[MS-OMS]:
Office Mobile Service Protocol Specification

Revision Summary

Date	Revision History	Revision Class	Comments
07/13/2009	0.1	Major	Initial Availability
08/28/2009	0.2	Editorial	Revised and edited the technical content
11/06/2009	0.3	Editorial	Revised and edited the technical content
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06/07/2010	1.03	Editorial	Revised and edited the technical content
06/29/2010	1.04	Editorial	Changed language and formatting in the technical content.
07/23/2010	1.05	Major	Significantly changed the technical content.
09/27/2010	1.05	No change	No changes to the meaning, language, or formatting of the technical content.
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1 Introduction

This document specifies the Office Mobile Service Protocol. This protocol is used to transmit mobile messages between a protocol client and a protocol server.

1.1 Glossary

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

ASCII
authenticated users
certificate

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

alert
Hypertext Markup Language (HTML)
Multipurpose Internet Mail Extensions (MIME)
Simple Mail Transfer Protocol (SMTP)
site
SOAP fault
Uniform Resource Identifier (URI)
Uniform Resource Locator (URL)
Web service
Web Services Description Language (WSDL)
XML namespace
XML namespace prefix

The following terms are specific to this document:

Synchronized Multimedia Integration Language (SMIL): An XML-based language that enables a data stream to be divided, transmitted as separate streams, and then recombined as a single stream, as described in [W3C-SMIL3.0].

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.

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

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

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

[RFC5321] Klensin, J., "Simple Mail Transfer Protocol", RFC 5321, October 2008, http://www.rfc-editor.org/rfc/rfc5321.txt

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

[SOAP1.2/1] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part1-20030624

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

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

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

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

1.2.2 Informative References

[IANA-CharSets] IANA, "Character Sets", Last Updated 2010-11-04, http://www.iana.org/assignments/character-sets

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

[MS-LCID] Microsoft Corporation, "Windows Language Code Identifier (LCID) Reference".

[MS-OFCGLOS] Microsoft Corporation, "Microsoft Office Master Glossary".

1.3 Protocol Overview (Synopsis)

This protocol allows a client to remotely send mobile messages to a server that processes and delivers these messages to a recipient's phone. The protocol of data communication from a protocol server to a phone is not in the scope of this document.

A typical scenario for using this protocol is a data communication application between software in a computer with a phone. The software, as a protocol client, sends the data as specified in this document to a protocol server, and the protocol server will deliver the data to the phone. The phone can reply to the protocol server and the protocol server delivers the message to the protocol client via **SMTP** protocol.

Another scenario for using this protocol is an **alert (2)** application sent from software in a computer to a phone. The software, as a protocol client, sends the data as specified in this document to a protocol server, and the protocol server will deliver the data to the phone. Such an application could use this protocol to provide user a notification on the phone when user has no access to the computer or Internet.

1.3.1 Roles

Two roles are always being played whenever this protocol is used. There is always a protocol client issuing request to a protocol server, and there is always a protocol server to receive, process and respond to the requests of protocol clients.

1.3.1.1 Protocol Server

The protocol server implements the Web service described by this protocol. It also maintains the database of authenticated users who can send a valid request to this server, as well as delivers the data sent from these users to the recipients' phones according to the request. It also collects the replies from the phones and delivers to the protocol clients accordingly.

1.3.1.2 Protocol Clients

Protocol clients issue commands to the protocol server via the Web service methods described in this protocol.

The client MAY accept replies of the messages from server if two-way communication is required between the client and the recipient's phone. If the application does not require a reply (such as alert application), the client MAY not implement the interpretation mechanism in receiving of the reply message. The client however, MUST implement the message delivery mechanism from client to server.

1.3.2 Scenarios

The methods described by this service enable several types of data communication operations.

1.3.2.1 Obtaining Information from the Protocol Server

Protocol clients can send a request to understand what the protocol server can offer. A common usage is for the protocol clients to configure the behavior of itself according to the server's information.

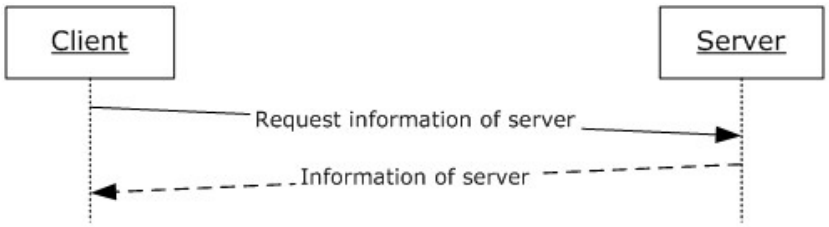

Figure 1: Obtaining information of protocol server

1.3.2.2 Obtaining Information from an Authenticated User

Protocol clients can obtain more detailed information from an **authenticated user** from the server. A common usage is for the protocol clients to obtain user's phone number as the recipient of an alert.

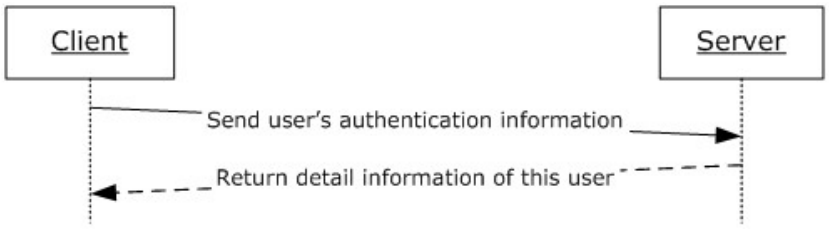

Figure 2: Obtaining information from an authenticated user

Prior to the initiation of this request, the client is configured with the user's authenticated information.

1.3.2.3 Data Communication

Protocol clients can initiate communications with the protocol server by sending a **SOAP** message. The protocol server will send a response to the client. If the protocol server receives a mobile message as a reply, this will be delivered to the protocol client via **SMTP**.

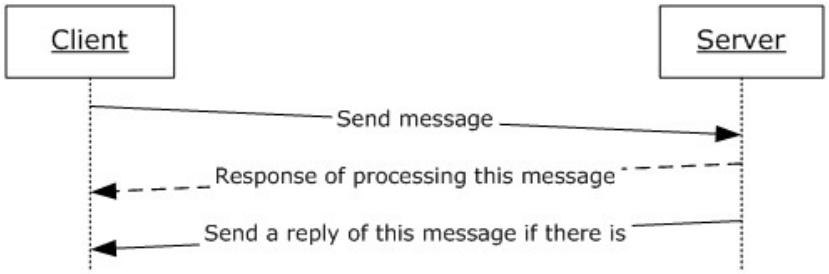

Figure 3: Data communication

Prior to the initiation of sending messages to server, the client is configured with the user's authenticated information.

1.4 Relationship to Other Protocols

This protocol uses SOAP over HTTPS as shown in the following layering diagram:

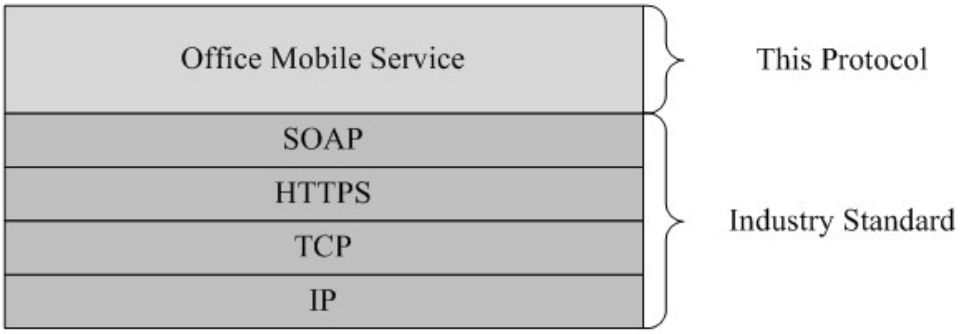

Figure 4: This protocol in relation to other protocols

This protocol has no interactions with parallel protocols, nor are there other protocols that substitute for it.

1.5 Prerequisites/Preconditions

This protocol operates against a **site (1)**, that is identified by a **URL** that is known by protocol clients. The protocol client also knows the user's authentication information for sending a request to retrieve user information or deliver message to the server. The protocol requires that SOAP data transferring under HTTPS to protect the user's authentication information.

The protocol server maintains records of known protocol clients. For each client the server will store the information needed to authenticate messages sent from the client, and the e-mail addresses needed to deliver messages to the client.

1.6 Applicability Statement

The protocol is designed to allow protocol clients to send mobile messages to the protocol server.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

In the following sections, the schema definition might be less restrictive than the processing rules imposed by the protocol. The **WSDL** in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL specifies additional restrictions that reflect protocol behavior. For example, the schema definition might allow for an element to be **empty**, **null**, or **not present** but the behavior of the protocol as specified restricts the same elements to being **non-empty**, **present**, and **not null**.

2.1 Transport

Protocol servers MUST support SOAP over HTTPS, as specified in [RFC2818], for securing communication with clients.

