3.1.4.1.4.3)	Specifies the quality of the best suggestion for the day. MUST be present.
SuggestionArray	**t:ArrayOfSuggestion** (section 3.1.4.1.3.5)	Contains an array of meeting suggestions. SHOULD<12> be present.

3.1.4.1.3.23   m:SuggestionsResponseType Complex Type

The **SuggestionsResponseType** complex type specifies the response that is returned from the service for meeting suggestions.

```
<xs:complexType name="SuggestionsResponseType">
  <xs:sequence>
    <xs:element name="ResponseMessage"
      type="m:ResponseMessageType"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="SuggestionDayResultArray"
      type="t:ArrayOfSuggestionDayResult"
      minOccurs="0"
      maxOccurs="1"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **SuggestionsResponseType** complex type.

Element name	Type	Description
ResponseMessage	**m:ResponseMessageType** ([MS-OXWSCDATA] section 2.2.4.57)	Provides descriptive information about the response status. Can be present.
SuggestionDayResultArray	**t:ArrayOfSuggestionDayResult** (section 3.1.4.1.3.6)	Contains an array of meeting suggestions organized by date. Can be present.

3.1.4.1.3.24   t:SuggestionsViewOptionsType Complex Type

The **SuggestionsViewOptionsType** complex type specifies the options for obtaining meeting suggestion information.

```
<xs:complexType name="SuggestionsViewOptionsType">
  <xs:sequence>
    <xs:element name="GoodThreshold"
      type="xs:int"
      maxOccurs="1"
```

Release: February 10, 2014

```
      minOccurs="0"
     />
    <xs:element name="MaximumResultsByDay"
      type="xs:int"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="MaximumNonWorkHourResultsByDay"
      type="xs:int"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="MeetingDurationInMinutes"
      type="xs:int"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="MinimumSuggestionQuality"
      type="t:SuggestionQuality"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="DetailedSuggestionsWindow"
      type="t:Duration"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="CurrentMeetingTime"
      type="xs:dateTime"
      maxOccurs="1"
      minOccurs="0"
     />
    <xs:element name="GlobalObjectId"
      type="xs:string"
      maxOccurs="1"
      minOccurs="0"
     />
   </xs:sequence>
 </xs:complexType>
```

The following table lists the child elements of the **SuggestionsViewOptionsType** complex type.

Element name	Type	Description
GoodThreshold	xs:int [XMLSCHEMA2]	Determines whether the suggestion is considered Good or Fair. The suggested meeting time is considered Excellent if there are no conflicts. The suggested meeting time is considered Poor if the percentage of conflicts is greater than 50 percent. The suggested meeting time is considered Good if the percentage of conflicts is less than the **GoodThreshold** element value. The suggested meeting time is considered Fair if the percentage

Element name	Type	Description
		of conflicts is greater than the **GoodThreshold** element value, but less than or equal to 50 percent. Can be present. If present, the value MUST be an integer >= 1 and <= 49. The default value is 25.
MaximumResultsByDay	**xs:int**	Specifies the number of suggested meeting times per day that are returned in the response. Can be present. If present, MUST be an integer <= 48. If the value is <= 0, MUST return an empty **SuggestionArray** element in the response. The default value is 24.
MaximumNonWorkHourResultsByDay	**xs:int**	Specifies the number of suggested results for meeting times outside the regular working hours of the organizer per day. Can be present; if present, MUST be an integer >= 1 and <= 48. The default value is 0 (zero).
MeetingDurationInMinutes	**xs:int**	Specifies the length in minutes of the meeting to be suggested. Can be present. If present, MUST be an int >= 1 and <= 1440. The default value is 30.
MinimumSuggestionQuality	**t:SuggestionQuality** (section 3.1.4.1.4.3)	Specifies the minimum quality of meeting suggestions that are to be returned in the response. Can be present. The default value is "Fair".
DetailedSuggestionsWindow	**t:Duration** ([MS-OXWSCDATA] section 2.2.4.24)	Specifies the time span that is queried for detailed information about suggested meeting times. Though the element is specified as minOccurs = 0, the **DetailedSuggestionsWindow** element MUST be present. **StartTime** and **EndTime** fields have dates only and no time information present in the **DateTime** element.
CurrentMeetingTime	**xs:dateTime** [XMLSCHEMA2]	Represents the start time of a meeting that you want to update with the suggested meeting time results. Can be present.

Element name	Type	Description
GlobalObjectId	xs:string [XMLSCHEMA2]	Represents the global object ID (the **PidLidGlobalObjectId** property, as specified in [MS-OXOCAL] section 2.2.1.27) of the calendar item that is to be ignored while calculating suggestions. Can be present.

3.1.4.1.3.25   t:TooBigGroupAttendeeConflictData Complex Type

The **TooBigGroupAttendeeConflictData** complex type specifies an attendee that was resolved as a distribution list, but the distribution list was too large to expand.

```
<xs:complexType name="TooBigGroupAttendeeConflictData">
  <xs:complexContent
    mixed="false"
  >
    <xs:extension
      base="t:AttendeeConflictData"
    />
  </xs:complexContent>
</xs:complexType>
```

The **TooBigGroupAttendeeConflictData** complex type extends the **AttendeeConflictData** complex type, as specified in section 3.1.4.1.3.8.

3.1.4.1.3.26   t:UnknownAttendeeConflictData Complex Type

The **UnknownAttendeeConflictData** complex type specifies that an attendee cannot be found in the directory, or that the attendee is not a user, distribution list, or contact to be used in a suggested meeting time response.

