[MS-OXWAVLS]:

Availability Web Service Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
4/4/2008	0.1	Major	Initial Availability.
4/25/2008	0.2	Minor	Revised and updated property names and other technical content.
6/27/2008	1.0	Major	Initial Release.
8/6/2008	1.0.1	Editorial	Updated references to reflect date of initial release.
9/3/2008	1.0.2	Editorial	Revised and edited technical content.
12/3/2008	1.0.3	Editorial	Revised and edited technical content.
3/4/2009	1.0.4	Editorial	Revised and edited technical content.
4/10/2009	2.0	Major	Updated technical content and applicable product releases.
7/15/2009	3.0	Major	Revised and edited for technical content.
11/4/2009	3.1.0	Minor	Updated the technical content.
2/10/2010	4.0.0	Major	Updated and revised the technical content.
5/5/2010	5.0.0	Major	Updated and revised the technical content.
8/4/2010	5.1	Minor	Clarified the meaning of the technical content.
11/3/2010	5.2	Minor	Clarified the meaning of the technical content.
3/18/2011	6.0	Major	Significantly changed the technical content.
8/5/2011	6.1	Minor	Clarified the meaning of the technical content.
10/7/2011	7.0	Major	Significantly changed the technical content.
1/20/2012	8.0	Major	Significantly changed the technical content.
4/27/2012	8.0	None	No changes to the meaning, language, or formatting of the technical content.
7/16/2012	8.1	Minor	Clarified the meaning of the technical content.
10/8/2012	9.0	Major	Significantly changed the technical content.
2/11/2013	9.0	None	No changes to the meaning, language, or formatting of the technical content.
7/26/2013	10.0	Major	Significantly changed the technical content.
11/18/2013	10.0	None	No changes to the meaning, language, or formatting of the technical content.
2/10/2014	10.0	None	No changes to the meaning, language, or formatting of the technical content.
4/30/2014	10.1	Minor	Clarified the meaning of the technical content.
7/31/2014	10.2	Minor	Clarified the meaning of the technical content.
10/30/2014	10.3	Minor	Clarified the meaning of the technical content.

Date	Revision History	Revision Class	Comments
3/16/2015	11.0	Major	Significantly changed the technical content.
5/26/2015	11.0	None	No changes to the meaning, language, or formatting of the technical content.
9/14/2015	11.0	None	No changes to the meaning, language, or formatting of the technical content.
6/13/2016	11.0	None	No changes to the meaning, language, or formatting of the technical content.
9/14/2016	11.0	None	No changes to the meaning, language, or formatting of the technical content.
7/24/2018	12.0	Major	Significantly changed the technical content.
10/1/2018	13.0	Major	Significantly changed the technical content.
4/22/2021	14.0	Major	Significantly changed the technical content.
8/17/2021	15.0	Major	Significantly changed the technical content.
11/16/2021	15.1	Minor	Clarified the meaning 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 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

1.1   Glossary

This document uses the following terms:

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

Calendar folder: A Folder object that contains Calendar objects.

Coordinated Universal Time (UTC): A high-precision atomic time standard that approximately tracks Universal Time (UT). It is the basis for legal, civil time all over the Earth. Time zones around the world are expressed as positive and negative offsets from UTC. In this role, it is also referred to as Zulu time (Z) and Greenwich Mean Time (GMT). In these specifications, all references to UTC refer to the time at UTC-0 (or GMT).

distribution list: A collection of users, computers, contacts, or other groups that is used only for email distribution, and addressed as a single recipient.

endpoint: A communication port that is exposed by an application server for a specific shared service and to which messages can be addressed.

entry ID: See EntryID.

free/busy status: A property of an appointment that indicates how an appointment on the **calendar** of an attendee or resource affects their availability.

globally unique identifier (GUID): A term used interchangeably with universally unique identifier (UUID) in Microsoft protocol technical documents (TDs). Interchanging the usage of these terms does not imply or require a specific algorithm or mechanism to generate the value. Specifically, the use of this term does not imply or require that the algorithms described in [RFC4122] or [C706] must be used for generating the **GUID**. See also universally unique identifier (UUID).

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

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

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

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

Out of Office (OOF): One of the possible values for the **free/busy status** on an appointment. It indicates that the user will not be in the office during the appointment.

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

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

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

SOAP fault: A container for error and status information within a **SOAP message**. See [SOAP1.2-1/2007] section 5.4 for more information.