Protocol messages, including service discovery and mobile messages from protocol client to protocol server MUST be formatted as specified either in [SOAP1.1] (section 4 SOAP Envelope) or in [SOAP1.2/1] (section 5 SOAP Message Construct). Protocol server faults MUST be returned either using HTTP status codes as specified in [RFC2616] (section 10 Status Code Definitions) or using **SOAP faults** as specified either in [SOAP1.1] (section 4.4 SOAP Fault) or in [SOAP1.2/1] (section 5.4 SOAP Fault).

The replies of mobile messages sent from protocol servers to protocol clients MUST be transmitted using Simple Mail Transfer Protocol (SMTP), as specified in [RFC5321].

2.2 Common Message Syntax

This section contains common structures used by this protocol. The syntax of the structures uses XML Schema, as specified in [XMLSCHEMA1] and [XMLSCHEMA2], and WSDL (Web Services Description Language), as specified in [WSDL].

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS]. Although this specification associates a specific **XML namespace prefix** for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

Prefix	Namespace URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[WSDL]
tns	http://schemas.microsoft.com/office/Outlook/2006/OMS	
s	http://www.w3.org/2001/XMLSchema	[WSDL]
soap12	http://schemas.xmlsoap.org/wsdl/soap12/	[WSDL]
(none)	http://schemas.microsoft.com/office/Outlook/2006/OMS	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]

2.2.2 Messages

The WSDL message definitions are specified in their respective operations in the section 3.1.

The following message definition is applied to the reply messages sent from server to client after the server collects this reply message from the recipient's phone.

2.2.2.1 Mobile message packaged as MIME formatted e-mail message

The following sections describe the structure of mobile messages packaged as **MIME** formatted e-mail messages.

2.2.2.1.1 Message Headers

When encoding a reply into an e-mail message, set SMTP headers as described in the following sections so that the client can properly recognize the incoming e-mail messages as coming from a mobile phone.

2.2.2.1.1.1 Content-Class

Sets the message header "Content-class" to one of following values:

- **Text message content class:** MS-OMS-SMS

Use this if the mobile message is a text message.

- **Multimedia message content class:** MS-OMS-MMS

Use this if the mobile message is a multimedia message.

2.2.2.1.1.2 X-MS-Reply-To-Mobile

Adds the following header specifically for conveying the recipient's mobile number:

X-MS-Reply-To-Mobile: The value of this header SHOULD be a valid mobile phone number.

2.2.2.1.1.3 To

The value of the **To** field is an e-mail address provided by the authenticated user for receiving incoming mobile messages.

2.2.2.1.1.4 From

The value of the **From** field is the e-mail address that is used for sending the reply. The server is required to provide a unique SMTP address to the mobile recipient for sending back replies.

2.2.2.1.1.5 Subject

If the reply e-mail message is for an incoming text message, the value of the **Subject** field MUST be either the first 40 or so characters of the text message body or the first line of the text message (if there are multiple lines in the message body).

If the reply e-mail message is for an incoming multimedia message, the server MUST set the subject of the e-mail message as the subject of the multimedia message. The subject of the MMS message SHOULD remind users to view the message content by opening the message as shown in the following example:

Subject of MMS Message (Open the message to view content).

2.2.2.1.2 Message Body

2.2.2.1.2.1 Incoming Text Message

To compose the message body for an incoming text message, the server MUST create a plain text MIME part for the text message content by adding the following headers:

Content-Type: text/plain; charset=xxxx

Content-Transfer-Encoding: quoted-printable

Examples of valid **charset** values are "us-ascii" (**ASCII**) and "gb2312" (Simplified Chinese). The server can also use multipart/alternative content-type and provide a HTML view of the message body. A reference of valid **charset** values can be found in [IANA-CharSets].

2.2.2.1.2.2 Incoming Multimedia Message

When composing the message body for incoming multimedia messages, the server MUST follow the 3GPP standard in encoding multimedia messages as MIME-formatted SMTP mails.

If SMIL is available, the server MUST compose the MIME body as multipart/related:

Content-Type: multipart/related; type="application/smil";

The first MIME part of the SMIL file MUST be:

Content-Type: application/smil; name = "mmspresent.smil"

Media parts of the MMS message MUST be encoded as MIME parts with corresponding media types following the SMIL file.

If SMIL is not available, the server MUST compose the MIME body as multipart/mixed:

Content-type: multipart/mixed

The server MUST encode media parts of the multimedia message as MIME parts with the corresponding media types.

2.2.3 Elements

This specification does not define any common XML Schema element definitions.

2.2.4 Complex Types

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

Complex type	Description
tAudio	Base64 encoded audio object.
tBody	Body part of **SMIL**.
tContent	Content of the **xmsBody**.
tDeliveryError	Indicates the success or failure of the attempt to send this message to the intended

Complex type	Description
	recipient.
tHeader	Header part of SMIL.
tImg	Base64 encoded image object.
tLayout	Layout part of SMIL.
tMeta	Metadata indicating the author of the SMIL.
tMmsSlides	The presentation description part for multimedia messages.
tPar	Specifies multimedia message's slides.
tRegion	Specifies the region of the text or image.
tRoot-layout	Specifies phone screen resolution, in pixels, and background color.
tText	Plain text object.
tTo	One or more recipients of this mobile message.
tUser	The user information of the sender of this mobile message.
tXmsBody	Content body of this mobile message.
tXmsData	Content of mobile message.
tXmsHeader	Header information of this mobile message.
tXmsResponse	This complex type contains one or more error elements that indicate the success or failure of the attempt to send this message to the intended recipient.

2.2.4.1 tAudio

Base64 encoded audio object.

```
<xs:complexType name="tAudio">
    <xs:attribute name="src" type="xs:string" use="required" />
</xs:complexType>
```

scr: An identifier that refers to the **contentId** attribute of the **content** element.

2.2.4.2 tBody

Body part of SMIL.

```
<xs:complexType name="tBody">
    <xs:sequence>
        <xs:element name="par" type="tns:tPar" maxOccurs="unbounded" />
    </xs:sequence>
</xs:complexType>
```

par: Multiple occurrences. Specifies multimedia message slides, which MUST be an XML fragment that conforms to the XML schema of the **tPar** complex type.

2.2.4.3 tContent

Content of the **xmsBody**.

```
<xs:complexType name="tContent">
    <xs:simpleContent>
        <xs:extension base="xs:string">
            <xs:attribute name="contentType" type="xs:string" use="required" />
            <xs:attribute name="contentId" type="xs:string" use="required" />
            <xs:attribute name="contentLocation" type="xs:string" use="required" />
        </xs:extension>
    </xs:simpleContent>
</xs:complexType>
```

contentType: MIME (Multipurpose Internet Mail Extensions) content type.

Addition to the content, text messages support the "text/plain" content type. The media objects listed in following table for multimedia messages are supported.

Content	MIME type	Description
Text	text/plain	Plain text. Can be used by both text and multimedia messages.
Static image.	image/jpeg	96 DPI. Smaller, or equal to, the mobile screen size defined in the root-layout element of the **xmsData** string. Base64 encoded. Only applies to multimedia messages.
Multi-frame image.	image/gif	GIF89a, 96 DPI, maximum of 256 colors. Smaller or equal to the mobile screen size defined in the root-layout element of the **xmsData** string. Base64 encoded. Only applies to multimedia messages.
MIDI audio format.	Audio/mid	MIDI format. Base64 encoded. Only applies to multimedia messages.
AMR sound format.	Audio/AMR	AMR format, single channel, 8K Hz. Base64 encoded. Only applies to multimedia messages.

contentId: Content identifier referred in SMIL body part. The server MUST ignore it for text message and non-slide mode multimedia message.

contentLocation: Indicates the file name of a media object, which can be used as the default file name when the object is saved.

2.2.4.4 tDeliveryError

Indicates the success or failure of the attempt to send this message to the intended recipient.

```
<xs:complexType name="tDeliveryError">
    <xs:sequence>
        <xs:element name="content" type="xs:string" minOccurs="0" />
        <xs:element name="recipientList" type="xs:string" minOccurs="0" />
    </xs:sequence>
    <xs:attribute name="code" type="xs:string" use="required" />
    <xs:attribute name="severity" type="xs:string" use="required" />
</xs:complexType>
```

The error element has two child elements: **content**, which is a string containing a description or parameters of the error, and **recipientList**, which is a string containing a semi-colon–delimited list of recipients that are affected by the error.

At most, one content element and one recipientList element can be defined for each error element. The absence of a recipientList element means that the error applies to all recipients.

Each error code has two required attributes: **code** and **severity**. The possible values are as follows:

- When either a complete and successful send, or the service is sending a non-error message to the client.
  - **Code:** The "ok" value MUST be set.
  - **Severity:** The "neutral" value MUST be set.
- When the message has not been delivered to one or more recipients:
  - **Code:** The error code MUST be set follow the different situations in the following table or define its own protocol.
  - **Severity:** The "failure" value MUST be set.