```
<xs:complexType name="UnknownAttendeeConflictData">
  <xs:complexContent
    mixed="false"
  >
    <xs:extension
      base="t:AttendeeConflictData"
    />
  </xs:complexContent>
</xs:complexType>
```

The **UnknownAttendeeConflictData** complex type extends the **AttendeeConflictData** complex type, as specified in section 3.1.4.1.3.8.

3.1.4.1.3.27   t:WorkingHours Complex Type

The **WorkingHours** complex type specifies the time zone settings and working hours for the requested mailbox user.

```
<xs:complexType name="WorkingHours">
  <xs:sequence>
    <xs:element name="TimeZone"
      type="t:SerializableTimeZone"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="WorkingPeriodArray"
      type="t:ArrayOfWorkingPeriod"
      maxOccurs="1"
      minOccurs="1"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **WorkingHours** complex type.

Element name	Type	Description
TimeZone	**t:SerializableTimeZone** (section 3.1.4.1.3.19)	Contains information that identifies the time zone information. MUST be present.
WorkingPeriodArray	**t:ArrayOfWorkingPeriod** (section 3.1.4.1.3.7)	Contains working period information for the mailbox user. MUST be present.

3.1.4.1.3.28   t:WorkingPeriod Complex Type

The **WorkingPeriod** complex type contains the work week days and hours of the mailbox user.

```
<xs:complexType name="WorkingPeriod">
  <xs:sequence>
    <xs:element name="DayOfWeek"
      type="t:DaysOfWeekType"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="StartTimeInMinutes"
      type="xs:int"
      maxOccurs="1"
      minOccurs="1"
     />
    <xs:element name="EndTimeInMinutes"
      type="xs:int"
      maxOccurs="1"
      minOccurs="1"
     />
  </xs:sequence>
</xs:complexType>
```

The following table lists the child elements of the **WorkingPeriod** complex type.

Element name	Type	Description
DayOfWeek	**t:DaysOfWeekType** ([MS-OXWSCDATA] section 2.2.5.6)	Contains the list of working days that are scheduled for the mailbox user. MUST be present.
StartTimeInMinutes	**xs:int** [XMLSCHEMA2]	Represents the start of the working day for a mailbox user. Minutes are counted starting from 12 A.M. MUST be present.
EndTimeInMinutes	**xs:int**	Represents the end of the working day for a mailbox user. Minutes are counted starting from 12 A.M. MUST be present.

3.1.4.1.4 Simple Types

The following table summarizes the XML schema simple type definitions that are specific to this operation.

Simple type name	Description
FreeBusyViewType	Identifies the type of free/busy status view information in the request to or response from the Availability Web service.
MeetingAttendeeType	Designates an attendee's role in the meeting.
SugestionQuality	Specifies the quality level of the suggested meeting time.

3.1.4.1.4.1 t:FreeBusyViewType Simple Type

The **FreeBusyViewType** simple type specifies the type of requested free/busy status information that is returned in a response when it occurs as an instance in the context of a **RequestedView** element. This simple type specifies the type of free/busy status information that is actually returned in a response when it occurs as an instance in the context of a **FreeBusyView** element.

```
<xs:simpleType name="FreeBusyViewType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="None"
     />
    <xs:enumeration
      value="MergedOnly"
     />
    <xs:enumeration
      value="FreeBusy"
     />
    <xs:enumeration
     value="FreeBusyMerged"
     />
    <xs:enumeration
      value="Detailed"
     />
    <xs:enumeration
      value="DetailedMerged"
     />
```

```
      </xs:restriction>
    </xs:simpleType>
```

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

Value	Meaning
None	Specifies that no free/busy status information is returned. This value is not valid for requests. This value is valid for responses.
MergedOnly	Specifies that merged free/busy status information is requested or returned.
FreeBusy	Specifies that the response contains status information: Free, Busy, Tentative, and **OOF**. This also includes the start/end times of the appointments.
FreeBusyMerged	Specifies that the response contains all the properties in specified by the "FreeBusy" value with merged free/busy status information.
Detailed	Specifies that the response contains status information: Free, Busy, Tentative, and OOF; the start/end times of the appointments; and various properties of the appointment such as subject, location, and importance. This requested view will return the maximum amount of information for which the requesting user is privileged.
DetailedMerged	Specifies that the response contains all the properties in the "Detailed" value with merged free/busy status information. This requested view will return the maximum amount of information for which the requesting user is privileged along with merged free/busy status information.

Merged Free/Busy is a string representation of the **Calendar folder** for the requested duration. The "MergedFreeBusyInterval" value that is specified in the request is used to break up the requested duration into separate blocks, the size for which is equal to the "MergedFreeBusyInterval" value. The blocks contain a number that represents the free/busy status of the calendar.

Number	Free/busy status
0	Free
1	Tentative
2	Busy
3	OOF
4	No data (indicates that the requester does not have permissions to view free/busy data)

If the block has overlapping appointments, the following precedence order is used (from high to low): OOF, Busy, Tentative, Free.

The mailbox owner can grant users specific free/busy status view permissions. This can be done by setting the free/busy status permissions on the Calendar folder, as specified in [MS-OXOCAL].<13>

3.1.4.1.4.2 t:MeetingAttendeeType Simple Type

The **MeetingAttendeeType** simple type provides the **AttendeeType** element values that designate a meeting attendee's role in the **MailboxData** complex type.

```
<xs:simpleType name="MeetingAttendeeType">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Organizer"
     />
    <xs:enumeration
      value="Required"
     />
    <xs:enumeration
      value="Optional"
     />
    <xs:enumeration
      value="Room"
     />
    <xs:enumeration
      value="Resource"
     />
  </xs:restriction>
</xs:simpleType>
```

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

Value	Meaning
Organizer	Attendee is the organizer of the meeting.
Required	Required attendee of the meeting.
Optional	Optional attendee of the meeting.
Room	A room resource that is used for the meeting.
Resource	A resource such as a TV or project or that is scheduled for use in the meeting.