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

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

Web Services Description Language (WSDL): An XML format for describing network services as a set of endpoints that operate on messages that contain either document-oriented or procedure-oriented information. The operations and messages are described abstractly and are bound to a concrete network protocol and message format in order to define an endpoint. Related concrete endpoints are combined into abstract endpoints, which describe a network service. WSDL is extensible, which allows the description of endpoints and their messages regardless of the message formats or network protocols that are used.

working hours: Times of the day that are valid for meetings to be considered for an attendee.

WSDL message: An abstract, typed definition of the data that is communicated during a WSDL operation [WSDL]. Also, an element that describes the data being exchanged between web service providers and clients.

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

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

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

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

1.2   References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents

in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the Errata.

1.2.1 Normative References

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

[ISO-8601] International Organization for Standardization, "Data Elements and Interchange Formats - Information Interchange - Representation of Dates and Times", ISO/IEC 8601:2004, December 2004, http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=40874&ICS1=1&ICS2=140&ICS3=30

Note There is a charge to download the specification.

[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, https://www.rfc-editor.org/rfc/rfc2119.html

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, https://www.rfc-editor.org/info/rfc2616

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

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", W3C Note, May 2000, https://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, https://www.w3.org/TR/2001/NOTE-wsdl-20010315

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

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

1.2.2 Informative References

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

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

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

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

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** 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.
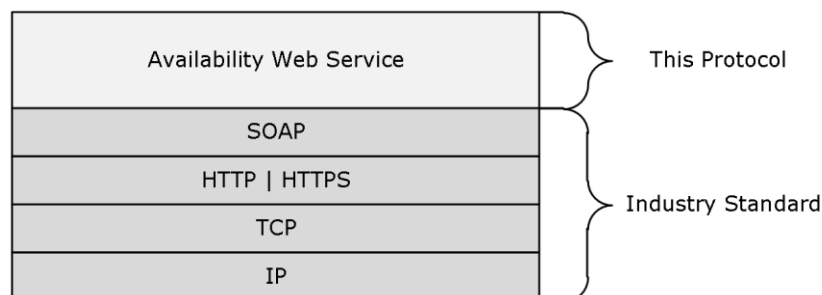
Figure 1: This protocol in relation to other protocols

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

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 MUST support SOAP over HTTP, as specified in [RFC2616]. The 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	[ISO-8601] 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 section 2.1.1.

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/	[WSDL]
tns	http://schemas.microsoft.com/exchange/services/2006/messages	
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]
	http://www.w3.org/2001/XMLSchema-instance	
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

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

Operation	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 ([MS-OXWSCDATA]
section 2.2.4.65) of the **ResponseMessage** element (section 3.1.4.1.3.11) set to "Success". The
ResponseCode attribute ([MS-OXWSCDATA] section 2.2.4.65) of the **ResponseMessage** element
MUST be set to "NoError".

If one or more of the mailboxes in the **MailboxDataArray** element (section 3.1.4.1.3.14) in the
GetUserAvailabilityRequest element (section 3.1.4.1.1.1) is not found in the directory service, the
server MUST return a **ResponseMessage** element in the **FreeBusyResponseArray** element (section
3.1.4.1.3.15) of the **GetUserAvailabilityResponse** element (section 3.1.4.1.1.2) with the
ResponseClass attribute of the **ResponseMessage** element set to "Error" and the **MessageText**
element ([MS-OXWSCDATA] section 2.2.4.65) 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	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	**tns: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>
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	tns:**GetUserAvailabilityResponse** (section 3.1.4.1.2.3)	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	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   tns: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   tns: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	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.

Complex type	Description
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.
FreeBusyViewOptionsType	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**, 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	Type	Description
UnknownAttendeeConflictData	t:UnknownAttendeeConflictData (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 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 **TooBigGroupAttendeeConflictData** 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	Specifies the conflict information

Element	Type	Description
	(section 3.1.4.1.3.16)	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 **TooBigGroupAttendeeConflictData** 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** (section 3.1.4.1.3.26), **TooBigGroupAttendeeConflictData** (section 3.1.4.1.3.25), **IndividualAttendeeConflictData** (section 3.1.4.1.3.17), and **GroupAttendeeConflictData** (section 3.1.4.1.3.16) 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.

Element name	Type	Description
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 be included when the **FreeBusyViewType** element (section 3.1.4.1.4.1) is set to "Detailed", or "DetailedMerged".