Value of "code" attribute	Explanation	content child element	recipientList child element
invalidUser	Invalid or unrecognized user identifier or password.	Not applicable	Not applicable
unregisteredUser	User has not registered for the service. The service provider returns "invalidUser" if it cannot make the judgment based on the user identifier.	Not applicable	Not applicable
unregisteredService	User has not subscribed to the service listed in the <content> element.	"SMS" or "MMS"	Not applicable
expiredUser	User's prepayment is used up or the registration is expired. The error code is for the service provider who provides prepaid service.	Not applicable	Not applicable
invalidRecipient	One or more recipients are not valid or not recognized. Returns semicolon delimited recipients in the <recipientList> element.	Not applicable	Recipent1; Recipient2; …
crossCarrier	One or more recipients are from a carrier that is not supported by the sender's carrier. Returns semicolon delimited recipients in the <recipientList> element.	Not applicable	Recipent1; Recipent2;…
invalidChar	Message subject or body	Not applicable	Not applicable

Value of "code" attribute	Explanation	content child element	recipientList child element
	contains characters or words that are not allowed by local policy or not supported by the service provider.		
invalidMedia	Invalid or unsupported media. Returns content IDs of invalid media in the <content> element. (Attribute only applies to MMS messages).	location1; location2…	Not applicable
perDayMsgLimit	Exceeded limit on the number of messages a user can send per day. Returns the limit number in the **content** element.	Limit on number of messages per day in the form: "# SMS" or "# MMS"	Recipent1; Recipent2;…
perMonthMsgLimit	Exceeded limit on the number of messages a user can send per month. Returns the limit number in the **content** element.	Limit on number of messages per month in the form: "# SMS" or "# MMS"	Recipent1; Recipent2;…
lengthLimit	Exceeded length limit of SMS message. Returns maximum length limits for single byte messages and double byte messages in the **content** element.	DB or mixed limit; SB limit	Not applicable
sizeLimit	Exceeded size limit of MMS message.	Maximum size allowed (in bytes) of MMS messages	Not applicable
slidesLimit	Exceeded limit on number of slides an MMS message can have.	Maximum number of slides allowed per MMS message	Not applicable
invalidFormat	Invalid or unrecognized XMS data format.	Not applicable	Not applicable
serviceNetwork	Service-side network problem, for example, unable to connect to short message service center (SMSC).	Not applicable	Recipent1; Recipent2;…
noScheduled	Scheduled send is not supported. The message was sent immediately.	Not applicable	Not applicable
lowBalance	User's account balance is low. Returns current balance and cost per message in the **content** element.	Returns current balance and cost per message separated by semi-colons (use currency symbol before each number). For example, "$5.00;$0.10"	Recipent1; Recipent2;…
ceasedService	Notifies client that the service is terminated.	Not applicable	Not applicable

Value of "code" attribute	Explanation	content child element	recipientList child element
other	Use this error code for all other errors.	Error message	Recipent1; Recipent2;…

- When the server information or service properties are changed, the server SHOULD return the following **xmsResponse** element

  - **Code:** The "serviceUpdate" value MUST be set.

  - **Severity:** The "neutral" value MUST be set.

  - **Content:** UTC time in format of YYYY-MM-DDThh:mm:ssZ MUST be set. Second part ("ss") MUST be "00" and the accuracy is at minute level.

The following are notes on the use of the **tDeliveryError** type and **Severity** attribute:

- If the error element is not included in the **xmsResponse** string, the client assumes that a failure error occurred.
- If the error element without the code attribute is included in an **xmsResponse** string, the client assumes that an unknown failure error occurred.
- If the error element without the severity attribute is included in an **xmsResponse** string, the client assumes that the severity is "neutral."
- If multiple error codes are returned, the error that has the highest severity attribute ("failure" is higher than "neutral") decides whether the client generates a Non-delivery Report (NDR) and sends it to the user. If there are one or more "failure" errors, the OMS client generates an NDR letting the user know that the message has not been delivered.

2.2.4.5 tHeader

Header part of SMIL.

```
<xs:complexType name="tHeader">
    <xs:sequence>
        <xs:element name="meta" type="tns:tMeta" minOccurs="0" />
        <xs:element name="layout" type="tns:tLayout" />
    </xs:sequence>
</xs:complexType>
```

Meta: Metadata indicating the author of the SMIL, which MUST be an XML fragment that conforms to the XML schema of the **tMeta** complex type.

Layout: Layout part of SMIL, which MUST be an XML fragment that conforms to the XML schema of the **tLayout** complex type.

2.2.4.6 tImg

Base64 encoded image object.

```
<xs:complexType name="tImg">
    <xs:attribute name="src" type="xs:string" use="required" />
```

```
    <xs:attribute name="region" type="xs:string" use="required" />
</xs:complexType>
```

scr: An identifier that refers to the **contentId** attribute of the **content** element.

region: Region for displaying the image. It has the same value as the **id** attribute of the **tRegion** which is a child of the **tLayout** complex type. The value could be "image" or "text".

2.2.4.7 tLayout

Layout part of SMIL.

```
<xs:complexType name="tLayout">
    <xs:sequence>
        <xs:element name="root-layout" type="tns:tRoot-layout" />
        <xs:element name="region" type="tns:tRegion" maxOccurs="2" />
    </xs:sequence>
</xs:complexType>
```

tRoot-layout: Specifies phone screen resolution, in pixels, and background color. MUST be an XML fragment that conforms to the XML schema of the **tRoot-layout** complex type.

tRegion: Specifies the region of the text or image. MUST be an XML fragment that conforms to the XML schema of the **tRegion** complex type.

2.2.4.8 tMeta

Metadata indicating the author of the SMIL

```
<xs:complexType name="tMeta">
    <xs:attribute name="name" type="xs:string" use="required" />
    <xs:attribute name="content" type="xs:string" use="required" />
</xs:complexType>
```

name: The server MUST ignore this value.

content: The server MUST ignore this value.

2.2.4.9 tMmsSlides

The presentation description part for multimedia messages.

```
<xs:complexType name="tMmsSlides">
    <xs:sequence>
        <xs:element name="head" type="tns:tHeader" minOccurs="0" />
        <xs:element name="body" type="tns:tBody" />
    </xs:sequence>
</xs:complexType>
```

Head: Header part of SMIL, which MUST be an XML fragment that conforms to the XML schema of the **tHeader** complex type.

Body: Body part of SMIL, which MUST be an XML fragment that conforms to the XML schema of the **tBody** complex type.

2.2.4.10 tPar

Specifies the slide of the multimedia message.

```
<xs:complexType name="tPar">
    <xs:sequence>
        <xs:element name="img" type="tns:tImg" minOccurs="0" />
        <xs:element name="text" type="tns:tText" minOccurs="0" />
        <xs:element name="audio" type="tns:tAudio" minOccurs="0" />
    </xs:sequence>
    <xs:attribute name="dur" type="xs:unsignedInt" use="required" />
</xs:complexType>
```

img: Base64 encoded image object, which MUST be an XML fragment that conforms to the XML schema of the **tImg** complex type.

text: Plain text object, which MUST be an XML fragment that conforms to the XML schema of the **tText** complex type.

audio: Base64 encoded audio object, which MUST be an XML fragment that conforms to the XML schema of the **tAudio** complex type.

dur: Specifies duration in milliseconds that the slide will be played.

2.2.4.11 tRegion

Specifies the region of the text or image.

```
<xs:complexType name="tRegion">
    <xs:attribute name="id" type="xs:string" use="required" />
    <xs:attribute name="left" type="xs:unsignedInt" use="required" />
    <xs:attribute name="top" type="xs:unsignedInt" use="required" />
    <xs:attribute name="width" type="xs:unsignedInt" use="required" />
    <xs:attribute name="height" type="xs:unsignedInt" use="required" />
</xs:complexType>
```

id: MUST be either "image" or "text" indicating the type of region being defined.

left: Specifies the left position, in pixels, of the region relative to the left edge of phone screen.

top: Specifies the top position, in pixels, of the region relative to the top edge of the phone screen.

width: Specifies the width of the region, in pixels.

height: Specifies the height of the region, in pixels.

2.2.4.12 tRoot-layout

Specifies phone screen resolution, in pixels, and background color.

```
<xs:complexType name="tRoot-layout">
    <xs:attribute name="width" type="xs:unsignedInt" use="required" />
```

```
    <xs:attribute name="height" type="xs:unsignedByte" use="required" />
    <xs:attribute name="background-color" type="xs:string" use="required" />
</xs:complexType>
```

width: Phone screen's width in pixels.

height: Phone screen's height in pixels.

background-color: The background color of slides. The background color is a RGB color encoded as a string with format "#RRGGBB". Each of RR, GG and BB is a hexadecimal encoded number ranging from 00 for 0 to "FF" for 255.

- RR represents the red value.
- GG represents the green value.
- BB represents the blue value.

2.2.4.13 tText

Plain text object.

```
<xs:complexType name="tText">
    <xs:attribute name="src" type="xs:string" use="required" />
    <xs:attribute name="region" type="xs:string" use="required" />
</xs:complexType>
```

scr: An identifier that refers to the **contentId** attribute of the **content** element.

region: Region for displaying the text. It has the same value as the **id** attribute of the **tRegion** which is a child of **tLayout** complex type. The value could be "image" or "text".

2.2.4.14 tTo

One or more recipients of this mobile message.

```
<xs:complexType name="tTo">
    <xs:sequence>
        <xs:element maxOccurs="unbounded" name="recipient" type="xs:string" />
    </xs:sequence>
</xs:complexType>
```

recipient: Multiple occurrences. Refers to the recipient's mobile phone number (address). At least one recipient is required.