3.1.4.1.4.3   t:SuggestionQuality Simple Type

The **SuggestionQuality** simple type specifies the quality level of the suggestion time.

```
<xs:simpleType name="SuggestionQuality">
  <xs:restriction
    base="xs:string"
  >
    <xs:enumeration
      value="Excellent"
     />
    <xs:enumeration
      value="Good"
     />
    <xs:enumeration
      value="Fair"
     />
    <xs:enumeration
      value="Poor"
     />
```

```
      </xs:restriction>
   </xs:simpleType>
```

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

Value	Meaning
Excellent	Request: Caller requests suggestions for times where there are no conflicts. Response: Indicates that 0 percent of the attendees have a conflict for the suggested meeting time.
Good	Request: Caller requests suggestions for times where the percentage of conflicts is equal to or less than the **GoodThreshold** element value. Response: Indicates that the suggested meeting time has a conflict percentage that is equal to or lower than the **GoodThreshold** element value.
Fair	Request: Percentage of conflicts is between the **GoodThreshold** element value and 50 percent.
Poor	Percentage of conflicts is greater than or equal to 50 percent.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

4   Protocol Examples

4.1   GetUserAvailability Request

The following example shows how to get detailed availability information for two users in the Pacific Time zone. One user has been given free/busy status permissions, and the other user's mailbox is on a computer that does not use this protocol to provide free/busy status information.

Working hours for both users are Monday – Friday, 0800 to 1700.

```
POST /ews/exchange.asmx HTTP/1.1
X-Nego-Capability: Negotiate, Kerberos, NTLM
X-ClientStatistics: MessageId=[unique message identifier],RequestTime=2009-12-
08T00:09:00Z,ResponseTime=179,ResponseSize=13,HttpResponseCode=200
Depth: 0
Content-Type: text/xml; charset=utf-8
User-Agent: [user agent string]
Host: [DNS name]
Content-Length: 1608
Connection: Keep-Alive
Cache-Control: no-cache
Pragma: no-cache
Authorization: Negotiate [Certificate thumbprint]
Depth: 0
Content-Type: text/xml; charset=utf-8

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header>
    <wsa:MessageID xmlns:wsa="http://www.w3.org/2005/08/addressing/">
      [unique message identifier]
    </wsa:MessageID>
  </soap:Header>
  <soap:Body>
    <GetUserAvailabilityRequest
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <TimeZone xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
        <Bias>480</Bias>
        <StandardTime>
          <Bias>0</Bias>
          <Time>02:00:00</Time>
          <DayOrder>5</DayOrder>
          <Month>10</Month>
          <DayOfWeek>Sunday</DayOfWeek>
        </StandardTime>
        <DaylightTime>
          <Bias>-60</Bias>
          <Time>02:00:00</Time>
          <DayOrder>1</DayOrder>
          <Month>4</Month>
          <DayOfWeek>Sunday</DayOfWeek>
        </DaylightTime>
      </TimeZone>
      <MailboxDataArray>
        <MailboxData xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
          <Email>
```

```
              <Name></Name>
              <Address>user1@example.com</Address>
              <RoutingType>SMTP</RoutingType>
            </Email>
            <AttendeeType>Required</AttendeeType>
            <ExcludeConflicts>false</ExcludeConflicts>
          </MailboxData>
          <MailboxData xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
            <Email>
              <Name></Name>
              <Address>user2@example.com</Address>
              <RoutingType>SMTP</RoutingType>
            </Email>
            <AttendeeType>Required</AttendeeType>
            <ExcludeConflicts>false</ExcludeConflicts>
          </MailboxData>
        </MailboxDataArray>
        <FreeBusyViewOptions xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
          <TimeWindow>
            <StartTime>2008-01-20T00:00:00</StartTime>
            <EndTime>2008-01-21T00:00:00</EndTime>
          </TimeWindow>
          <MergedFreeBusyIntervalInMinutes>30</MergedFreeBusyIntervalInMinutes>
          <RequestedView>Detailed</RequestedView>
        </FreeBusyViewOptions>
      </GetUserAvailabilityRequest>
    </soap:Body>
  </soap:Envelope>
```

4.2 GetUserAvailability Response

The following is an example of a successful response from this protocol.

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Header>
    <t:ServerVersionInfo MajorVersion="8" MinorVersion="1" MajorBuildNumber="240"
MinorBuildNumber="5" xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types" />
  </soap:Header>
  <soap:Body>
    <GetUserAvailabilityResponse
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <FreeBusyResponseArray>
        <FreeBusyResponse>
          <ResponseMessage ResponseClass="Success">
            <ResponseCode>NoError</ResponseCode>
          </ResponseMessage>
          <FreeBusyView>
            <FreeBusyViewType
xmlns="http://schemas.microsoft.com/exchange/services/2006/types">FreeBusy</FreeBusyViewType>
            <CalendarEventArray
xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
              <CalendarEvent>
                <StartTime>2008-01-21T11:30:00</StartTime>
                <EndTime>2008-01-21T14:00:00</EndTime>
                <BusyType>Tentative</BusyType>
```

