[MS-OXWAVLS]:
Availability Web Service Protocol Specification

Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1	Major	Initial Availability.
04/25/2008	0.2	Minor	Revised and updated property names and other technical content.
06/27/2008	1.0	Major	Initial Release.
08/06/2008	1.0.1	Editorial	Updated references to reflect date of initial release.
09/03/2008	1.0.2	Editorial	Revised and edited technical content.
12/03/2008	1.0.3	Editorial	Revised and edited technical content.
03/04/2009	1.0.4	Editorial	Revised and edited technical content.
04/10/2009	2.0	Major	Updated technical content and applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	3.1.0	Minor	Updated the technical content.

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1 Introduction

The Availability Web Service protocol specifies how a client can get the **Free/busy**, Tentative, and **Out of Office (OOF)** status of a set of users, rooms, and resources within a specified time window. For information about meetings and scheduling meetings, see [MS-OXOCAL].

This protocol also specifies how a client can get suggestions for alternate meeting times.

1.1 Glossary

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

free/busy
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)
mailbox
Out of Office (OOF)
public folder
Web Services Description Language (WSDL)
WSDL message
Secure Sockets Layer (SSL)
Server object
SOAP body

The following terms are specific to this document:

meeting suggestion: A possible alternate meeting time for the attendees of the meeting.

Merged Free/Busy: A string representation of the attendee's free/busy information for the duration specified.

proxy request: A request that is forwarded by a service to another service so that the requested data can then be processed. The original service acts as a proxy for the service that handles the request.

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

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

1.2 References

1.2.1 Normative References

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

[MS-OXGLOS] Microsoft Corporation, "Exchange Server Protocols Master Glossary", June 2008.

[MS-OXOCAL] Microsoft Corporation, "Appointment and Meeting Object Protocol Specification", June 2008.

[MS-OXOPFFB] Microsoft Corporation, "Public Folder-Based Free/Busy Protocol Specification", June 2008.

[MS-OXPROPS] Microsoft Corporation, "Exchange Server Protocols Master Property List", June 2008.

[MS-OXWSADISC] Microsoft Corporation, "AutoDiscover Publishing and Lookup SOAP-Based Web Service Protocol Specification", July 2009.

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

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

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

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

[XML10] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Third Edition)", February 2004, http://www.w3.org/TR/2004/REC-xml-20040204/.

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, http://www.w3.org/TR/REC-xml-names/.

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

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

1.2.2 Informative References

None.

1.3 Protocol Overview

The Availability service enables 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. Clients use the SOAP protocol [SOAP1.1] to contact the Availability service to make a **GetUserAvailability** request.

This specification describes the request and response for the **GetUserAvailability** operation, as shown in Figure 1.

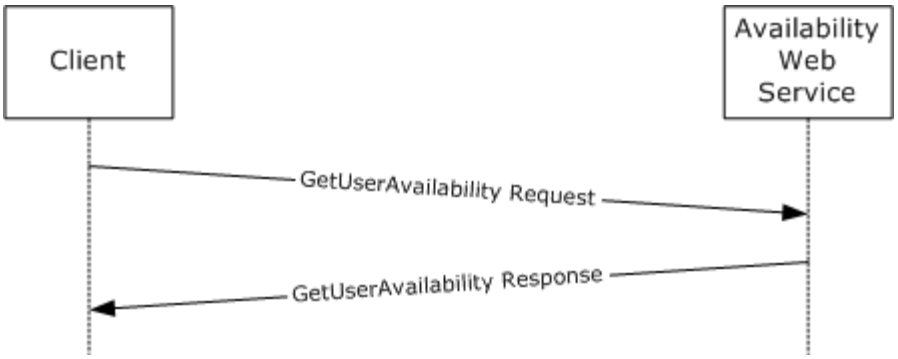

Figure 1: Availability SOAP Message between client and server

1.4 Relationship to Other Protocols

Clients can contact the Availability service by using SOAP over **HTTPS**, as specified in [RFC2616]. Figure 2 shows the relationship between this protocol and industry standard protocols.

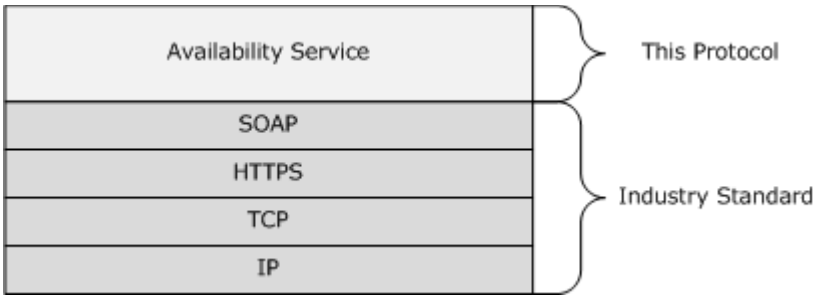

Figure 2: Relationship between protocols

1.5 Prerequisites/Preconditions

The URL of the Availability Web Service protocol can be retrieved by using the AutoDiscover Publishing and Lookup SOAP-Based Web Service protocol [MS-OXWSADISC].<1>

1.6 Applicability Statement

None.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

- **Supported Transports:** This protocol uses SOAP 1.1.
- **Protocol Versions:** This protocol specifies only one **WSDL** portType version.
- **Security and Authentication Methods:** This protocol relies on the Web server that is hosting it to perform authentication.
- **Localization:** This protocol includes text strings in various messages. Localization considerations for such strings are specified in sections 2.2 and 3.1.4.

Capability Negotiation: None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The SOAP version supported is SOAP 1.1. For details, see [SOAP1.1].

2.2 Message Syntax

The following sections specify the syntax that is specific to the Availability Web Service protocol.

2.2.1 Namespaces

See [XMLNS] for the namespaces specification.

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

2.2.2 Simple Types

2.2.2.1 t:DayOfWeekType

The **DayOfWeekType** type specifies the list of working days that are scheduled for a mailbox user. The values of Day, Weekday, and WeekendDay MUST NOT be used.

```
<xs:simpleType name="DayOfWeekType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Sunday" />
    <xs:enumeration value="Monday" />
    <xs:enumeration value="Tuesday" />
    <xs:enumeration value="Wednesday" />
    <xs:enumeration value="Thursday" />
    <xs:enumeration value="Friday" />
    <xs:enumeration value="Saturday" />
    <xs:enumeration value="Day" />
    <xs:enumeration value="Weekday" />
    <xs:enumeration value="WeekendDay" />
  </xs:restriction>
</xs:simpleType>
```

2.2.2.2 t:FreeBusyViewType

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

```
<xs:simpleType name="FreeBusyViewType">
    <xs: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>
```

Value	Description
None	This value is not valid for requests. This value is valid for responses.
MergedOnly	Specifies that **Merged Free/Busy** is requested or returned.
FreeBusy	Represents the status information: Free, Busy, Tentative, and OOF. This also includes the start/end times of the appointments. This view is richer than the **public folder** Free/busy view (as specified in [MS-OXOPFFB]) because individual meeting start and end times are provided instead of an aggregated Free/busy stream.
FreeBusyMerged	Represents all the properties in Free/busy with a stream of Merged Free/Busy information.
Detailed	Represents the 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. If Merged Free/Busy information only is available, MergedOnly will be returned. Otherwise, FreeBusy or Detailed will be returned.
DetailedMerged	Represents all the properties in Detailed with a stream of Merged Free/Busy information. If Merged Free/Busy information only is available, MergedOnly will be returned. Otherwise, FreeBusyMerged or DetailedMerged will be returned.