2.2.4.15 tUser

The user information of the sender of this mobile message.

```
<xs:complexType name="tUser">
    <xs:sequence>
        <xs:element name="userId" type="xs:string" minOccurs="0" />
        <xs:element name="password" type="xs:string" minOccurs="0" />
        <xs:element name="replyPhone" type="xs:string" minOccurs="0" />
```

```
        <xs:element name="customData" type="xs:string" minOccurs="0" />
    </xs:sequence>
</xs:complexType>
```

userId: User's identification of the sender.

password: User's password of the sender.

replyPhone: Reply number or callback number. Service providers that do not support callback numbers can ignore this element.

customData: Protocol server MUST ignore this value.

2.2.4.16 tXmsBody

Content body of this mobile message.

```
<xs:complexType name="tXmsBody">
    <xs:sequence>
        <xs:element name="mmsSlides" type="tns:tMmsSlides" />
        <xs:element name="content" type="tns:tContent" maxOccurs="unbounded" />
    </xs:sequence>
    <xs:attribute name="format" type="xs:string" use="required" />
</xs:complexType>
```

mmsSlides: The presentation description part for multimedia messages, which MUST be an XML fragment that conforms to the XML schema of the **tMmsSlides** complex type.

Content: Represents one of the following:

- The text messages, if **format** attribute of **xmsBody** is "SMS". Multiple content elements are possible for text message with each element representing a division of a longer message. The server MUST deliver each of the elements as individual text messages in sequence.
- Text, image, or audio object for a slide if **format** attribute of **xmsBody** is "MMS" and SMIL part is available (slide mode).
- Page of text, image, or audio object of multimedia message, if **format** attribute of **xmsBody** is "MMS" and SMIL part is not available (non-slide mode).

MUST be an XML fragment that conforms to the XML schema of the **tContent** complex type.

format: Specifies the format or type of the xmsBody element. It MUST be "SMS" for a text message or "MMS" for a multimedia message.

2.2.4.17 tXmsData

Content of a mobile message.

```
<xs:complexType name="tXmsData">
    <xs:sequence>
        <xs:element name="user" type="tns:tUser" minOccurs="0" />
        <xs:element name="xmsHead" type="tns:tXmsHeader" minOccurs="0" />
        <xs:element name="xmsBody" type="tns:tXmsBody" />
    </xs:sequence>
```

```
    <xs:attribute name="client" type="xs:string" />
</xs:complexType>
```

user: The user information of the sender of this mobile message, which MUST be an XML fragment that conforms to the XML schema of the **tUser** complex type.

xmsHead: Header information of this mobile message, which MUST be an XML fragment that conforms to the XML schema of the **tXmsHeader** complex type.

xmsBody: Content body of this mobile message, which MUST be an XML fragment that conforms to the XML schema of the **tXmsBody** complex type.

2.2.4.18 tXmsHeader

Header information of this mobile message.

```
<xs:complexType name="tXmsHeader">
    <xs:sequence>
        <xs:element name="scheduled" type="xs:dateTime" minOccurs="0" />
        <xs:element name="requiredService" type="tns:tRequiredServiceTypeEnum"
                    minOccurs="0" />
        <xs:element name="sourceType" type="xs:string" minOccurs="0" />
        <xs:element name="to" type="tns:tTo" />
        <xs:element name="subject" type="xs:string" minOccurs="0" />
    </xs:sequence>
</xs:complexType>
```

scheduled: Indicates that the message is to be sent at a specified time. UTC time in format of YYYY-MM-DDThh:mm:ssZ. The accuracy is at the minute level, so the second element ("ss") MUST be "00". The server needs to convert the scheduled time to the local time zone. If the specified time is in the past, the message is sent immediately.

requiredService: The delivery service required to delivery this mobile message, which MUST be an XML fragment that conforms to the XML schema of the **tRequiredServiceTypeEnum** simple type.

sourceType: Indicates that the message is generated from which type of client, or a specific feature of a client.

to: One or more recipients of this mobile message, which MUST be an XML fragment that conforms to the XML schema of the **tTo** complex type.

subject: Subject of the message. For a text message, the server MUST ignore the subject. If left unspecified for a multimedia message, the server MAY return error or send the multimedia message out without a subject.

2.2.4.19 tXmsResponse

This complex type contains one or more error elements that indicate the success or failure of the attempt to send this message to the intended recipient.

```
<xs:complexType name="tXmsResponse">
    <xs:sequence>
        <xs:element name="error" type="tns:tDeliveryError" maxOccurs="unbounded" />
    </xs:sequence>
```

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

It MUST be an XML fragment that conforms to the XML schema of the **tDeliveryError** complex type.

2.2.5 Simple Types

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

Simple type	Description
tRequiredServiceTypeEnum	The delivery service required to delivery this mobile message.

2.2.5.1 tRequiredServiceTypeEnum

The delivery service required to delivery this mobile message.

```
<xs:simpleType name="tRequiredServiceTypeEnum">
    <xs:restriction base="xs:string">
        <xs:enumeration value="SMS_SENDER" />
        <xs:enumeration value="MMS_SENDER" />
    </xs:restriction>
</xs:simpleType>
```

SMS_SENDER: indicates that this message is to be delivered as a text message.

MMS_SENDER: indicates that this message is to be delivered as a multimedia message.

2.2.6 Attributes

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

Attribute	Description
client	This attribute keeps a string of client information.

2.2.6.1 client

This attribute keeps a string of client information.

2.2.7 Groups

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

2.2.8 Attribute Groups

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

3 Protocol Details

In the following sections, the schema definition might be less restrictive than the processing rules imposed by the protocol. The WSDL in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL specifies additional restrictions that reflect protocol behavior. For example, the schema definition might allow for an element to be **empty**, **null**, or **not present** but the behavior of the protocol as specified restricts the same elements to being **non-empty**, **present**, and **not null**.

Except where specified, protocol clients SHOULD interpret HTTP status codes returned by the protocol server as specified in [RFC2616] (Section 10, Status Code Definitions).

This protocol allows protocol servers to notify protocol clients of application-level faults using SOAP faults. Except where specified, these SOAP faults are not significant for interoperability, and protocol clients can interpret them in an implementation-specific manner.

This protocol allows protocol servers to perform implementation-specific authorization checks and notify protocol clients of authorization faults either using HTTP status codes or using SOAP faults as specified previously in this section.

3.1 Server Details

3.1.1 Abstract Data Model

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

The protocol server maintains the following states that allow a client to understand how this server accepts or handles the data (which will be text message or multimedia message delivery):

- Support of delivery of text message, multimedia message, or both
- Limitation of text message or multimedia message supported by this server, such as maximum number of recipients
- Support of concatenated text message or not
- Support for batch mode delivery or not

The protocol server also maintains a database of users and only the client of the authenticated users can send in XML containing text message or multimedia message to server.

In two-way communication application, the server MAY collect the mobile message replied from recipient’s phone and send it to a client accordingly.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Message Processing Events and Sequencing Rules

The following WSDL operation and message definitions are specified in this section.

Operation	Description
GetServiceInfo	Specifies the properties of this **Web service**. Returns a **GetServiceInfoResponse**.
GetUserInfo	Specifies the user's information. Returns a **GetUserInfoResponse**.
DeliverXms	Sends one mobile message to this Web service. Returns a **DeliverXmsResponse**.<1>
DeliverXmsBatch	Sends multiple mobile messages in a batch to this Web service. Returns a **DeliverXmsResponse**.<2>

The server also sends reply message to the client after collecting them from the recipient's phone. The server processing rules are specified in section 3.1.4.5.

3.1.4.1 GetServiceInfo

Specifies the properties of this Web service.

```
<wsdl:operation name="GetServiceInfo">
  <wsdl:input message="tns:GetServiceInfoSoapIn" />
  <wsdl:output message="tns:GetServiceInfoSoapOut" />
</wsdl:operation>
```

The client sends a **GetServiceInfoSoapIn** request message and the server MUST respond with a **GetServiceInfoSoapOut** response message.

The **GetServiceInfoSoapOut** response message contains basic properties of the this Web service, such as the information specifies in section 3.1.1.

3.1.4.1.1 Messages

The following WSDL message definitions are specific to this operation.

3.1.4.1.1.1 GetServiceInfoSoapIn

The message represents the client request for the server information from the server.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/GetServiceInfo
```

The SOAP body contains a **GetServiceInfo** element.

3.1.4.1.1.2 GetServiceInfoSoapOut

The message represents the protocol server response for a client request for the server information.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/GetServiceInfo
```

The SOAP body contains a **GetServiceInfoResponse** element.

3.1.4.1.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.1.2.1 GetServiceInfo

GetServiceInfo is an empty structure indicating a **GetServiceInfo** WSDL operation is being requested.

```
<xs:element name="GetServiceInfo">
  <xs:complexType />
</xs:element>
```

3.1.4.1.2.2 GetServiceInfoResponse

This structure contains the response to a **GetServiceInfo** WSDL operation.

```
<xs:element name="GetServiceInfoResponse">
    <xs:complexType>
         <xs:sequence>
             <xs:element name="GetServiceInfoResult" type="xs:string" />
         </xs:sequence>
    </xs:complexType>
</xs:element>
```

GetServiceInfoResult: Information for a protocol server, which MUST be an XML fragment that conforms to the XML schema of the **serviceInfo** complex type.