```xml
        </CalendarEvent>
        <CalendarEvent>
          <StartTime>2008-01-21T13:00:00</StartTime>
          <EndTime>2008-01-21T14:00:00</EndTime>
          <BusyType>Tentative</BusyType>
        </CalendarEvent>
      </CalendarEventArray>
      <WorkingHours xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
        <TimeZone>
          <Bias>480</Bias>
          <StandardTime>
            <Bias>0</Bias>
            <Time>02:00:00</Time>
            <DayOrder>1</DayOrder>
            <Month>11</Month>
            <DayOfWeek>Sunday</DayOfWeek>
          </StandardTime>
          <DaylightTime>
            <Bias>-60</Bias>
            <Time>02:00:00</Time>
            <DayOrder>2</DayOrder>
            <Month>3</Month>
            <DayOfWeek>Sunday</DayOfWeek>
          </DaylightTime>
        </TimeZone>
        <WorkingPeriodArray>
          <WorkingPeriod>
            <DayOfWeek>Monday Tuesday Wednesday Thursday Friday</DayOfWeek>
            <StartTimeInMinutes>480</StartTimeInMinutes>
            <EndTimeInMinutes>1020</EndTimeInMinutes>
          </WorkingPeriod>
        </WorkingPeriodArray>
      </WorkingHours>
    </FreeBusyView>
  </FreeBusyResponse>
  <FreeBusyResponse>
    <ResponseMessage ResponseClass="Success">
      <ResponseCode>NoError</ResponseCode>
    </ResponseMessage>
    <FreeBusyView>
      <FreeBusyViewType
xmlns="http://schemas.microsoft.com/exchange/services/2006/types">Detailed</FreeBusyViewType>
      <CalendarEventArray
xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
        <CalendarEvent>
          <StartTime>2008-01-21T08:00:00</StartTime>
          <EndTime>2008-01-21T09:00:00</EndTime>
          <BusyType>Tentative</BusyType>
          <CalendarEventDetails>

<ID>00000000CEB2AC9CFA28D311AECE0008C707F197070019398D273324D3118A2B0008C7E9A5690000000A24590
000603ECC64E5A9D843AFA932BEBCE2DE3D0002B8745C820000</ID>
            <Subject>Meeting1</Subject>
            <Location>Location1</Location>
            <IsMeeting>true</IsMeeting>
            <IsRecurring>false</IsRecurring>
            <IsException>false</IsException>
            <IsReminderSet>false</IsReminderSet>
            <IsPrivate>false</IsPrivate>
```

```
                    </CalendarEventDetails>
                  </CalendarEvent>
                  <CalendarEvent>
                    <StartTime>2008-01-21T13:00:00</StartTime>
                    <EndTime>2008-01-21T14:00:00</EndTime>
                    <BusyType>Busy</BusyType>
                    <CalendarEventDetails>

    <ID>00000000CEB2AC9CFA28D311AECE0008C707F197070019398D273324D3118A2B0008C7E9A5690000000A24590
    000EF70892B18E20546A69506A5B037FFF60034E85A28180000</ID>
                      <Subject>Meeting2</Subject>
                      <Location>Location2</Location>
                      <IsMeeting>true</IsMeeting>
                      <IsRecurring>false</IsRecurring>
                      <IsException>false</IsException>
                      <IsReminderSet>false</IsReminderSet>
                      <IsPrivate>false</IsPrivate>
                    </CalendarEventDetails>
                  </CalendarEvent>
                  <CalendarEvent>
                    <StartTime>2008-01-21T14:30:00</StartTime>
                    <EndTime>2008-01-21T15:00:00</EndTime>
                    <BusyType>Busy</BusyType>
                    <CalendarEventDetails>

    <ID>00000000CEB2AC9CFA28D311AECE0008C707F197070019398D273324D3118A2B0008C7E9A5690000000A24590
    0005B0217B934765A46963D785DF0840DDC00B35D7DF3C80000</ID>
                      <Subject>Meeting3</Subject>
                      <Location>my office</Location>
                      <IsMeeting>true</IsMeeting>
                      <IsRecurring>true</IsRecurring>
                      <IsException>false</IsException>
                      <IsReminderSet>true</IsReminderSet>
                      <IsPrivate>false</IsPrivate>
                    </CalendarEventDetails>
                  </CalendarEvent>
                </CalendarEventArray>
                <WorkingHours xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
                  <TimeZone>
                    <Bias>480</Bias>
                    <StandardTime>
                      <Bias>0</Bias>
                      <Time>02:00:00</Time>
                      <DayOrder>1</DayOrder>
                      <Month>11</Month>
                      <DayOfWeek>Sunday</DayOfWeek>
                    </StandardTime>
                    <DaylightTime>
                      <Bias>-60</Bias>
                      <Time>02:00:00</Time>
                      <DayOrder>2</DayOrder>
                      <Month>3</Month>
                      <DayOfWeek>Sunday</DayOfWeek>
                    </DaylightTime>
                  </TimeZone>
                  <WorkingPeriodArray>
                    <WorkingPeriod>
                      <DayOfWeek>Monday Tuesday Wednesday Thursday Friday</DayOfWeek>
                      <StartTimeInMinutes>480</StartTimeInMinutes>
```

```
            <EndTimeInMinutes>1020</EndTimeInMinutes>
          </WorkingPeriod>
        </WorkingPeriodArray>
      </WorkingHours>
    </FreeBusyView>
  </FreeBusyResponse>
 </FreeBusyResponseArray>
      </GetUserAvailabilityResponse>
    </soap:Body>
  </soap:Envelope>
```

4.3 Merged Free/Busy String

The following example shows how the **MergedFreeBusy** string is created by the server for a specified set of free/busy status view options. The following is an example of the **FreeBusyViewOptions** element of a **GetUserAvailability** operation request.

```
<FreeBusyViewOptions xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
  <TimeWindow>
    <StartTime>2008-01-30T00:00:00</StartTime>
    <EndTime>2008-01-31T00:00:00</EndTime>
  </TimeWindow>
  <MergedFreeBusyIntervalInMinutes>60</MergedFreeBusyIntervalInMinutes>
  <RequestedView>FreeBusy</RequestedView>
</FreeBusyViewOptions>
```

The following is the **CalendarEventArray** element that is returned in the response.