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.
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 2.683)	N/A
Subject	**PidTagSubject** ([MS-OXPROPS] section 2.1033)	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**.

Element	Property	Flags used
IsRecurring	**PidLidRecurring** ([MS-OXOCAL] section 2.2.1.12)	N/A
IsException	**PidLidIsException** ([MS-OXOCAL] section 2.2.1.35)	N/A
IsReminderSet	**PidLidReminderSet** ([MS-OXORMDR] section 2.2.1.1)	N/A
IsPrivate	**PidTagSensitivity** ([MS-OXPROPS] section 2.1010)	If the **PidTagSensitivity** property is set to 0x00000002, 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 2.2.4.65)	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 3.1.4.1.4.1)	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 (section 3.1.4.1.3.13) 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 (section 3.1.4.1.3.13) 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 2.2.4.28)	Specifies the time span for the queried user's availability. MUST occur once. Maximum time period is 42 or 62 days.<9>
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 ▪ 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:SerializableTimeZone** (section 3.1.4.1.3.19)	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. 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:FreeBusyViewOptionsType** (section 3.1.4.1.3.13)	Specifies the type of **free/busy status** information that is returned in the response. Can be present.
SuggestionsViewOptions	**t:SuggestionsViewOptionsType** (section 3.1.4.1.3.24)	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:ArrayOfFreeBusyResponse** (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.

```
<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 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 2.2.4.30)	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.

Element name	Type	Description
		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="0"
     />
  </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.

Element name	Type	Description
		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. 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. Can 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<10> 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.
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<11> 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 2.2.4.65)	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"
      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

Element name	Type	Description
		conflicts is less than the **GoodThreshold** element value. The suggested meeting time is considered Fair if the percentage 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 2.2.4.28)	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** data type.
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.
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

Element name	Type	Description
		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	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.

```xml
<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

Value	Meaning
	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 "MergedFreeBusyIntervalInMinutes" 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.<12>

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 (section 3.1.4.1.3.24) 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 (section 3.1.4.1.3.24) value and 50 percent.
Poor	Percentage of conflicts is greater than or equal to 50 percent.

3.1.4.1.5 Attributes

None.

3.1.4.1.6 Groups

None.

3.1.4.1.7 Attribute Groups

None.

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.

```xml
<?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>
              </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: 00000000000332000000000

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/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="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. For ease of implementation, the full WSDL is provided in this appendix.

```
<?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="Exchange2016"
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="Exchange2016" 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="Exchange2016" 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"/>
```

```xml
      <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>
  </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>
    </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"/>
            <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 updates to those products.

- Microsoft Exchange Server 2007

- Microsoft Exchange Server 2010

- Microsoft Exchange Server 2013

- Microsoft Exchange Server 2016

- Microsoft Exchange Server 2019

- Microsoft Office Outlook 2007

- Microsoft Outlook 2010

- Microsoft Outlook 2013

- Microsoft Outlook 2016

- Microsoft Outlook 2019

- Microsoft Outlook 2021

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms "SHOULD" or "SHOULD NOT" implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term "MAY" implies that the product does not follow the prescription.

<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, Microsoft Outlook 2010, Outlook 2013, Outlook 2016, and Outlook 2019 issue a request to the Availability Web service.

<4> Section 3.1.4.1: Exchange 2007, Exchange 2010, and Microsoft Exchange Server 2010 Service Pack 1 (SP1) do not use the **Impersonation**, **TimeZoneContext**, and **RequestVersion** headers. These headers were introduced in Microsoft Exchange Server 2010 Service Pack 2 (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, Exchange 2013, Exchange 2016, and Exchange 2019 is 20.

<9> 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, Exchange 2013, Exchange 2016, and Exchange 2019 is 62 days.

<10> 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".

<11> 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".

<12> Section 3.1.4.1.4.1: The Availability Web service in Exchange 2007, Exchange 2010, Exchange 2013, Exchange 2016, and Exchange 2019 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

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements.
- A document revision that captures changes to protocol functionality.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

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

Section	Description	Revision class
3.1.4.1.1.1 GetUserAvailabilitySoapIn Message	Updated m:GetUserAvailabilityRequest to tns:GetUserAvailabilityRequest.	Minor
3.1.4.1.1.2 GetUserAvailabilitySoapOut Message	Updated t:GetUserAvailabilityResponse to tns:GetUserAvailabilityResponse.	Minor

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