Merged Free/Busy is a string representation of the Calendar folder for the requested duration.. The **MergedFreeBusyInterval** 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 Merged Free/Busy interval. The blocks contain a number that represents the Free/busy status of the calendar.

Number	Free/busy status
0	Free
1	Tentative

Number	Free/busy status
2	Busy
3	OOF
4	No data (indicates that the requestor does not have permissions to view Free/busy data)

Handling of overlapping appointments – if the block has overlapping appointments, the following precedence order is used (from high to low): OOF, Busy, Tentative, Free <2>.

The Mailbox owner can grant users specific Free/busy view permissions. This can be done by setting the Free/busy permissions on the Calendar folder, as specified in [MS-OXOCAL]<3>

2.2.2.3 t:LegacyFreeBusyType

The LegacyFreeBusyType type specifies the public folder [MS-OXOPFFB] Free/busy type when it occurs as an instance in the context of a **BusyType** element of either the **CalendarEvent** or **IndividualAttendeeConflictData** complex type.

```
<xs:simpleType name="LegacyFreeBusyType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="Free" />
      <xs:enumeration value="Tentative" />
      <xs:enumeration value="Busy" />
      <xs:enumeration value="OOF" />
      <xs:enumeration value="NoData" />
    </xs:restriction>
  </xs:simpleType>
```

Value	Definition
Free	Indicates that the status is Free.
Tentative	Indicates that the status is Tentative.
Busy	Indicates that the status is Busy.
OOF	Indicates that the status is Out of Office.
NoData	Indicates that no data could be retrieved for the recipient.

2.2.2.4 t:MeetingAttendeeType

The **MeetingAttendeeType** enumeration 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>
```

Value	Description
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 projector that is scheduled for use in the meeting.

2.2.2.5 t:ResponseClassType

The **ResponseClassType** type specifies whether the request was successfully processed by the Availability service.

```
<xs:simpleType name="ResponseClassType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Success" />
    <xs:enumeration value="Warning" />
    <xs:enumeration value="Error" />
  </xs:restriction>
</xs:simpleType>
```

Value	Description
Success = 0	Specifies that the request was successfully processed.
Warning = 1	Specifies that an unusual situation was encountered during the processing of the request and the request MUST NOT have been processed successfully.
Error = 2	Specifies that the request could not be processed.

2.2.2.6 t:ResponseCodeType

The t:ResponseCodeType enumeration specifies the status states of a response.

```
<xs:simpleType name="ResponseCodeType">
  <xs:annotation>
    <xs:documentation>
      Represents the message keys that can be returned by response error messages
    </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="NoError"/>
    <xs:enumeration value="ErrorAccessDenied"/>
    <xs:enumeration value="ErrorAccountDisabled"/>
    <xs:enumeration value="ErrorAddressSpaceNotFound"/>
    <xs:enumeration value="ErrorADOperation"/>
    <xs:enumeration value="ErrorADSessionFilter"/>
    <xs:enumeration value="ErrorADUnavailable"/>
    <xs:enumeration value="ErrorAutoDiscoverFailed"/>
```