```
<CalendarEventArray xmlns="http://schemas.microsoft.com/exchange/services/2006/types">
  <CalendarEvent>
    <StartTime>2008-01-30T12:00:00</StartTime>
    <EndTime>2008-01-30T14:00:00</EndTime>
    <BusyType>OOF</BusyType>
  </CalendarEvent>
  <CalendarEvent>
    <StartTime>2008-01-30T13:30:00</StartTime>
    <EndTime>2008-01-30T14:30:00</EndTime>
    <BusyType>Busy</BusyType>
  </CalendarEvent></CalendarEventArray>
```

The corresponding merged free/busy status string will be the following:
000000000000332000000000

Between 1:30 and 2:00 P.M., the mailbox has two overlapping appointments, one marked OOF and the other marked Busy. The merged free/busy status string for that slot has to be marked OOF. The no data value (4) is not returned in the merged free/busy status string.

For a description of how the merged free/busy status string is constructed by the server, see section 3.1.4.1.4.1.

4.4 Unsuccessful Response

4.4.1 SOAP Exception

The following is an example of a SOAP exception that is thrown when the **MailboxData** element is empty.

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Header>
    <t:ServerVersionInfo MajorVersion="8" MinorVersion="1" MajorBuildNumber="240"
MinorBuildNumber="5" xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types" />
  </soap:Header>
  <soap:Body>
    <soap:Fault>
      <faultcode>soap:Client</faultcode>

<faultstring>Microsoft.Exchange.InfoWorker.Common.Availability.IdentityArrayEmptyException:
The MailboxData array is empty. ---> The MailboxData array is empty.</faultstring>
      <faultactor>https://server/ews/exchange.asmx</faultactor>
      <detail>
        <ErrorCode
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">5001</ErrorCode>
      </detail>
    </soap:Fault>
  </soap:Body>
</soap:Envelope>
```

4.4.2 GetUserAvailability Error Response

The following is an example where a mailbox in the **MailboxData** element cannot be found in the directory service.

```
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchemainstance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Header>
    <t:ServerVersionInfo MajorVersion="8" MinorVersion="1" MajorBuildNumber="240"
MinorBuildNumber="5" xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types" />
  </soap:Header>
  <soap:Body>
    <GetUserAvailabilityResponse
xmlns="http://schemas.microsoft.com/exchange/services/2006/messages">
      <FreeBusyResponseArray>
        <FreeBusyResponse>
          <ResponseMessage ResponseClass="Error">
            <MessageText>
               Unable to resolve email address <>SMTP:nouser@example.com to an Active
Directory object.
            </MessageText>
            <ResponseCode>ErrorMailRecipientNotFound</ResponseCode>
            <DescriptiveLinkKey>0</DescriptiveLinkKey>
            <MessageXml>
```

```
                <ExceptionType
xmlns="http://schemas.microsoft.com/exchange/services/2006/errors">Microsoft.Exchange.InfoWor
ker.Common.Availability.MailRecipientNotFoundException</ExceptionType>
                <ExceptionCode
xmlns="http://schemas.microsoft.com/exchange/services/2006/errors">5009</ExceptionCode>
            </MessageXml>
          </ResponseMessage>
          <FreeBusyView>
            <FreeBusyViewType
xmlns="http://schemas.microsoft.com/exchange/services/2006/types">None</FreeBusyViewType>
          </FreeBusyView>
        </FreeBusyResponse>
      </FreeBusyResponseArray>
    </GetUserAvailabilityResponse>
  </soap:Body>
</soap:Envelope>
```

5   Security

5.1   Security Considerations for Implementers

None.

5.2   Index of Security Parameters

None.

6 Appendix A: Full WSDL

The **XML** files that are listed in the following table are required in order to implement the functionality specified in this document. The contents of each file are included in this section.

File name	Description	Section
MS-OXWAVLS.wsdl	Contains the WSDL for the implementation of this protocol.	6
MS-OXWAVLS-messages.xsd	Contains the XML schema type definitions that are used in this protocol.	7.1
MS-OXWAVLS-types.xsd	Contains the XML schema message 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-OXWAVLS-messages.xsd or MS-OXWAVLS-types.xsd schemas have to be placed in the common folder with these files.

This section contains the contents of the MS-OXWAVLS.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"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types">
  <wsdl:types>
    <xs:schema id="messages" elementFormDefault="qualified" version="Exchange2013"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">
      <xs:include schemaLocation="MS-OXWAVLS-messages.xsd"/>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="GetUserAvailabilitySoapIn">
    <wsdl:part name="GetUserAvailabilityRequest" element="tns:GetUserAvailabilityRequest"/>
    <wsdl:part name="Impersonation" element="t:ExchangeImpersonation"/>
    <wsdl:part name="TimeZoneContext" element="t:TimeZoneContext"/>
    <wsdl:part name="RequestVersion" element="t:RequestServerVersion"/>
  </wsdl:message>
  <wsdl:message name="GetUserAvailabilitySoapOut">
    <wsdl:part name="GetUserAvailabilityResult" element="tns:GetUserAvailabilityResponse"/>
    <wsdl:part name="ServerVersion" element="t:ServerVersionInfo"/>
  </wsdl:message>
  <wsdl:portType name="ExchangeServicePortType">
    <wsdl:operation name="GetUserAvailability">
      <wsdl:input message="tns:GetUserAvailabilitySoapIn"/>
      <wsdl:output message="tns:GetUserAvailabilitySoapOut"/>
    </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 transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
    <wsdl:operation name="GetUserAvailability">
```

```
      <soap:operation
soapAction="http://schemas.microsoft.com/exchange/services/2006/messages/GetUserAvailability"
/>
      <wsdl:input>
        <soap:header message="tns:GetUserAvailabilitySoapIn" part="Impersonation"
use="literal"/>
        <soap:header message="tns:GetUserAvailabilitySoapIn" part="TimeZoneContext"
use="literal"/>
        <soap:header message="tns:GetUserAvailabilitySoapIn" part="RequestVersion"
use="literal"/>
        <soap:body parts="GetUserAvailabilityRequest" use="literal"/>
      </wsdl:input>
      <wsdl:output>
        <soap:body parts="GetUserAvailabilityResult" use="literal"/>
        <soap:header message="tns:GetUserAvailabilitySoapOut" 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.