3.1.4.1.2.3 serviceInfo

Information for a protocol server, which MUST be an XML fragment that conforms to the XML schema of the **tServiceInfo** complex type.

```
<xs:element name="serviceInfo" type="tns:tServiceInfo" />
```

3.1.4.1.3 Complex Types

The following XML Schema complex type definitions are specific to this operation.

3.1.4.1.3.1 tServiceInfo

Information for a protocol server.

```
<xs:complexType name="tServiceInfo">
    <xs:sequence>
        <xs:element name="serviceProvider" type="xs:string" />
        <xs:element name="serviceUri" type="xs:string" />
```

```
            <xs:element name="signUpPage" type="xs:string" />
            <xs:element name="targetLocale" type="xs:unsignedShort" minOccurs="0"
                        default="0" />
            <xs:element name="localName" type="xs:string" />
            <xs:element name="englishName" type="xs:string" />
            <xs:element name="authenticationType" type="tns:tAuthenticationTypeEnum" />
            <xs:element name="batchSize" type="xs:unsignedInt" minOccurs="0"
                        default="0" />
            <xs:element name="supportedService" type="tns:tSupportedService" />
        </xs:sequence>
    </xs:complexType>
```

serviceProvider: Company name of service provider hosting this Web service.

serviceUri: The **Uniform Resource Identifier (URI)** of this Web service.

signUpPage: URI of sign-up or logon page for the users of this Web service.

targetLocale: Language code identifier (LCID) as specified in [MS-LCID]. Used to indicate the country or region for which this Web service is targeted. Default value is 0 which indicates that this Web service supports users globally.

localName: The name of this Web service in the language preferred by the service provider.

englishName: The name of this Web service in English.

authenticationType: Indicates the method of authentication supported by this Web service. MUST conform to the XML schema of the **tAuthenticationTypeEnum** simple type specified in section 3.1.4.1.4.1.

batchSize: Indicates the maximum number of mobile messages to be delivered in a single XML. The default value of 0 means that the server cannot deliver multiple messages in a single XML.

supportedService: The supported message delivery service by this server, which MUST conform to the XML schema of the **tSupportedService** complex type specified in section 3.1.4.1.3.2.

3.1.4.1.3.2 tSupportedService

The **tSupportedService** complex type contains the type of message delivery service this server supports.

```
<xs:complexType name="tSupportedService">
    <xs:sequence minOccurs="1" maxOccurs="2">
        <xs:element name="SMS_SENDER" type="tns:tSMS_SENDER" minOccurs="0" />
        <xs:element name="MMS_SENDER" type="tns:tMMS_SENDER" minOccurs="0" />
    </xs:sequence>
</xs:complexType>
```

SMS_SENDER: Indicates that this server supports text message delivery. It MUST conform to the XML schema of the **tSMS_SENDER** complex type specified in section 3.1.4.1.3.3.

MMS_SENDER: Indicates that this server supports multimedia message delivery. It MUST conform to the XML schema of the **tMMS_SENDER** complex type specified in section 3.1.4.1.3.5.

Both elements here are optional, but at least one of them MUST be supported.

3.1.4.1.3.3 tSMS_SENDER

The **tSMS_SENDER** complex type specifies the limitations or properties of text message delivery supported by this server.

```
<xs:complexType name="tSMS_SENDER">
    <xs:sequence>
        <xs:element name="LONG_SMS_SENDER" type="tns:tLONG_SMS_SENDER"
                    minOccurs="0" />
    </xs:sequence>
     <xs:attribute name="maxRecipientsPerMessage" type="xs:unsignedInt"
                   use="required" />
     <xs:attribute name="maxMessagesPerSend" type="xs:unsignedInt"
                   use="required" />
     <xs:attribute name="maxSbcsPerMessage"  type="xs:unsignedInt"
                   use="required" />
     <xs:attribute name="maxDbcsPerMessage"  type="xs:unsignedInt"
                   use="required" />
</xs:complexType>
```

LONG_SMS_SENDER: Indicates that this server supports delivery of concatenated text message. It MUST conform to the XML schema of the **LONG_SMS_SENDER** complex type specified in section 3.1.4.1.3.4.

maxRecipientsPerMessage: Specifies the maximum number of recipients allowed for delivering a text message.

maxMessagesPerSend: Specifies the maximum number of separate text messages allowed in a single **xmsData** string. **xmsData** is specified in section 3.1.4.3.2.3.

maxSbcsPerMessage: Specifies the maximum number of characters allowed for a text message purely consisting of US ASCII characters.

maxDbcsPerMessage: Specifies the maximum number of characters allowed for a text message containing double byte characters.

3.1.4.1.3.4 tLONG_SMS_SENDER

The **tLONG_SMS_SENDER** complex type specifies the limitations or properties of concatenated text message delivery supported by this server.

```
<xs:complexType name="tLONG_SMS_SENDER">
    <xs:attribute name="maxRecipientsPerMessage" type="xs:unsignedInt"
                  use="required" />
    <xs:attribute name="maxMessagesPerSend" type="xs:unsignedInt"
                  use="required" />
    <xs:attribute name="maxSbcsPerMessage" type="xs:unsignedInt"
                  use="required" />
    <xs:attribute name="maxDbcsPerMessage" type="xs:unsignedInt"
                  use="required" />
</xs:complexType>
```

maxRecipientsPerMessage: Specifies the maximum number of recipients allowed for delivering a concatenated text message.

maxMessagesPerSend: Specifies the maximum number of separate concatenated text messages allowed in a single **xmsData** string. **xmsData** is specified in section 3.1.4.3.2.3.

maxSbcsPerMessage: Specifies the maximum number of characters allowed for a text message inside a concatenated text message purely consisting of US ASCII characters.

maxDbcsPerMessage: Specifies the maximum number of characters allowed for a text message inside a concatenated text message containing double byte characters.

3.1.4.1.3.5 tMMS_SENDER

The **tMMS_SENDER** complex type specifies the limitations or properties of multimedia message delivery supported by this server.

```
<xs:complexType name="tMMS_SENDER">
    <xs:attribute name="supportSlide" type="xs:boolean" use="required" />
    <xs:attribute name="maxRecipientsPerMessage" type="xs:unsignedInt"
                  use="required" />
    <xs:attribute name="maxSizePerMessage" type="xs:unsignedInt"
                  use="required" />
    <xs:attribute name="maxSlidesPerMessage" type="xs:unsignedInt"
                  use="required" />
</xs:complexType>
```

supportSlide: Indicates whether Synchronized Multimedia Integration Language (SMIL) is supported in describing presentation of the multimedia message or not.

maxRecipientsPerMessage: Specifies the maximum number of recipients allowed for delivering a multimedia message.

maxSizePerMessage: Specifies the maximum size, in bytes, of the multimedia message.

maxSlidesPerMessage: Specifies the maximum number of slides a multimedia message can have.

3.1.4.1.4 Simple Types

The following XML Schema simple definitions are specific to this operation.

3.1.4.1.4.1 tAuthenticationTypeEnum

Indicates the method of authentication supported by this Web service.

```
<xs:simpleType name="tAuthenticationTypeEnum">
    <xs:restriction base="xs:string">
        <xs:enumeration value="passport" />
        <xs:enumeration value="fulltrust" />
        <xs:enumeration value="other" />
    </xs:restriction>
</xs:simpleType>
```

MUST be one of the following values.

Value	Meaning
passport	Users will be authenticated by passport authentication method
fulltrust	Users will be authenticated by **certificate (1)**. No password is required.
other	Users will be authenticated by user name and password

3.1.4.1.5 Attributes

None.

3.1.4.1.6 Groups

None.

3.1.4.1.7 Attribute Groups

None.

3.1.4.2 GetUserInfo

Used to retrieve the information of an authenticated user.

```
<wsdl:operation name="GetUserInfo">
  <wsdl:input message="tns:GetUserInfoSoapIn" />
  <wsdl:output message="tns:GetUserInfoSoapOut" />
</wsdl:operation>
```

The client sends a **GetUserInfoSoapIn** request message, which contains the authentication information for a user, and the server responds with a **GetUserInfoSoapOut** response message, which contains the information of this authenticated user.

3.1.4.2.1 Messages

The following WSDL message definitions are specific to this operation.

3.1.4.2.1.1 GetUserInfoSoapIn

The message represents the client request for the user information from the server.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/GetUserInfo
```

The SOAP body contains a **GetUserInfo** element.

3.1.4.2.1.2 GetUserInfoSoapOut

The message represents the protocol server response for a client request for the user information.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/GetUserInfo
```

The SOAP body contains a **GetUserInfoResponse** element.

3.1.4.2.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.2.2.1 GetUserInfo

The input data for a **GetUserInfo** WSDL operation.

```
<xs:element name="GetUserInfo">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="xmsUser" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

xmsUser: Authentication information for a user, which MUST be an XML fragment that conforms to the XML schema of the **xmsUser** complex type.

3.1.4.2.2.2 GetUserInfoResponse

This structure contains the response to a **GetUserInfo** WSDL operation.