```
    <xs:enumeration value="ErrorAvailabilityConfigNotFound"/>
    <xs:enumeration value="ErrorConnectionFailed"/>
    <xs:enumeration value="ErrorCorruptData"/>
    <xs:enumeration value="ErrorDataSourceOperation"/>
    <xs:enumeration value="ErrorFreeBusyGenerationFailed"/>
    <xs:enumeration value="ErrorIndividualMailboxLimitReached"/>
    <xs:enumeration value="ErrorInvalidCrossForestCredentials"/>
    <xs:enumeration value="ErrorIncorrectSchemaVersion"/>
    <xs:enumeration value="ErrorInsufficientResources"/>
    <xs:enumeration value="ErrorInternalServerError"/>
    <xs:enumeration value="ErrorInternalServerTransientError"/>
    <xs:enumeration value="ErrorInvalidAccessLevel"/>
    <xs:enumeration value="ErrorInvalidAuthorizationContext"/>
    <xs:enumeration value="ErrorInvalidFreeBusyViewType"/>
    <xs:enumeration value="ErrorInvalidMergedFreeBusyInterval"/>
    <xs:enumeration value="ErrorInvalidNetworkServiceContext"/>
    <xs:enumeration value="ErrorInvalidRequest"/>
    <xs:enumeration value="ErrorInvalidSecurityDescriptor"/>
    <xs:enumeration value="ErrorInvalidSmtpAddress"/>
    <xs:enumeration value="ErrorInvalidTimeInterval"/>
    <xs:enumeration value="ErrorItemNotFound"/>
    <xs:enumeration value="ErrorLogonAsNetworkServiceFailed"/>
    <xs:enumeration value="ErrorMailboxConfiguration"/>
    <xs:enumeration value="ErrorMailboxDataArrayEmpty"/>
    <xs:enumeration value="ErrorMailboxLogonFailed"/>
    <xs:enumeration value="ErrorMailboxMoveInProgress"/>
    <xs:enumeration value="ErrorMailboxStoreUnavailable"/>
    <xs:enumeration value="ErrorMailRecipientNotFound"/>
    <xs:enumeration value="ErrorMeetingSuggestionGenerationFailed"/>
    <xs:enumeration value="ErrorMissingArgument"/>
    <xs:enumeration value="ErrorNoCalendar"/>
    <xs:enumeration value="ErrorProxyRequestNotAllowed"/>
    <xs:enumeration value="ErrorProxyRequestProcessingFailed"/>
    <xs:enumeration value="ErrorPublicFolderRequestProcessingFailed"/>
    <xs:enumeration value="ErrorPublicFolderServerNotFound"/>
    <xs:enumeration value="ErrorRequestStreamTooBig"/>
    <xs:enumeration value="ErrorResponseSchemaValidation"/>
    <xs:enumeration value="ErrorResultSetTooBig"/>
    <xs:enumeration value="ErrorSchemaValidation"/>
    <xs:enumeration value="ErrorServerBusy"/>
    <xs:enumeration value="ErrorServiceDiscoveryFailed"/>
    <xs:enumeration value="ErrorTimeoutExpired"/>
    <xs:enumeration value="ErrorTokenSerializationDenied"/>
    <xs:enumeration value="ErrorWin32InteropError"/>
  </xs:restriction>
```

Value	Description
NoError = 0	No error is returned in the request.
ErrorAccessDenied = 1	Caller does not have access to make the request.
ErrorAccountDisabled = 2	Caller's account has been disabled in the directory service.
ErrorADOperation = 4	The directory service operation did not succeed. Try again later.
ErrorADSessionFilter = 5	Invalid search criteria encountered when searching the

Value	Description
	directory service.
ErrorADUnavailable = 6	The directory service is unavailable. Try again later.
ErrorConnectionFailed = 52	Unable to connect to the mailbox server.
ErrorCorruptData = 54	This error is returned when an attempt is made to access an item in the Mailbox store that is corrupt.
ErrorDataSourceOperation = 59	This error is returned when a data source (directory service or Mailbox store) failed to complete the operation.
ErrorIncorrectSchemaVersion = 101	This error is returned as a warning and indicates that the schema version that is sent in the request is incorrect.
ErrorInsufficientResources = 103	Indicates that the mailbox server is overloaded. Try your request again later.
ErrorInternalServerError = 104	Indicates that an internal server error occurred.
ErrorInternalServerTransientError = 105	Indicates that an internal server error occurred. Try your request again later.
ErrorInvalidRequest = 162	Indicates that the SOAP request has a SOAP action header, but nothing in the **SOAP body**. Note that the SOAP action header is not required because Web services can determine the method to call from the local name of the root element in the SOAP body.
ErrorInvalidServerVersion = 168	Indicates that the server version that was passed in the request is invalid.
ErrorItemNotFound = 184	Indicates that the item was not found, or that you do not have rights to access the item.
ErrorMailboxConfiguration = 188	Indicates that the mailbox information in the directory service is configured incorrectly.
ErrorMailboxMoveInProgress = 189	Indicates that the mailbox is being moved to a different mailbox store or server. This can also indicate that the mailbox is on another server or mailbox database.
ErrorMailboxStoreUnavailable = 190	Indicates that one of the following error conditions occurred: ▪ The mailbox store is corrupt. ▪ The mailbox store is being stopped. ▪ The mailbox store is offline. ▪ A network error occurred when an attempt was made to access the mailbox store. ▪ The mailbox store is overloaded and cannot accept any more connections. ▪ The mailbox store has been paused.

Value	Description
ErrorNotEnoughMemory = 219	Indicates that the operation could not be completed due to insufficient memory.
ErrorResponseSchemaValidation = 249	Occurs when the response cannot be validated against the schema.
ErrorSchemaValidation = 254	Occurs when the request cannot be validated against the schema.
ErrorServerBusy = 262	Occurs when the server is busy.
ErrorTokenSerializationDenied = 269	Occurs when the Availability service is contacted by another Availability service and there is corruption in the data.
ErrorRequestStreamTooBig = 5000	Occurs when the request stream is larger than 400 KB.
ErrorMailboxDataArrayEmpty = 5001	Occurs when there are no entries in the mailbox array that was passed in the request.
ErrorInvalidMergedFreeBusyInterval = 5004	Indicates that the supplied Merged Free/Busy internal value is invalid. The default minimum value is 5 minutes. The default maximum value is 1440 minutes.
ErrorResultSetTooBig = 5006	Indicates that the number of calendar entries for a given recipient exceeds the allowed limit of 1000. Reduce the window and try again.
ErrorInvalidClientSecurityContext = 5007	Indicates an invalid client security context.
ErrorMailboxLogonFailed = 5008	Occurs when the connection to the mailbox to get the calendar view information failed.
ErrorMailRecipientNotFound = 5009	Occurs if the MailboxData information cannot be mapped to a valid mailbox account.
ErrorInvalidTimeInterval = 5010	Indicates that the specified time interval is invalid.
ErrorPublicFolderServerNotFound = 5011	Indicates that the request to retrieve free/busy information for a recipient failed because the recipient's organizational unit did not have an associated public folder server.
ErrorInvalidAccessLevel = 5012	Indicates that the level of access that the caller has on the free/busy data is invalid.
ErrorInvalidSecurityDescriptor = 5013	Indicates that the security descriptor on the Calendar folder in the store is corrupted.
ErrorWin32InteropError = 5014	Indicates that there was an internal failure during communication with unmanaged code.
ErrorProxyRequestNotAllowed = 5015	Indicates that the Availability service was not allowed to proxy the request to another Availability service.
ErrorProxyRequestProcessingFailed = 5016	Indicates that a **proxy request** failed. This response can be caused by network connectivity issues or request timeout issues.
ErrorPublicFolderRequestProcessingFailed	Occurs when the recipient is located on a server that uses

Value	Description
= 5017	public folders to store free/busy information and the request to retrieve free/busy information for the recipient from the public folder server failed.
ErrorServiceDiscoveryFailed = 5021	Indicates that the Availability service failed to discover another Availability service. This occurs when the Availability service needs to make a proxy request.
ErrorAddressSpaceNotFound = 5023	Occurs when the Availability service has to contact another Availability service for information and cannot find end-point information.
ErrorAvailabilityConfigNotFound = 5024	Occurs when the Availability service gets a request from another Availability service and configuration information is missing.
ErrorInvalidCrossForestCredentials = 5025	Occurs when the credentials that are used to proxy a request to a different directory service forest fail authentication.
ErrorInvalidFreeBusyViewType = 5026	Occurs if a FreeBusyViewType of **None** is requested.
ErrorTimeoutExpired = 5027	Occurs when there is not enough time to complete the processing of the request.
ErrorMissingArgument = 5028	Indicates that a required argument was missing from the request. The response message text indicates which argument to check.
ErrorNoCalendar = 5029	Occurs if there is no Calendar folder for the mailbox.
ErrorInvalidAuthorizationContext = 5032	Indicates that the authorization procedure for the requestor failed.
ErrorLogonAsNetworkServiceFailed = 5033	Occurs when the Availability service has to contact another Availability service and cannot impersonate the network service.
ErrorInvalidNetworkServiceContext = 5034	Indicates an error in the network service account on the Client Access server.
ErrorInvalidSmtpAddress = 5035	Indicates that the SMTP address cannot be parsed.
ErrorIndividualMailboxLimitReached = 5036	Occurs when the request contains too many attendees to resolve. By default, the maximum number of attendees to resolve is 100. This is usually returned when distribution lists have to be expanded.
ErrorNoFreeBusyAccess = 5037	Indicates that the caller does not have free/busy viewing rights on the Calendar folder in question.
ErrorAutoDiscoverFailed = 5039	Indicates that the Availability service was unable to get a successful response from the Availability service.
ErrorMeetingSuggestionGenerationFailed = 5040	Indicates that the suggestions engine encountered a problem while it was trying to generate the suggestions.
ErrorFreeBusyGenerationFailed = 5041	Occurs when free/busy information cannot be retrieved because of an intervening failure.

2.2.2.7 t:SuggestionQuality

The **SuggestionQuality** 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>
```

Value	Description
Excellent	Request: Caller wants 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 wants suggestions for times where the percentage of conflicts is equal to or less than the **GoodThreshold** value. Response: Indicates that the suggested meeting time has a conflict percentage that is equal to or lower than the **GoodThreshold** value.
Fair	Request: Percentage of conflicts is between **GoodThreshold** and 50 percent.
Poor	Percentage of conflicts is greater than or equal to 50 percent.