Schema name	Prefix	Section
Messages schema	m:	7.1
Types schema	t:	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-OXWAVLS-types.xsd or MS-OXWAVLS-messages.xsd schemas have to be placed in the common folder along with the files listed in the table.

7.1 Messages Schema

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

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

File name	Defining specification
MS-OXWSCDATA-messages.xsd	[MS-OXWSCDATA] section 7.1

```xml
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages"
elementFormDefault="qualified" version="Exchange2013" id="messages">
  <xs:include schemaLocation="MS-OXWSCDATA-messages.xsd"/>
  <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
schemaLocation="MS-OXWAVLS-types.xsd"/>
  <xs:complexType name="GetUserAvailabilityRequestType">
    <xs:complexContent mixed="false">
      <xs:extension base="m:BaseRequestType">
        <xs:sequence>
          <xs:element ref="t:TimeZone"/>
          <xs:element name="MailboxDataArray" type="t:ArrayOfMailboxData"/>
          <xs:element minOccurs="0" maxOccurs="1" ref="t:FreeBusyViewOptions"/>
          <xs:element minOccurs="0" maxOccurs="1" ref="t:SuggestionsViewOptions"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="GetUserAvailabilityRequest" type="m:GetUserAvailabilityRequestType"/>
  <xs:complexType name="FreeBusyResponseType">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="1" name="ResponseMessage"
type="m:ResponseMessageType"/>
      <xs:element minOccurs="0" maxOccurs="1" name="FreeBusyView" type="t:FreeBusyView"/>
    </xs:sequence>
  </xs:complexType>
```

```
  <xs:complexType name="ArrayOfFreeBusyResponse">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="FreeBusyResponse"
type="m:FreeBusyResponseType"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SuggestionsResponseType">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="1" name="ResponseMessage"
type="m:ResponseMessageType"/>
      <xs:element minOccurs="0" maxOccurs="1" name="SuggestionDayResultArray"
type="t:ArrayOfSuggestionDayResult"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="GetUserAvailabilityResponseType">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="1" name="FreeBusyResponseArray"
type="m:ArrayOfFreeBusyResponse"/>
      <xs:element minOccurs="0" maxOccurs="1" name="SuggestionsResponse"
type="m:SuggestionsResponseType"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="GetUserAvailabilityResponse" type="m:GetUserAvailabilityResponseType"/>
</xs:schema>
```

7.2   Types Schema

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

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

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

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema 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/types"
elementFormDefault="qualified" version="Exchange2013" id="types">
  <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>
  <xs:include schemaLocation="MS-OXWSCDATA-types.xsd"/>
  <xs:simpleType name="MeetingAttendeeType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Organizer"/>
      <xs:enumeration value="Required"/>
      <xs:enumeration value="Optional"/>
      <xs:enumeration value="Room"/>
      <xs:enumeration value="Resource"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="CalendarEventDetails">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="1" name="ID" type="xs:string"/>
      <xs:element minOccurs="0" maxOccurs="1" name="Subject" type="xs:string"/>
```

```
              <xs:element minOccurs="0" maxOccurs="1" name="Location" type="xs:string"/>
              <xs:element minOccurs="1" maxOccurs="1" name="IsMeeting" type="xs:boolean"/>
              <xs:element minOccurs="1" maxOccurs="1" name="IsRecurring" type="xs:boolean"/>
              <xs:element minOccurs="1" maxOccurs="1" name="IsException" type="xs:boolean"/>
              <xs:element minOccurs="1" maxOccurs="1" name="IsReminderSet" type="xs:boolean"/>
              <xs:element minOccurs="1" maxOccurs="1" name="IsPrivate" type="xs:boolean"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CalendarEvent">
        <xs:sequence>
            <xs:element minOccurs="1" maxOccurs="1" name="StartTime" type="xs:dateTime"/>
            <xs:element minOccurs="1" maxOccurs="1" name="EndTime" type="xs:dateTime"/>
            <xs:element minOccurs="1" maxOccurs="1" name="BusyType" type="t:LegacyFreeBusyType"/>
            <xs:element minOccurs="0" maxOccurs="1" name="CalendarEventDetails"
  type="t:CalendarEventDetails"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ArrayOfCalendarEvent">
        <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="CalendarEvent"
  type="t:CalendarEvent"/>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="FreeBusyViewType">
        <xs:list>
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="None"/>
                    <xs:enumeration value="MergedOnly"/>
                    <xs:enumeration value="FreeBusy"/>
                    <xs:enumeration value="FreeBusyMerged"/>
                    <xs:enumeration value="Detailed"/>
                    <xs:enumeration value="DetailedMerged"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:list>
    </xs:simpleType>
    <xs:complexType name="FreeBusyViewOptionsType">
        <xs:sequence>
            <xs:element minOccurs="1" maxOccurs="1" name="TimeWindow" type="t:Duration"/>
            <xs:element minOccurs="0" maxOccurs="1" name="MergedFreeBusyIntervalInMinutes"
  type="xs:int"/>
            <xs:element minOccurs="0" maxOccurs="1" name="RequestedView"
  type="t:FreeBusyViewType"/>
        </xs:sequence>
    </xs:complexType>
    <xs:element name="FreeBusyViewOptions" type="t:FreeBusyViewOptionsType"/>
    <xs:complexType name="WorkingPeriod">
        <xs:sequence>
            <xs:element minOccurs="1" maxOccurs="1" name="DayOfWeek" type="t:DaysOfWeekType"/>
            <xs:element minOccurs="1" maxOccurs="1" name="StartTimeInMinutes" type="xs:int"/>
            <xs:element minOccurs="1" maxOccurs="1" name="EndTimeInMinutes" type="xs:int"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ArrayOfWorkingPeriod">
        <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="WorkingPeriod"
  type="t:WorkingPeriod"/>
        </xs:sequence>
```