```
<xs:element name="GetUserInfoResponse">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="GetUserInfoResult" type="xs:string" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
```

GetUserInfoResult: User information for an authenticated user, which MUST be an XML fragment that conforms to the XML schema of the **userInfo** complex type.

3.1.4.2.2.3 xmsUser

Authentication information for a user, which MUST be an XML fragment that conforms to the XML schema of the **tXmsUser** complex type.

```
<xs:element name="xmsUser" type="tns:tXmsUser" />
```

3.1.4.2.2.4 userInfo

Information for an authenticated user, which MUST be an XML fragment that conforms to the XML schema of the **tUserInfo** complex type.

```
<xs:element name="userInfo" type="tns:tUserInfo" />
```

3.1.4.2.3 Complex Types

The following XML Schema complex type definitions are specific to this operation.

3.1.4.2.3.1 tXmsUser

```
<xs:complexType name="tXmsUser">
  <xs:sequence>
    <xs:element name="userId" type="xs:string" minOccurs="0" />
    <xs:element name="password" type="xs:string" minOccurs="0" />
    <xs:element name="customData" type="xs:string" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="client" type="xs:string" />
</xs:complexType>
```

userId: The identification of a user.

password: The password of a user.

customData: The protocol server MUST ignore this value.

3.1.4.2.3.1.1 client

This attribute keeps a string of client information.

3.1.4.2.3.2 tUserInfo

Information for an authenticated user.

```
<xs:complexType name="tUserInfo">
    <xs:sequence>
        <xs:element name="replyPhone" type="xs:string" minOccurs="0" />
        <xs:element name="smtpAddress" type="xs:string" minOccurs="0" />
        <xs:element name="error" type="tns:tUserError" />
        <xs:element name="customData" type="xs:string" minOccurs="0" />
    </xs:sequence>
</xs:complexType>
```

replyPhone: The mobile number that the user used to sign up for the service with the service provider.

smtpAddress: A unique SMTP address that is used by the protocol server to deliver the reply from phone to the protocol client.

error: Error data returned by the protocol server in response to a request, which MUST be an XML fragment that conforms to the XML schema of the **tUserError** complex type.

customData: Protocol server MUST ignore this value.

3.1.4.2.3.3 tUserError

Error data returned by the protocol server in response to a request.

```
<xs:complexType name="tUserError">
    <xs:simpleContent>
```

```
            <xs:extension base="xs:string">
                <xs:attribute name="code" type="xs:string" use="required" />
                <xs:attribute name="severity" type="xs:string" use="optional" />
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
```

code: If the call to GetUserInfo was successful, the code attribute MUST set to "OK". If the call failed, the error code MUST be set follow the different situations in the following table or define its own protocol.

Value	Meaning
invalidUser	Invalid or unrecognized password.
unregisteredUser	User has not registered for the service.
expiredUser	User's prepayment is used up or the registration is expired. The error code is for the service provider who provides prepaid service.

severity: If the call to GetUserInfo was successful, the value MUST be "neutral"; otherwise it MUST be "failure".

3.1.4.2.4 Simple Types

None.

3.1.4.2.5 Attributes

None.

3.1.4.2.6 Groups

None.

3.1.4.2.7 Attribute Groups

None.

3.1.4.3 DeliverXms

Used to send a mobile message to the protocol server.

```
<wsdl:operation name="DeliverXms">
  <wsdl:input message="tns:DeliverXmsSoapIn" />
  <wsdl:output message="tns:DeliverXmsSoapOut" />
</wsdl:operation>
```

The client sends a **DeliverXmsSoapIn** request message, which contains the content of a mobile message, and the server responds with a **DeliverXmsSoapOut** response message, which contains one or more error elements that indicate the success or failure of the attempt to send this message to the intended recipient.

3.1.4.3.1 Messages

The following WSDL message definitions are specific to this operation.

3.1.4.3.1.1 DeliverXmsSoapIn

The message represents the client request to send a mobile message to the server.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXMS
```

The SOAP body contains a **DeliverXms** element.

3.1.4.3.1.2 DeliverXmsSoapOut

The message represents the protocol server response that indicates the success or failure of the attempt to send this message to the intended recipient.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXMS
```

The SOAP body contains a **DeliverXmsResponse** element.

3.1.4.3.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.3.2.1 DeliverXms

The input data for a **DeliverXms** WSDL operation.

```
<xs:element name="DeliverXms">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="xmsData" type="xs:string" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
```

xmsData: Content of a mobile message, which MUST be an XML fragment that conforms to the XML schema of the **xmsData** complex type specified at section 3.1.4.3.2.3.

3.1.4.3.2.2 DeliverXmsResponse

This structure contains the response to a **DeliverXms** WSDL operation.

```
<xs:element name="DeliverXmsResponse">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="DeliverXmsResult" type="xs:string" />
        </xs:sequence>
```

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

DeliverXmsResult: One or more error elements that indicates the success or failure of the attempt to send the message to intended recipient, which MUST be an XML fragment that conforms to the XML schema of the **xmsResponse** complex type specified at section 3.1.4.3.2.4.

3.1.4.3.2.3 xmsData

Content of mobile message, which MUST be an XML fragment that conforms to the XML schema of the **tXmsData** complex type.

```
<xs:element name="xmsData" type="tns:tXmsData" />
```

3.1.4.3.2.4 xmsResponse

Indicates the success or failure of the attempt to send this message to the intended recipient.

```
<xs:element name="xmsResponse" type="tns:tXmsResponse" />
```

It MUST be an XML fragment that conforms to the XML schema of the **tXmsResponse** complex type.

3.1.4.3.3 Complex Types

None.

3.1.4.3.4 Simple Types

None.

3.1.4.3.5 Attributes

None.

3.1.4.3.6 Groups

None.

3.1.4.3.7 Attribute Groups

None.

3.1.4.4 DeliverXmsBatch

Used to send a batch of mobile messages to the protocol server.

```
<wsdl:operation name="DeliverXmsBatch">
  <wsdl:input message="tns:DeliverXmsBatchSoapIn" />
  <wsdl:output message="tns:DeliverXmsBatchSoapOut" />
</wsdl:operation>
```

The client sends a **DeliverXmsBatchSoapIn** request message, which contains the content of a batch of mobile messages, and the server responds with a **DeliverXmsBatchSoapOut** response message, which contains one or more error elements that indicate the success or failure of the attempt to send each and every of these messages to the intended recipient.

3.1.4.4.1 Messages

The following WSDL message definitions are specific to this operation.

3.1.4.4.1.1 DeliverXmsBatchSoapIn

The message represents the client request to send a batch of mobile messages to the server.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXMSBatch
```

The SOAP body contains a **DeliverXmsBatch** element.

3.1.4.4.1.2 DeliverXmsBatchSoapOut

The message represents the protocol server response that indicates the success or failure of the attempt to each and every of the messages to the intended recipient.

The SOAP action value of the message is defined as:

```
http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXMSBatch
```

The SOAP body contains a **DeliverXmsBatchResponse** element.

3.1.4.4.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.4.2.1 DeliverXmsBatch

The input data for a **DeliverXmsBatch** WSDL operation.

```
<xs:element name="DeliverXmsBatch">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="packageXml" type="xs:string" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
```

packageXml: Content of a batch of mobile messages, which MUST be an XML fragment that conforms to the XML schema of the **packageXml** complex type.

3.1.4.4.2.2 DeliverXmsBatchResponse

This structure contains the response to a **DeliverXmsBatch** WSDL operation.

```
<xs:element name="DeliverXmsBatchResponse">
    <xs:complexType>
         <xs:sequence>
             <xs:element name="DeliverXmsBatchResult" type="xs:string" />
         </xs:sequence>
    </xs:complexType>
</xs:element>
```

DeliverXmsBatchResult: one or more error elements that indicates the success or failure of the attempt to send each and every of a batch of the messages to intended recipient, which MUST be an XML fragment that conforms to the XML schema of the **xmsResponses** complex type.

3.1.4.4.2.3 packageXml

```
<xs:element name="packageXml" type="tns:tXmsBatch" />
```

packageXml: Content of a batch of mobile messages, which MUST be an XML fragment that conforms to the XML schema of the **tXmsBatch** complex type.

3.1.4.4.2.4 xmsResponses

```
<xs:element name="xmsResponses">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="xmsResponse" type="tns:tXmsResponseWithId"
                        maxOccurs="unbounded" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
```

xmsResponse: Indicates the success or failure of the attempt to send this message to the intended recipient.

3.1.4.4.3 Complex Types

The following XML Schema complex type definitions are specific to this operation.

3.1.4.4.3.1 tXmsBatch

```
<xs:complexType name="tXmsBatch">
    <xs:sequence>
        <xs:element name="xmsData" type="tns:tXmsDataInBatch"
                    maxOccurs="unbounded" />
    </xs:sequence>
    <xs:attribute name="client" type="xs:string" />
</xs:complexType>
```

xmsData: Content of mobile message.

client: See section 2.2.6.1.