2.2.3 Complex Types

2.2.3.1 ArrayOfAttendeeConflictData

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

```
<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>
```

Element	Type	Definition
UnknownAttendeeConflictData	**UnknownAttendeeConflictData**	Represents an attendee that is not recognized (not a user, distribution list, or contact). Can be present, but its value can be null. <4>

Element	Type	Definition
IndividualAttendeeConflictData	**IndividualAttendeeConflictData**	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.
TooBigGroupAttendeeConflictData	**TooBigGroupAttendeeConflictData**	Represents an attendee that is a distribution list that was too large to expand. Can be present and the value can be null. Default maximum group size = 100.
GroupAttendeeConflictData	**GroupAttendeeConflictData**	Contains the conflict information about the number of attendees available, the number of attendees that have conflicts, and the number of attendees that do not have free/busy information in a distribution list. Can be present, but the value can be null.

2.2.3.2 t:ArrayOfCalendarEvent

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

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

Element	Type	Definition
CalendarEvent	**t:CalendarEvent**	Represents a unique calendar item occurrence. Can be present.

2.2.3.3 m:ArrayOfFreeBusyResponse

The **ArrayOfFreeBusyResponse** 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**.

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

Element	Type	Definition
FreeBusyResponse	**m:FreeBusyResponseType**	Contains the free/busy information for a single mailbox user and the response status. Can be present.

2.2.3.4 t:ArrayOfMailboxData

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

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

Element	Type	Definition
MailboxDataArray	**t:MailboxData**	While the **maxOccurs** is unbounded, **GetUserAvailability** restricts the total number of **MailboxData** elements to 100 entries by default. Can be present.

2.2.3.5 t:ArrayOfSuggestion

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

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

Element	Type	Definition
Suggestion	**t:suggestion**	While the **maxOccurs** is unbounded, **GetUserAvailability** restricts the total number of **Suggestion** elements to 100 entries by default. Can be present.

2.2.3.6 t:ArrayOfSuggestionDayResult

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

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

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

Element	Type	Definition
SuggestionDayResult	**t:SuggestionDayResult**	Array of **SuggestionDayResult**. Can be present.

2.2.3.7 t:ArrayOfWorkingPeriod

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

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

Element	Type	Definition
WorkingPeriod	**t:WorkingPeriod**	Contains the workweek days and hours of the mailbox user. Can be present.

2.2.3.8 AttendeeConflictData

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

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

2.2.3.9 BaseRequestType

The **BaseRequestType** type is an abstract type that the **GetUserAvailabilityRequestType** type derives from.

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

2.2.3.10 t:CalendarEvent

The **CalendarEvent** type represents an item in the Calendar.

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

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

Element	Type	Definition
StartTime	**xs:dateTime**	Represents the start of a Calendar event. MUST be present.
EndTime	**xs:dateTime**	Represents the end of a Calendar event. MUST be present.
BusyType	**t:LegacyFreeBusyType**	Represents the free/busy status set for the Calendar event. MUST be present.
CalendarEventDetails	**t:CalendarEventDetails**	Provides additional information for a Calendar event. Can be present.

The level of detail provided by this type and the **CalendarEvent** depends on the permissions granted to the requestor. This element MUST be included when the **FreeBusyViewType** element is set to **FreeBusy**, **FreeBusyMerged**, **Detailed**, or **DetailedMerged**. If no calendar items are present in the requested time window, this element can be empty.

2.2.3.11 t:CalendarEventDetails

The **CalendarEventDetails** type specifies additional information about a Calendar event.

```
<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>
```

Element	Type	Definition
ID	**xs:string**	Represents the entry ID of the Calendar item. Can be present.
Subject	**xs:string**	Represents the subject of the Calendar item. Can be present.
Location	**xs:string**	Represents the location field of the Calendar item. Can be present.
IsMeeting	**xs:boolean**	Indicates whether the Calendar event is a meeting or an appointment.

Element	Type	Definition
		MUST be present and can only occur once.
IsRecurring	**xs:boolean**	Indicates 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**	Indicates 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**	Indicates whether a reminder has been set for the Calendar event. MUST be present, and can only occur once.
IsPrivate	**xs:boolean**	Indicates whether the Calendar item is private. MUST be present, and can only occur once.

Restrictions:

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 MUST be returned and the optional elements MUST NOT be returned.

The following table maps the information in the CalendarEvent to properties on the Calendar item.

Element	MAPI property	Flags used
ID	PidTagEntryId [MS-OXPROPS]	N/A
Subject	PidTagSubject [MS-OXPROPS]	N/A
Location	PidLidLocation [MS-OXPROPS]	N/A
IsMeeting	PidLidAppointmentStateFlags [MS-OXOCAL]	Flag used is **asfMeeting**.
IsRecurring	PidLidRecurring [MS-OXOCAL]	N/A
IsException	PidLidIsException [MS-OXOCAL]	N/A
IsReminderSet	PidLidReminderSet [MS-OXOCAL]	N/A
IsPrivate	PidTagSensitivity [MS-OXPROPS]	If the property is set to **SENSITIVITY_PRIVATE**, **IsPrivate** returns TRUE.

2.2.3.12 t:Duration

The **Duration** type specifies the time interval.

```
<xs:complexType name="Duration">
    <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:sequence>
```

```
</xs:complexType>
```

Element	Definition
StartTime	Represents the start time of the window. MUST be present.
EndTime	Represents the end time of the window. MUST be present.

Restriction: **EndTime** MUST be greater than the **StartTime**.

2.2.3.13 t:EmailAddress

The **EmailAddress** type specifies the name and the address of the attendee.

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

<xs:sequence>


      <xs:element minOccurs="0" maxOccurs="1" name="Name" type="xs:string" />
      <xs:element minOccurs="1" maxOccurs="1" name="Address" type="xs:string" />
      <xs:element minOccurs="0" maxOccurs="1" name="RoutingType" type="xs:string" />
    </xs:sequence>
</xs:complexType>
```

Element	Type	Definition
Name	**xs:string**	Specifies the display name of the attendee. Can be present.
Address	**xs:string**	Specifies the e-mail address of the attendee. MUST be present
RoutingType	**xs:string**	Specifies the routing protocol for the e-mail address. Can be present.

The Availability Web Service protocol only supports SMTP addresses.

2.2.3.14 m:FreeBusyResponseType

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

```
<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>
```

Element	Type	Definition
ResponseMessage	**m:ResponseMessageType**	Specifies descriptive information about the response status. Can be present.
FreeBusyView	**t:FreeBusyView**	Specifies availability information for a specific user. Can be present.

2.2.3.15 t:FreeBusyView

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

```
<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>
```

Element	Type	Definition
FreeBusyViewType	**t:FreeBusyViewType**	Represents the type of the free/busy information that is returned in the response. MUST be present.
MergedFreeBusy	**xs:string**	Represents the Merged Free/Busy information. Can be present but MUST be present if one of the following was requested in the **RequestView** element of the request: ▪ MergedOnly ▪ FreeBusyMerged ▪ DetailedMerged
CalendarEventArray	**t:ArrayOfCalendarEvent**	Contains the array of calendar appointments in the mailbox. Can be present, but MUST be present if the following was requested in the **RequestView** element of the request: ▪ FreeBusy ▪ FreeBusyMerged ▪ Detailed ▪ DetailedMerged
WorkingHours	**t:WorkingHours**	Represents the time zone settings and **working**

Element	Type	Definition
		hours for the requested mailbox user. Can be present.

2.2.3.16 t:FreeBusyViewOptions

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