```xml
  </xs:complexType>
  <xs:complexType name="SerializableTimeZoneTime">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="Bias" type="xs:int"/>
      <xs:element minOccurs="1" maxOccurs="1" name="Time" type="xs:string"/>
      <xs:element minOccurs="1" maxOccurs="1" name="DayOrder" type="xs:short"/>
      <xs:element minOccurs="1" maxOccurs="1" name="Month" type="xs:short"/>
      <xs:element minOccurs="1" maxOccurs="1" name="DayOfWeek" type="t:DayOfWeekType"/>
      <xs:element minOccurs="0" maxOccurs="1" name="Year" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SerializableTimeZone">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="Bias" type="xs:int"/>
      <xs:element minOccurs="1" maxOccurs="1" name="StandardTime"
 type="t:SerializableTimeZoneTime"/>
      <xs:element minOccurs="1" maxOccurs="1" name="DaylightTime"
 type="t:SerializableTimeZoneTime"/>
    </xs:sequence>
 </xs:complexType>
 <xs:element name="TimeZone" type="t:SerializableTimeZone"/>
 <xs:complexType name="WorkingHours">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="TimeZone" type="t:SerializableTimeZone"/>
      <xs:element minOccurs="1" maxOccurs="1" name="WorkingPeriodArray"
 type="t:ArrayOfWorkingPeriod"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="FreeBusyView">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="FreeBusyViewType"
 type="t:FreeBusyViewType"/>
      <xs:element minOccurs="0" maxOccurs="1" name="MergedFreeBusy" type="xs:string"/>
      <xs:element minOccurs="0" maxOccurs="1" name="CalendarEventArray"
 type="t:ArrayOfCalendarEvent"/>
      <xs:element minOccurs="0" maxOccurs="1" name="WorkingHours" type="t:WorkingHours"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="MailboxData">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="Email" type="t:EmailAddress"/>
      <xs:element minOccurs="1" maxOccurs="1" name="AttendeeType"
 type="t:MeetingAttendeeType"/>
      <xs:element minOccurs="0" maxOccurs="1" name="ExcludeConflicts" type="xs:boolean"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ArrayOfMailboxData">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="MailboxData" nillable="true"
 type="t:MailboxData"/>
    </xs:sequence>
  </xs:complexType>
  <xs:simpleType name="SuggestionQuality">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Excellent"/>
      <xs:enumeration value="Good"/>
      <xs:enumeration value="Fair"/>
      <xs:enumeration value="Poor"/>
    </xs:restriction>
```

```xml
        </xs:simpleType>
    <xs:complexType name="SuggestionsViewOptionsType">
      <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="1" name="GoodThreshold" type="xs:int"/>
        <xs:element minOccurs="0" maxOccurs="1" name="MaximumResultsByDay" type="xs:int"/>
        <xs:element minOccurs="0" maxOccurs="1" name="MaximumNonWorkHourResultsByDay"
type="xs:int"/>
        <xs:element minOccurs="0" maxOccurs="1" name="MeetingDurationInMinutes" type="xs:int"/>
        <xs:element minOccurs="0" maxOccurs="1" name="MinimumSuggestionQuality"
type="t:SuggestionQuality"/>
        <xs:element minOccurs="1" maxOccurs="1" name="DetailedSuggestionsWindow"
type="t:Duration"/>
        <xs:element minOccurs="0" maxOccurs="1" name="CurrentMeetingTime" type="xs:dateTime"/>
        <xs:element minOccurs="0" maxOccurs="1" name="GlobalObjectId" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
    <xs:element name="SuggestionsViewOptions" type="t:SuggestionsViewOptionsType"/>
    <xs:complexType name="ArrayOfAttendeeConflictData">
      <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element minOccurs="1" maxOccurs="1" name="UnknownAttendeeConflictData"
nillable="true" type="t:UnknownAttendeeConflictData"/>
        <xs:element minOccurs="1" maxOccurs="1" name="IndividualAttendeeConflictData"
nillable="true" type="t:IndividualAttendeeConflictData"/>
        <xs:element minOccurs="1" maxOccurs="1" name="TooBigGroupAttendeeConflictData"
nillable="true" type="t:TooBigGroupAttendeeConflictData"/>
        <xs:element minOccurs="1" maxOccurs="1" name="GroupAttendeeConflictData"
nillable="true" type="t:GroupAttendeeConflictData"/>
      </xs:choice>
    </xs:complexType>
    <xs:complexType name="AttendeeConflictData" abstract="true"/>
    <xs:complexType name="UnknownAttendeeConflictData">
      <xs:complexContent mixed="false">
        <xs:extension base="t:AttendeeConflictData"/>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="TooBigGroupAttendeeConflictData">
      <xs:complexContent mixed="false">
        <xs:extension base="t:AttendeeConflictData"/>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="IndividualAttendeeConflictData">
      <xs:complexContent mixed="false">
        <xs:extension base="t:AttendeeConflictData">
          <xs:sequence>
            <xs:element minOccurs="1" maxOccurs="1" name="BusyType"
type="t:LegacyFreeBusyType"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="GroupAttendeeConflictData">
      <xs:complexContent mixed="false">
        <xs:extension base="t:AttendeeConflictData">
          <xs:sequence>
            <xs:element minOccurs="1" maxOccurs="1" name="NumberOfMembers" type="xs:int"/>
            <xs:element minOccurs="1" maxOccurs="1" name="NumberOfMembersAvailable"
type="xs:int"/>
            <xs:element minOccurs="1" maxOccurs="1" name="NumberOfMembersWithConflict"
type="xs:int"/>
```