3.1.4.4.3.2 tXmsDataInBatch

The **txmsDataInBatch** is similar to the **xmsData** of the **deliverXms** operation, except that it uses the **id** attribute to identify each and every message in a specific batch.

```
<xs:complexType name="tXmsDataInBatch">
    <xs:sequence>
        <xs:element name="user" type="tns:tUser" minOccurs="0" />
        <xs:element name="xmsHead" type="tns:tXmsHeader" minOccurs="0" />
        <xs:element name="xmsBody" type="tns:tXmsBody" />
    </xs:sequence>
    <xs:attribute name="id" type="xs:unsignedInt" use="required" />
</xs:complexType>
```

user: See section 2.2.4.17.

xmsHead: See section 2.2.4.17.

xmsBody: See section 2.2.4.17.

id: Identifies each and every message in a specific batch.

3.1.4.4.3.3 tXmsResponseWithId

The **tXmsResponseWithId** is similar to the **xmsResponse** of the **deliverXms** operation, except that it uses attribute **id** to identify each and every message in a specific batch.

```
<xs:complexType name="tXmsResponseWithId">
    <xs:sequence>
        <xs:element name="error" type="tns:tDeliveryError"
                    maxOccurs="unbounded" />
    </xs:sequence>
    <xs:attribute name="id" type="xs:unsignedInt" use="required" />
</xs:complexType>
```

error: See section 2.2.4.19.

id: Identifies each and every message in a specific batch.

3.1.4.4.4 Simple Types

None.

3.1.4.4.5 Attributes

None.

3.1.4.4.6 Groups

None.

3.1.4.4.7 Attribute Groups

None.

3.1.4.5 Send reply message to client after collecting them from the recipient's phone

To enable two-way mobile message communication between the client and a mobile phone, the protocol server is required to package the reply sent from a mobile phone into a MIME (Multipurpose Internet Mail Extensions)-formatted SMTP e-mail message specified in the section 2.2.2.1, and then send the e-mail messages to a user-designated e-mail address.

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

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

When there is reply to the mobile message from the recipient's phone, the protocol server sends the reply to client via the SMTP protocol. If the application requires two-way communication from client to server and needs the client to receive reply messages, the client MAY implement the details specified in this section.

3.2.2 Timers

None.

3.2.3 Initialization

To accept the reply of the mobile message from the protocol server, the client MUST be able to retrieve e-mail messages from an e-mail address that the server will send the reply message to.

3.2.4 Message Processing Events and Sequencing Rules

When a client receives the SMTP e-mail messages, the client MUST understand the message as specified in section 2.2.2.1. The client MUST recognize the content class and treats it as a mobile message. The client MUST be able to recognize them as text or multimedia messages. When these messages are opened, replied to, or forwarded, they are automatically treated as mobile messages. That also means, in the message reply and forward operations, the client MUST be able to allow its user to send the mobile message via the calling server's **deliverXms** WSDL operation as specified in section 3.1.4.3.

3.2.5 Timer Events

None.

3.2.6 Other Local Events

None.

4 Protocol Examples

The following provides examples of the interaction between protocol client and protocol server.

4.1 GetServiceInfo

An OMS client can submits a **GetServiceInfo** request with empty parameter with the following code:

```
<?xml version="1.0" encoding="utf-8"?>
<Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema"
          xmlnsoap="http://schemas.xmlsoap.org/soap/envelope/">
  <Body>
    <GetServiceInfo xmlns="http://schemas.microsoft.com/office/Outlook/2006/OMS" />
  </Body>
</Envelope>
```

The protocol server receives this request and creates an appropriate response, similar to the following code:

```
<?xml version="1.0" encoding="utf-8"?>
<serviceInfo>
<serviceProvider>ABC Company</serviceProvider>
<serviceUri>http://www.abc.com.cn/OMS3/XMS.asmx</serviceUri>
<signUpPage>http://www.abc.com.cn/ws/xmssignup.aspx/</signUpPage>
<targetLocale>2052</targetLocale>
   <localName>ABC Mobile Service</localName>
   <englishName>ABC Mobile Service</englishName>
   <authenticationType>Other</authenticationType>
   <batchSize>255</batchSize>
   <supportedService>
      <SMS_SENDER maxRecipientsPerMessage="50"
                  maxMessagesPerSend="20"
                  maxSbcsPerMessage="140"
                  maxDbcsPerMessage="70" >
         <LONG_SMS_SENDER maxRecipientsPerMessage="50"
                          maxMessagesPerSend="255"
                          maxSbcsPerMessage="153"
                          maxDbcsPerMessage="67" />
      </SMS_SENDER>
      <MMS_SENDER supportSlide="true"
                  maxRecipientsPerMessage="100"
                  maxSizePerMessage="30000"
                  maxSlidesPerMessage="10" />
   </supportedService>
</serviceInfo>
```

4.2 GetUserInfo

When the client wants to retrieve user information of an authenticated user in the protocol server, the request would resemble the following code:

```
<?xml version="1.0" encoding="utf-8"?>
<xmsUser client="Microsoft Office Outlook 12.0"
```

```
          xmlns = "http://schemas.microsoft.com/office/Outlook/2006/OMS">
          <userId>myname</userId>
          <password>mypwd</password>
          <customData/>
</xmsUser>
```

The following code is returned from the protocol server after a successful call:

```
<?xml version="1.0" encoding="utf-8"?>
<userInfo xmlns = "http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <replyPhone>090123456</replyPhone>
    <smtpAddress>userid.spmail@spdomain.com</smtpAddress>
  <error code="ok"/>
</userInfo>
```

The following code is returned from the protocol server after an error:

```
<?xml version="1.0" encoding="utf-8"?>
<userInfo xmlns = "http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <error code="unregistered" severity="failure"/>
</userInfo>
```

4.3 DeliverXms

When the client wants to send a text message to the protocol server, the request would resemble the following code:

```
<?xml version="1.0" encoding="utf-8"?>
<xmsData client="Microsoft Office Outlook 12.0"
         xmlns = "http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <user>
    <userId>myname</userId>
    <password>mypwd</password>
    <replyPhone>13801391350</replyPhone>
    <customData/>
  </user>
  <xmsHead>
    <scheduled>2005-04-20T14:20:00Z</scheduled>
    <requiredService>SMS_SENDER</requiredService>
    <to>
      <recipient>135xxxx</recipient>
      <recipient>139xxxx</recipient>
    </to>
  </xmsHead>
  <xmsBody format="SMS">
    <content contentType="text/plain"
      contentId="Att0.txt@AB1B43B2B0594564.B94EF7ABB12B49BA"
      contentLocation="1.txt">(1/2)This is the first SMS message...</content>
    <content contentType="text/plain"
      contentId="Att1.txt@AB1B43B2B0594564.B94EF7ABB12B49BA"
      contentLocation="2.txt">(2/2)This is the second SMS message...</content>
  </xmsBody>
</xmsData>
```

When the client wants to send a multimedia message to the protocol server, the request would resemble the following code:

```
<?xml version="1.0" encoding="utf-8"?>
<xmsData client="Microsoft Office Outlook 12.0"
         xmlns = "http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <user>
    <userId>myname</userId>
    <password>mypwd</password>
    <replyPhone>13801391350</replyPhone>
    <customData/>
  </user>
  <xmsHead>
    <scheduled>2005-04-20T14:20:00Z</scheduled>
    <requiredService>MMS_SENDER</requiredService>
    <sourceType>reminder</sourceType>
    <to>
      <recipient>135xxxx</recipient>
      <recipient>139xxxx</recipient>
    </to>
    <subject>My Message</subject>
  </xmsHead>
  <xmsBody format="MMS">
    <mmsSlides>
      <head>
        <meta name="author" content="msOfficeOutlookOms" />
        <layout>
          <root-layout width="120" height="120" background-color="#ffffff" />
          <region id="image" left="0" top="0" width="120" height="90" />
          <region id="text" left="0" top="90" width="120" height="30" />
        </layout>
      </head>
      <body>
        <par dur="3000">
          <img src="cid:Att1.gif@AB1B43B2B0594564.B94EF7ABB12B49BA"
               region="image" />
          <text src="cid:Att0.txt@AB1B43B2B0594564.B94EF7ABB12B49BA"
                region="text"/>
          <audio src="cid:Att2.mid@AB1B43B2B0594564.B94EF7ABB12B49BA" />
      </par>
      </body>
    </mmsSlides>
    <content contentType="text/plain"
             contentId="Att0.txt@AB1B43B2B0594564.B94EF7ABB12B49BA"
             contentLocation="1.txt">This is the text part</content>
    <content contentType="image/gif"
             contentId="Att1.gif@AB1B43B2B0594564.B94EF7ABB12B49BA"
             contentLocation=
                  "106675.gif">/9j/4AAQ ...... AVExISEyccHhcgLikxMC4p</content>
    <content contentType="audio/mid"
             contentId="Att2.mid@AB1B43B2B0594564.B94EF7ABB12B49BA"
             contentLocation="1898.mid">/wDQjVYUrl ...... GoJ4e8j</content>
  </xmsBody>
</xmsData>
```

After receiving the previous request, the following response is an example generated by protocol server when the message is delivered successfully:

```
<?xml version="1.0" encoding="utf-8"?>
<xmsResponse xmlns="http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <error code="ok" severity="neutral"/>
</xmsResponse>
```