```
<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>
```

Element	Type	Definition
TimeWindow	**t:Duration**	Represents the time span for the queried user's availability. MUST occur once. Maximum time period is 42 days.
MergedFreeBusyIntervalInMinutes	**xs:int**	Represents 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**	Defines the type of Calendar information that a client requests. 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.

2.2.3.17 m:GetUserAvailabilityRequestType

The **GetUserAvailabilityRequestType** 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 minOccurs="0" maxOccurs="1" ref="t:FreeBusyViewOptions" />
        <xs:element minOccurs="0" maxOccurs="1" ref="t:SuggestionsViewOptions" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Element	Type	Definition
TimeZone	**t:TimeZone**	Contains 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** response will be in this time zone. MUST be present.
MailboxDataArray	**t:ArrayOfMailboxData**	Contains a list of mailboxes to query for availability information. MUST be present.
FreeBusyViewOptions	**t:FreeBusyViewOptions**	Specifies the type of free/busy information that is returned in the response. Can be present.
SuggestionsViewOptions	**t:SuggestionsViewOptions**	Contains the options that obtain meeting suggestion information. Can be present.

2.2.3.18 m:GetUserAvailabilityResponseType

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

```
<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" />
```

Element	Type	Definition
FreeBusyResponseArray	**m:ArrayOfFreeBusyResponse**	Contains the requested user's availability information and the response status.

Element	Type	Definition
		Can be present. MUST be present if the **FreeBusyViewOptions** is present in the request.
SuggestionsResponse	**m:SuggestionsResponseType**	Contains the suggested data for requested meeting suggestions. Can be present. MUST be present if the **SuggestionsViewOptions** is present in the request.

2.2.3.19 t:GroupAttendeeConflictData

The **GroupAttendeeConflictData** 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 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>
```

Element	Type	Definition
NumberOfMembers	**xs:int**	Represents the number of attendees in the distribution list. If the number of members in the distribution list exceeds 100, **GroupAttendeeConflictData** will only return information for the first 100 members. MUST be present.
NumberOfMembersAvailable	**xs:int**	Represents the number of attendees who are available. Can be present.
NumberOfMembersWithConflict	**xs:int**	Represents the number of attendees who have conflicts. Can be present.
NumberOfMembersWithNoData	**xs:int**	Represents the number of attendees for which data could not be retrieved. Can be present.

2.2.3.20 t:IndividualAttendeeConflictData

The **IndividualAttendeeConflictData** 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 minOccurs="1" maxOccurs="1" name="BusyType" type="t:LegacyFreeBusyType"
/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Element	Type	Definition
BusyType	**LegacyFreeBusyType**	Represents the free/busy status of an attendee for a suggested meeting time. MUST be present.

2.2.3.21 t:MailboxData

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

```
<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>
```

Element	Type	Definition
Email	**t:EmailAddress**	Represents an attendee. MUST be present.
AttendeeType	**t:MeetingAttendeeType**	Represents the type of attendee identified in the **Email** element. This element is used in requests for meeting suggestions. MUST be present.
ExcludesConflicts	**xs:boolean**	Specifies whether to return suggested times for Calendar times that conflict among the attendees. This is used to calculate meeting suggestions. Can be present.

2.2.3.22 m:ResponseMessageType

The **ResponseMessageType** type specifies whether the service returned a successful response.

```
<xs:complexType name="ResponseMessageType">
<xs:sequence minOccurs="0">
      <xs:element name="MessageText" type="xs:string" minOccurs="0"/>
      <xs:element name="ResponseCode" type="m:ResponseCodeType" minOccurs="0"/>
      <xs:element name="DescriptiveLinkKey" type="xs:int" minOccurs="0"/>
      <xs:element name="MessageXml" minOccurs="0">
        <xs:complexType>
          <xs:sequence>
            <xs:any processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
    <xs:attribute name="ResponseClass" type="t:ResponseClassType" use="required"/>
</xs:complexType>
```

Attributes:

Name	Type	Definition
ResponseClass	**t:ResponseClassType**	Represents the status of the response. The following values are valid for this attribute: ▪ Success ▪ Warning ▪ Error

Elements:

Element	Type	Definition
MessageText	**xs:string**	Provides a text description of the status of the response. Can be present, but MUST be present when errors are returned.
ResponseCode	**t: ResponseCodeType**	Provides an error code that identifies the specific error that the request encountered. Can be present.
DescriptiveLinkKey	**xs:int**	Currently unused, and is reserved for future use. It contains a value of 0 (zero).
MessageXml	Complex type defined above.	Provides additional error response information. Can be present.

2.2.3.23 t:SerializableTimeZone

The **SerializableTimeZone** 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 the Availability service are also in this time zone. The exception is that working hours in an Availability response are returned in the time zone of the attendee.

```
<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" />
```

Element	Type	Definition
Bias	**xs:int**	Represents the general offset from **Coordinated Universal Time (UTC)**. This value is in minutes. MUST be present.
StandardTime	**t:SerializableTimeZoneTime**	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 regions where daylight saving time is observed. MUST be present.
DaylightTime	**t:SerializableTimeZoneTime**	Represents an offset from the time relative to UTC that is represented by the **Bias** element in 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.

2.2.3.24 t:SerializableTimeZoneTime

The **SerializableTimeZoneTime** type specifies the start and end dates of daylight saving time.

```
<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>
```

Element	Type	Definition
Bias	**xs:int**	Represents the offset from the UTC offset that is identified by the **Bias** element for standard time and daylight saving time. This value is in minutes. MUST be present, and can only occur once.

Element	Type	Definition
Time	**xs:string**	Represents the transition of the time of day to and from standard time and daylight saving time. MUST be present, and can only occur once. Format: *hh:mm:ss* *hh*: hours ranging from 0 to 23. *mm*: minutes ranging from 0 to 59. *ss*: seconds ranging from 0 to 59.
DayOrder	**xs:short**	For relative time zones, this represents the nth occurrence of the day that is specified in the **DayOfWeek** type 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 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. 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**	Represents the day of the week when the transition to and from standard time and daylight saving time occurs. MUST be present, and can only occur once.
Year	**xs:string**	Defines a time zone that changes, depending on the year. Can be present. Minimum: 1601 Maximum: 4500

When the **Year** value is present in the element (for dynamic time zones), the **DayOrder** MUST be between 1 and 31. When the **Year** value is not present (for relative time zones), the **DayOrder** 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.

2.2.3.25 t:Suggestion

The suggestion type specifies a single meeting suggestion in an Availability response.

```
<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>
```

Element	Type	Definition
MeetingTime	**xs:datetime**	Represents a suggested meeting time. MUST be present.
IsWorkTime	**xs:boolean**	Represents whether the suggested meeting time occurs during the scheduled working hours of the organizer. MUST be present.
SuggestionQuality	**t:SuggestionQuality**	Represents the quality of the suggested meeting time. SHOULD be present.<5>
AttendeeConflictDataArray	**t:ArrayOfAttendeeConflictData**	Contains an array of conflicts between attendees and the suggested meeting time. Can be present.