```xml
            <xs:element minOccurs="1" maxOccurs="1" name="NumberOfMembersWithNoData"
type="xs:int"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="Suggestion">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="MeetingTime" type="xs:dateTime"/>
      <xs:element minOccurs="1" maxOccurs="1" name="IsWorkTime" type="xs:boolean"/>
      <xs:element minOccurs="1" maxOccurs="1" name="SuggestionQuality"
type="t:SuggestionQuality"/>
      <xs:element minOccurs="0" maxOccurs="1" name="AttendeeConflictDataArray"
type="t:ArrayOfAttendeeConflictData"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ArrayOfSuggestion">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="Suggestion" type="t:Suggestion"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SuggestionDayResult">
    <xs:sequence>
      <xs:element minOccurs="1" maxOccurs="1" name="Date" type="xs:dateTime"/>
      <xs:element minOccurs="1" maxOccurs="1" name="DayQuality" type="t:SuggestionQuality"/>
      <xs:element minOccurs="0" maxOccurs="1" name="SuggestionArray"
type="t:ArrayOfSuggestion"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ArrayOfSuggestionDayResult">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="SuggestionDayResult"
type="t:SuggestionDayResult"/>
    </xs:sequence>
  </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 2013

- Microsoft Office Outlook 2007

- Microsoft Outlook 2010

- Microsoft Outlook 2013

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.

<1> Section 2.1.1: Office Outlook 2007 does not send the **X-ClientStatistics** header. Exchange 2007 ignores the X-ClientStatistics header.

<2> Section 2.2: Office Outlook 2007 does not include the **MessageID** header in requests. Exchange 2007 ignores the **MessageID** header.

<3> Section 3.1.4.1: When a user creates a meeting request, adds attendees, and switches to the scheduling assistant to view the attendees' free/busy status, Office Outlook 2007, Outlook 2010, and Outlook 2013 issue a request to the Availability Web service.

<4> Section 3.1.4.1: Exchange 2007, Exchange 2010, and Exchange 2010 SP1 do not use the **Impersonation**, **TimeZoneContext**, and **RequestVersion** headers. These headers were introduced in Exchange 2010 SP2.

<5> Section 3.1.4.1.1.1: Exchange 2007, Exchange 2010, and Exchange 2010 SP1 do not use the **Impersonation** header. The **Impersonation** header was introduced in Exchange 2010 SP2.

<6> Section 3.1.4.1.1.1: Exchange 2007, Exchange 2010, and Exchange 2010 SP1 do not use the **TimeZoneContext** header. The **TimeZoneContext** header was introduced in Exchange 2010 SP2.

<7> Section 3.1.4.1.1.1: Exchange 2007, Exchange 2010, and Exchange 2010 SP1 do not use the **RequestVersion** header. The **RequestVersion** header was introduced in Exchange 2010 SP2.

<8> Section 3.1.4.1.3.1: The default value for Exchange 2007 is 100. The default value for Exchange 2010 and Exchange 2013 is 20.

<9> Section 3.1.4.1.3.9: Exchange 2007 does not return the **CalendarEventDetails** element when no calendar items are present in the requested time window.

<10> Section 3.1.4.1.3.13: The maximum time period for Exchange 2007 and Exchange 2010 is 42 days. The maximum time period for Exchange 2010 SP1 and Exchange 2013 is 62 days.

<11> Section 3.1.4.1.3.21: Exchange 2007 does not return the **SuggestionQuality** element in a **Suggestion** element when the value of the **SuggestionQuality** element is "Poor".

<12> Section 3.1.4.1.3.22: Exchange 2007 does not return the **SuggestionArray** element in a **SuggestionDayResult** element when the value of the **DayQuality** element is "Poor".

<13> Section 3.1.4.1.4.1: The Availability Web service in Exchange 2007, Exchange 2010, and Exchange 2013 supports this by doing an access check with the requester's credentials against the permissions that have been set on the mailbox owner's Calendar folder, as described in [MS-OXCPERM]. The permissions are used to specify an access level that determines the type of information that the requester can view. The following table shows how the access level that is returned from this check is treated.

RequestedView element value (from the GetUserAvailability operation request)	Allowed view based on Access level		
	Detailed	FreeBusy	No Access
None	-	-	-
MergedOnly	Merged	Merged	Error (InvalidAccessLevelException)
FreeBusy	FreeBusy	FreeBusy	Error (InvalidAccessLevelException)
FreeBusyMerged	FreeBusyMerged	FreeBusyMerged	Error (InvalidAccessLevelException)
Detailed	Detailed	FreeBusy	Error (InvalidAccessLevelException)
DetailedMerged	DetailedMerged	FreeBusyMerged	Error (InvalidAccessLevelException)

9 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

10 Index

Timer events
    server 46
Timers
    server 12
Tracking changes 65
Transport 10
Types
    complex 11
    simple 11

V

Vendor-extensible fields 9
Versioning 9

W

WSDL 55

X

XML Schema 57
    Messages Schema 57
    Types Schema 58