2.2.3.26 t:SuggestionDayResult

The **SuggestionDayResult** type specifies a single day that contains suggested meeting times in an Availability response.

```
<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>
```

Element	Type	Definition
Date	**xs:dateTime**	Date that contains the suggested meeting times. MUST be present.
DayQuality	**t:SuggestionQuality**	Quality of the best suggestion for the day. MUST be present.
SuggestionArray	**t:ArrayOfSuggestion**	Array of meeting suggestions. Can be present.<6>

2.2.3.27 m:SuggestionsResponseType

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

```
<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>
```

Element	Type	Definition
ResponseMessage	**m:ResponseMessageType**	Provides descriptive information about the response status. Can be present.
SuggestionDayResultArray	**t:ArrayOfSuggestionDayResult**	Contains an array of meeting suggestions organized by date. Can be present.

2.2.3.28 t:SuggestionsViewOptionsType

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

```
<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>
```

Element	Type	Definition	
GoodThreshold	**xs:int**		**GoodThreshold** is the threshold that determines whether the suggestion is considered Good or Fair. The suggested meeting time is considered Excellent if there are no conflicts.

Element	Type	Definition	
			The suggested meeting time is considered Poor if the percentage of conflicts is greater than 50 percent. The suggested meeting time is considered Good if the percentage of conflicts is less than the **GoodThreshold**. The suggested meeting time is considered Fair if the percentage of conflicts is greater than the **GoodThreshold**, but less than 50 percent. Can be present. If present, the value MUST be an integer >= 1 and <= 49. The default 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 int >=1 and <= 48 Default is 10.	
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 int >= 0 and <= 48. Default 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. Default is 30.	
MinimumSuggestionQuality	**t:SuggestionQuality**	Specifies the minimum quality of meeting suggestions that should	

Element	Type	Definition
		be returned in the response. Can be present. Default is **SuggestionQuality.Fair**.
DetailedSuggestionsWindow	**t:Duration**	Specifies the time span that is queried for detailed information about suggested meeting times. MUST be present. **StartTime** and **EndTime** fields have dates only and no time information present in the **DateTime**.
CurrentMeetingTime	**xs:dateTime**	Represents the start time of a meeting that you want to update with the suggested meeting time results. Can be present.
GlobalObjectId	**xs:string**	Represents the global object ID (PidLidGlobalObjectId) [MS-OXOCAL] of the Calendar item that should be ignored while calculating suggestions. Can be present.

2.2.3.29 t:TooBigGroupAttendeeConflictData

The **TooBigGroupAttendeeConflictData** 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>
```

This extends the **AttendeeConflictData** type.

2.2.3.30 t:UnknownAttendeeConflictData

The **UnknownAttendeeConflictData** 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>
```

This type extends the **AttendeeConflictData** type.

2.2.3.31 t:Value

The **Value** type specifies information that is returned in the XML of a response.

```
<xs:complexType name="Value">
  <xs:simpleContent>
    <xs:extension base="xs:string">
      <xs:attribute name="Name" type="xs:string" use="required" />
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

2.2.3.32 t:WorkingHours

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

```
  <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>
```

Element	Type	Definition
TimeZone	**t:SerializableTimeZone**	Contains information that identifies the time zone information. MUST be present.
WorkingPeriodArray	**t:ArrayOfWorkingPeriod**	Contains working period information for the mailbox user. MUST be present.

2.2.3.33 t:WorkingPeriod

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

```
  <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>
```

Element	Type	Definition
DayOfWeek	**t:DaysOfWeekType**	Contains the list of working days that are scheduled for the mailbox user. MUST be present.
StartTimeInMinutes	**xs:int**	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.

2.2.4 Elements

2.2.4.1 t:FreeBusyViewOptions

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

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

2.2.4.2 t:GetUserAvailabilityRequest

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

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

2.2.4.3 t:GetUserAvailabilityResponse

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

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

2.2.4.4 t:ServerVersionInfo

The **ServerVersionInfo** element specifies the version of the service.

```
<xs:element name="ServerVersionInfo">
   <xs:complexType>
      <xs:attribute name="MajorVersion" type="xs:int" use="optional"/>
      <xs:attribute name="MinorVersion" type="xs:int" use="optional"/>
      <xs:attribute name="MajorBuildNumber" type="xs:int" use="optional"/>
      <xs:attribute name="MinorBuildNumber" type="xs:int" use="optional"/>
      <xs:attribute name="Version" type="xs:string" use="optional"/>
   </xs:complexType>
```

```
</xs:element>
```

Attribute	Type	Definition
MajorVersion	**xs:int**	Describes the major version number of the server.
MinorVersion	**xs:int**	Describes the minor version number of the server.
MajorBuildNumber	**xs:int**	Describes the major build number.
MinorBuildNumber	**xs:int**	Describes the minor build number.
Version	**xs:string**	Version of the server that processes the request, as obtained from the **Server object** in the directory service.

2.2.4.5 t:SuggestionsViewOptions

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

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

2.2.4.6 t:TimeZone

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

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

2.2.4.7 t:Value

The **Value** element specifies information that is returned in the XML of a response.

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

2.2.5 Attributes

None.

2.2.6 Groups

None.

2.2.7 Attribute Groups

None.

2.2.8 Messages

The Availability service messages are specified in section 3.1.4.1.7.

3 Protocol Details

This protocol specifies a way of getting Calendar data for a set of mailboxes (can be 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 Server Details

3.1.1 Abstract Data Model

The Availability service is a stateless protocol.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

This protocol includes only one operation, **GetUserAvailability**, which is stateless and does not have sequencing rules.

Operation	Description
GetUserAvailability	The **GetUserAvailability** operation provides up-to-date availability information for a set of users.

3.1.4.1 GetUserAvailability

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

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

<wsdl:message name="GetUserAvailabilitySoapIn">
<wsdl:part name="GetUserAvailabilityRequest"
</wsdl:message>

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

The **GetUserAvailability** operation requires an input WSDL message called**GetUserAvailabilitySoapIn**. It will return an output WSDL message called **GetUserAvailabilitySoapOut**.

3.1.4.1.1 Simple Types

All simple types from section 2.2.2 are specific to this operation.

3.1.4.1.2 Complex Types

All complex types from section 2.2.3 are specific to this operation.

3.1.4.1.3 Elements

All elements from section 2.2.4 are specific to this operation.

3.1.4.1.4 Attributes

None.

3.1.4.1.5 Groups

None.

3.1.4.1.6 Attribute Groups

None.

3.1.4.1.7 Messages

3.1.4.1.7.1 GetUserAvailabilitySoapIn

The **GetUserAvailabilitySoapIn** WSDL message has one parameter, *GetUserAvailabilityRequest*.

Parameter	Element/Type	Description
GetUserAvailabilityRequest	**GetUserAvailabilityRequest** <7>	This part contains the information required to query for availability.

3.1.4.1.7.2 GetUserAvailabilitySoapOut

The following table lists the parameters for the **GetUserAvailabilitySoapOut** WSDL message.

Parameter	Element/Type	Description
GetUserAvailabilityResult	**GetUserAvailabilityResponse**	Response that contains the requested availability information.
ServerVersion	**ServerVersionInfo**	Used for diagnostic purposes.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

3.2 Client Details

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

3.2.1 Abstract Data Model

The Availability service is a stateless protocol.

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Message Processing Events and Sequencing Rules

None.

3.2.5 Timer Events

None.

3.2.6 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 permissions, and the other user's mailbox is on a computer that does not use the Availability service to provide free/busy information.

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

```
<?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: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 the Availability Web 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="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 Unsuccessful Response

4.3.1 SOAP Exception

The following is an example of a SOAP exception that is thrown when the **MailboxData** array 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>
```

4.3.2 GetUserAvailability Error response

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

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

The Availability service does not use additional security mechanisms.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

See [WSDL] for a specification of Web Service Description Language (WSDL).

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
                  xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
                  xmlns:s="http://www.w3.org/2001/XMLSchema"

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="Exchange2010"
               xmlns:m="http://schemas.microsoft.com/exchange/services/2006/messages"
               xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/messages"
               xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
               xmlns:xs="http://www.w3.org/2001/XMLSchema"

targetNamespace="http://schemas.microsoft.com/exchange/services/2006/messages">

      <!-- Import common types. -->
      <!-- <xs:import namespace="http://schemas.microsoft.com/exchange/services/2006/types"
/> -->
      <!-- schemaLocation="types.xsd" -->   />

      <xs:simpleType name="ResponseCodeType">
        <xs:annotation>
          <xs:documentation>

          </xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:enumeration value="NoError"/>
          <xs:enumeration value="ErrorAccessDenied"/>
          <xs:enumeration value="ErrorAccountDisabled"/>
          <xs:enumeration value="ErrorAddressSpaceNotFound"/>
          <xs:enumeration value="ErrorADOperation"/>
          <xs:enumeration value="ErrorADSessionFilter"/>
          <xs:enumeration value="ErrorADUnavailable"/>
          <xs:enumeration value="ErrorAutoDiscoverFailed"/>
          <xs:enumeration value="ErrorAvailabilityConfigNotFound"/>
          <xs:enumeration value="ErrorConnectionFailed"/>
          <xs:enumeration value="ErrorCorruptData"/>
          <xs:enumeration value="ErrorDataSourceOperation"/>
          <xs:enumeration value="ErrorFreeBusyGenerationFailed"/>
          <xs:enumeration value="ErrorIndividualMailboxLimitReached"/>
          <xs:enumeration value="ErrorInvalidCrossForestCredentials"/>
          <xs:enumeration value="ErrorIncorrectSchemaVersion"/>
          <xs:enumeration value="ErrorInsufficientResources"/>
          <xs:enumeration value="ErrorInternalServerError"/>
          <xs:enumeration value="ErrorInternalServerTransientError"/>
          <xs:enumeration value="ErrorInvalidAccessLevel"/>
          <xs:enumeration value="ErrorInvalidAuthorizationContext"/>
          <xs:enumeration value="ErrorInvalidFreeBusyViewType"/>
          <xs:enumeration value="ErrorInvalidMergedFreeBusyInterval"/>
```

```
            <xs:enumeration value="ErrorInvalidNetworkServiceContext"/>
            <xs:enumeration value="ErrorInvalidRequest"/>
            <xs:enumeration value="ErrorInvalidSecurityDescriptor"/>
            <xs:enumeration value="ErrorInvalidSmtpAddress"/>
            <xs:enumeration value="ErrorInvalidTimeInterval"/>
            <xs:enumeration value="ErrorItemNotFound"/>
            <xs:enumeration value="ErrorLogonAsNetworkServiceFailed"/>
            <xs:enumeration value="ErrorMailboxConfiguration"/>
            <xs:enumeration value="ErrorMailboxDataArrayEmpty"/>
            <xs:enumeration value="ErrorMailboxLogonFailed"/>
            <xs:enumeration value="ErrorMailboxMoveInProgress"/>
            <xs:enumeration value="ErrorMailboxStoreUnavailable"/>
            <xs:enumeration value="ErrorMailRecipientNotFound"/>
            <xs:enumeration value="ErrorMeetingSuggestionGenerationFailed"/>
            <xs:enumeration value="ErrorMissingArgument"/>
            <xs:enumeration value="ErrorNoCalendar"/>
            <xs:enumeration value="ErrorProxyRequestNotAllowed"/>
            <xs:enumeration value="ErrorProxyRequestProcessingFailed"/>
            <xs:enumeration value="ErrorPublicFolderRequestProcessingFailed"/>
            <xs:enumeration value="ErrorPublicFolderServerNotFound"/>
            <xs:enumeration value="ErrorRequestStreamTooBig"/>
            <xs:enumeration value="ErrorResponseSchemaValidation"/>
            <xs:enumeration value="ErrorResultSetTooBig"/>
            <xs:enumeration value="ErrorSchemaValidation"/>

            <xs:enumeration value="ErrorServerBusy"/>
            <xs:enumeration value="ErrorServiceDiscoveryFailed"/>
            <xs:enumeration value="ErrorTimeoutExpired"/>
            <xs:enumeration value="ErrorTokenSerializationDenied"/>
            <xs:enumeration value="ErrorWin32InteropError"/>
          </xs:restriction>
        </xs:simpleType> <xs:complexType name="ResponseMessageType">
          <xs:sequence minOccurs="0">
            <xs:element name="MessageText" type="xs:string" minOccurs="0"/>
            <xs:element name="ResponseCode" type="m:ResponseCodeType" minOccurs="0"/>
            <xs:element name="DescriptiveLinkKey" type="xs:int" minOccurs="0"/>
            <xs:element name="MessageXml" minOccurs="0">
              <xs:complexType>
                <xs:sequence>
                  <xs:any processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
                </xs:sequence>
              </xs:complexType>
            </xs:element>
          </xs:sequence>
          <xs:attribute name="ResponseClass" type="t:ResponseClassType" use="required"/>
        </xs:complexType> <!-- Base types for all messages. --> <xs:complexType
  name="BaseRequestType" abstract="true"/> <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" /> <!-- FreeBusyResponse --> <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> <!-- GetUserAvailabilityResponse --> <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>

    <xs:schema id="types" elementFormDefault="qualified" version="Exchange2010"
               xmlns:t="http://schemas.microsoft.com/exchange/services/2006/types"
               targetNamespace="http://schemas.microsoft.com/exchange/services/2006/types"
               xmlns:tns="http://schemas.microsoft.com/exchange/services/2006/types"
               xmlns:xs="http://www.w3.org/2001/XMLSchema">

      <xs:import namespace="http://www.w3.org/XML/1998/namespace"/>

      <xs:simpleType name="ExchangeVersionType">
        <xs:restriction base="xs:string">
          <xs:enumeration value="Exchange2007" />
          <xs:enumeration value="Exchange2007_SP1" />
        </xs:restriction>
      </xs:simpleType>
      <!-- Used in the SOAP header of responses for diagnostics purposes. -->
      <xs:element name="ServerVersionInfo">
        <xs:complexType>
          <xs:attribute name="MajorVersion" type="xs:int" use="optional"/>
          <xs:attribute name="MinorVersion" type="xs:int" use="optional"/>
          <xs:attribute name="MajorBuildNumber" type="xs:int" use="optional"/>
          <xs:attribute name="MinorBuildNumber" type="xs:int" use="optional"/>
          <xs:attribute name="Version" type="xs:string" use="optional"/>
        </xs:complexType>
      </xs:element>
      <xs:simpleType name="LegacyFreeBusyType">
```

```
          <xs:restriction base="xs:string">
            <xs:enumeration value="Free" />

            <xs:enumeration value="Tentative" />
            <xs:enumeration value="Busy" />
            <xs:enumeration value="OOF" />
            <xs:enumeration value="NoData" />
          </xs:restriction>
        </xs:simpleType>
        <!-- Days of the week and months-->
        <xs:simpleType name="DayOfWeekType">
          <xs:restriction base="xs:string">
            <xs:enumeration value="Sunday" />
            <xs:enumeration value="Monday" />
            <xs:enumeration value="Tuesday" />
            <xs:enumeration value="Wednesday" />
            <xs:enumeration value="Thursday" />
            <xs:enumeration value="Friday" />
            <xs:enumeration value="Saturday" />
            <xs:enumeration value="Day" />
            <xs:enumeration value="Weekday" />
            <xs:enumeration value="WeekendDay" />
          </xs:restriction>
        </xs:simpleType>
        <xs:simpleType name="DaysOfWeekType">
          <xs:list itemType="t:DayOfWeekType" />
        </xs:simpleType>
        <xs:simpleType name="MeetingAttendeeType">
          <xs:restriction base="xs:string">
            <xs:enumeration value="Organizer"/>
            <xs:enumeration value="Required"/>
            <xs:enumeration value="Optional"/>
            <xs:enumeration value="Room"/>
            <xs:enumeration value="Resource"/>
          </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="CalendarEventDetails">
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="1" name="ID" type="xs:string" />
            <xs:element minOccurs="0" maxOccurs="1" name="Subject" type="xs:string" />
            <xs:element minOccurs="0" maxOccurs="1" name="Location" type="xs:string" />
            <xs:element minOccurs="1" maxOccurs="1" name="IsMeeting" type="xs:boolean" />
            <xs:element minOccurs="1" maxOccurs="1" name="IsRecurring" type="xs:boolean" />

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

```
      <xs:complexType name="ArrayOfCalendarEvent">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="CalendarEvent"
type="t:CalendarEvent" />
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="Duration">
        <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:sequence>
      </xs:complexType>
      <xs:complexType name="EmailAddress">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="1" name="Name" type="xs:string" />
          <xs:element minOccurs="1" maxOccurs="1" name="Address" type="xs:string" />
          <xs:element minOccurs="0" maxOccurs="1" name="RoutingType" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="Mailbox" type="t:EmailAddress" />

      <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:simpleType name="ExternalAudience">
        <xs:restriction base="xs:string">
          <xs:enumeration value="None" />
          <xs:enumeration value="Known" />
          <xs:enumeration value="All" />
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="ResponseClassType">
        <xs:restriction base="xs:string">
          <xs:enumeration value="Success" />
          <xs:enumeration value="Warning" />
          <xs:enumeration value="Error" />
        </xs:restriction>
      </xs:simpleType>
      <!-- Value used in Message Xml -->
      <xs:complexType name="Value">
        <xs:simpleContent>
```

```
          <xs:extension base="xs:string">
            <xs:attribute name="Name" type="xs:string" use="required" />
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
      <xs:element name="Value" type="t:Value"/>
    </xs:schema>
  </wsdl:types>

  <!-- Availability service messages -->

  <wsdl:message name="GetUserAvailabilitySoapIn">
    <wsdl:part name="GetUserAvailabilityRequest" element="tns:GetUserAvailabilityRequest" />
  </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: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: Product Behavior

The information in this specification is applicable to the following product versions. References to product versions include released service packs.

- Microsoft Office Outlook 2007
- Microsoft Exchange Server 2007
- Microsoft Outlook 2010
- Microsoft Exchange Server 2010

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. The new behavior also applies to subsequent service packs of the product unless otherwise specified.

Unless otherwise specified, any statement of optional behavior in this specification 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 product does not follow the prescription.

<1> Section 1.5: Outlook 2007 and Outlook 2010 use Windows Integrated Authentication to request free/busy information from Exchange 2007 and Exchange 2010.

<2> Section 2.2.2.2: Free/busy example:

[XML]

```
<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>
```

And the **CalendarEventArray** in the response is

[XML]

```
<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 **MergedFreeBusy** string will be the following: 000000000000332000000000

Between 1:30 and 2:00 P.M., the Mailbox has two overlapping appointments, one marked OOF and the other marked Busy. The Merged Free/Busy string for that slot must be marked OOF. The No data value (4) is not returned in the Merged Free/Busy string.

<3> Section 2.2.2.2: The Availability service supports this by doing an access check with the requestor's credentials against the permissions that have been set on the Mailbox owner's Calendar folder. The following shows how the access level that is returned from this check is treated.

RequestedView (from the GetUserAvailabilityRequest)	**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)

<4> Section 2.2.3.1: When a meeting request contains an invalid e-mail address, the server does not include an UnknownAttendeeConflictData element.

<5> Section 2.2.3.25: Exchange 2007 does not return the <<SuggestionQuality>> element in a <<Suggestion>> element when the value of the <<SuggestionQuality>> element is "Poor".

<6> Section 2.2.3.26: Exchange 2007 does not return the <<SuggestionArray>> element in a <<SuggestionDayResult>> element when the value of the <<DayQuality>> element is "Poor".

<7> Section 3.1.4.1.7.1: When a user creates a meeting request, adds attendees, and switches to the scheduling assistant to view the attendees' free/busy status, Outlook 2007 and Outlook 2010 issue a request to the Availability service.

8 Change Tracking

This section identifies changes made to [MS-OXWAVLS] protocol documentation between July 2009 and November 2009 releases. Changes are classed as major, minor, or editorial.

Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- A protocol is deprecated.
- The removal of a document from the documentation set.
- Changes made for template compliance.

Minor changes do not affect protocol interoperability or implementation. Examples are updates to fix technical accuracy or ambiguity at the sentence, paragraph, or table level.

Editorial changes apply to grammatical, formatting, and style issues.

No changes means that the document is identical to its last release.

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

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

- Content removed for template compliance.
- Obsolete document removed.

Editorial changes always have the revision type "Editorially updated."

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

Protocol syntax refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.

Protocol revision refers to changes made to a protocol that affect the bits that are sent over the wire.

Changes are listed in the following table. If you need further information, please contact protocol@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Revision Type
1.5 Prerequisites/Preconditions	48172 Added information about retrieving the Web service URL.	N	Content update.
2.2.3.25 t:Suggestion	46182 Added a behavior note that describes the response when the value of the <SuggestionQuality> element is "Poor".	N	New product behavior note added.
2.2.3.26 t:SuggestionDayResult	46182 Added a behavior note that describes the response when the value of the <DayQuality> element is "Poor".	N	New product behavior note added.

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