The following response is an example generated by protocol server when the message failed to be delivered:

```
<?xml version="1.0" encoding="utf-8"?>
<xmsResponse xmlns="http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <error code="perDayMsgLimit" severity="failure">
    <content>20 SMS</content>
    <recipientList>13601391354;13601391388</recipientList>
  </error>
</xmsResponse>
```

4.4 DeliverXmsBatch

The following code is an example from client for sending a batch of mobile messages (2 text messages in this example):

```
<?xml version="1.0" encoding="utf-16"?>
<xmsBatch client="Microsoft Windows SharePoint Service"
          xmlns="http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <xmsData id="0">
    <user>
      <userId>ddguo</userId>
      <password />
      <customData />
    </user>
    <xmsHead>
      <requiredService>SMS_SENDER</requiredService>
      <sourceType>wssAlert</sourceType>
      <to>
        <recipient>13671121236</recipient>
      </to>
    </xmsHead>
    <xmsBody format="SMS">
      <content contentType="text/plain"
               contentId="1.txt@5ca13ed023024ed59cfae6c0e185a5db"
               contentLocation="1.txt">This is a testing message.</content>
    </xmsBody>
  </xmsData>
  <xmsData id="1">
    <user>
      <userId>ddguo</userId>
      <password />
      <customData />
    </user>
    <xmsHead>
      <requiredService>SMS_SENDER</requiredService>
      <sourceType>wssAlert</sourceType>
      <to>
        <recipient>13671121236</recipient>
      </to>
    </xmsHead>
```

```
    <xmsBody format="SMS">
      <content contentType="text/plain"
               contentId="1.txt@ecf25304326e497c8775a929a3178311"
               contentLocation="1.txt">This is a testing message.</content>
    </xmsBody>
  </xmsData>
</xmsBatch>
```

The following code is an example of response from the protocol server for the able request:

```
<?xml version="1.0" encoding="utf-16"?>
<xmsResponses xmlns="http://schemas.microsoft.com/office/Outlook/2006/OMS">
  <xmsResponse id="0">
    <error code="ok" severity="neutral" />
    <error code="serviceupdate" severity="neutral">
      <content>2008-08-28T08:59:10Z</content>
    </error>
  </xmsResponse>
  <xmsResponse id="1">
    <error code="ok" severity="neutral" />
    <error code="serviceupdate" severity="neutral">
      <content>2008-08-28T08:59:11Z</content>
    </error>
  </xmsResponse>
</xmsResponses>
```

4.5 Send reply message from server to client, after server collects the mobile message from recipient's phone

The following is an example of an incoming text message that is packaged as e-mail message.

```
From: "Mobile Inbound Agent" incomingmessage@service-provider.com
To: someone@example.com
Subject: This is a text message
Date: Mon, 7 Nov 2005 17:52:00 +0800
Content-class: MS-OMS-SMS
X-MS-Reply-to-mobile: +8613601391354
MIME-Version: 1.0
Content-Type: text/plain; charset="gb2312"
Content-Transfer-Encoding: quoted-printable
This is a text message from a mobile phone replying to a text message from Outlook.
```

The following is an example of an incoming multimedia message that is packaged as e-mail message.

```
From: "Mobile Inbound Agent" incomingmessage@service-provider.com
To: someone@example.com
Subject: This is a multimedia message (Open the message to view its content)
Date: Mon, 7 Nov 2005 17:52:00 +0800
Content-class: MS-OMS-MMS
X-MS-Reply-to-mobile: +8613601391354
MIME-Version: 1.0
Content-Type: multipart/related; type="application/smil";
boundary="--------------Boundary=_thisisboundary"
```

```
This is a multi-part message in MIME format.
--------------Boundary=_thisisboundary
Content-Type: application/smil; name="mmspresent.smil"
Content-Location: "mmspresent.smil"
Content-Transfer-Encoding: Base64
PHNtaWw+… 1pbD4=
--------------Boundary=_thisisboundary
Content-Type: text/plain; name="textpart.txt"
Content-Transfer-Encoding: Base64
Content-Location: textpart.txt
6Zi/5YWs5Y+45rOV5b6L5biI6IyD5Zu057uV6YGT6LCi
--------------Boundary=_thisisboundary
Content-Type: image/gif; name="imagepart.gif"
Content-Transfer-Encoding: Base64
Content-Location:imagepart.gif
R0lGODlheABaAPf/…BDQi6j4uQAxwcixRzZErI5ROjfvSHJcmRMGBAAOw==
--------------Boundary=_thisisboundary
Content-Type: audio/mid; name="audiopart.mid"
Content-Transfer-Encoding: Base64
Content-Location: audiopart.mid
TVRoZAAAAAY…XBDfwA/fwA6f4dAOgAAPwAAQwAA/y8A
--------------Boundary=_thisisboundary
```

5 Security

5.1 Security Considerations for Implementers

This protocol introduces no additional security considerations beyond those applicable to its underlying protocols.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

For ease of implementation, the full WSDL is provided below:

```
<wsdl:definitions
  targetNamespace="http://schemas.microsoft.com/office/Outlook/2006/OMS"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
  xmlns:tns="http://schemas.microsoft.com/office/Outlook/2006/OMS"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" >
  <wsdl:types>
    <xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
        targetNamespace="http://schemas.microsoft.com/office/Outlook/2006/OMS">
      <xs:include id="OMS" schemaLocation="omswire.xsd" />
      <!-- GetServiceInfo: The Schema of Response Xml-->
      <xs:simpleType name="tAuthenticationTypeEnum">
        <xs:restriction base="xs:string">
          <xs:enumeration value="passport" />
          <xs:enumeration value="fulltrust" />
          <xs:enumeration value="other" />
        </xs:restriction>
      </xs:simpleType>
      <xs:complexType name="tLONG_SMS_SENDER">
        <xs:attribute name="maxRecipientsPerMessage" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxMessagesPerSend" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxSbcsPerMessage" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxDbcsPerMessage" type="xs:unsignedInt"
                      use="required" />
      </xs:complexType>
      <xs:complexType name="tSMS_SENDER">
        <xs:sequence>
          <xs:element name="LONG_SMS_SENDER" type="tns:tLONG_SMS_SENDER"
                      minOccurs="0" />
        </xs:sequence>
        <xs:attribute name="maxRecipientsPerMessage" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxMessagesPerSend" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxSbcsPerMessage" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxDbcsPerMessage" type="xs:unsignedInt"
                      use="required" />
      </xs:complexType>
      <xs:complexType name="tMMS_SENDER">
        <xs:attribute name="supportSlide" type="xs:boolean" use="required" />
        <xs:attribute name="maxRecipientsPerMessage" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxSizePerMessage" type="xs:unsignedInt"
                      use="required" />
        <xs:attribute name="maxSlidesPerMessage" type="xs:unsignedInt"
```

```
                use="required" />
    </xs:complexType>
    <xs:complexType name="tSupportedService">
      <xs:sequence minOccurs="1" maxOccurs="2">
        <xs:element name="SMS_SENDER" type="tns:tSMS_SENDER" minOccurs="0" />
        <xs:element name="MMS_SENDER" type="tns:tMMS_SENDER" minOccurs="0" />
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="tServiceInfo">
      <xs:sequence>
        <xs:element name="serviceProvider" type="xs:string" />
        <xs:element name="serviceUri" type="xs:string" />
        <xs:element name="signUpPage" type="xs:string" />
        <xs:element name="targetLocale" type="xs:unsignedShort"
                    minOccurs="0" default="0" />
        <xs:element name="localName" type="xs:string" />
        <xs:element name="englishName" type="xs:string" />
        <xs:element name="authenticationType"
                    type="tns:tAuthenticationTypeEnum" />
        <xs:element name="batchSize" type="xs:unsignedInt"
                    minOccurs="0" default="0" />
        <xs:element name="supportedService" type="tns:tSupportedService" />
      </xs:sequence>
    </xs:complexType>
    <xs:element name="GetServiceInfo">
      <xs:complexType />
    </xs:element>
    <xs:element name="serviceInfo" type="tns:tServiceInfo" />
    <xs:element name="GetServiceInfoResponse">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="GetServiceInfoResult" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
    </xs:element>

    <!-- GetUserInfo Method: The Schema of xmsUser Xml -->
    <xs:complexType name="tXmsUser">
      <xs:sequence>
        <xs:element name="userId" type="xs:string" minOccurs="0" />
        <xs:element name="password" type="xs:string" minOccurs="0" />
        <xs:element name="customData" type="xs:string" minOccurs="0" />
      </xs:sequence>
      <xs:attribute name="client" type="xs:string" />
    </xs:complexType>
    <xs:element name="xmsUser" type="tns:tXmsUser" />
    <xs:element name="GetUserInfo">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="xmsUser" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
    </xs:element>

    <!-- GetUserInfo Method: The Schema of Response Xml -->
    <xs:complexType name="tUserError">
      <xs:simpleContent>
        <xs:extension base="xs:string">
          <xs:attribute name="code" type="xs:string" use="required" />
```

```
            <xs:attribute name="severity" type="xs:string" use="optional" />
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="tUserInfo">
        <xs:sequence>
          <xs:element name="replyPhone" type="xs:string" minOccurs="0" />
          <xs:element name="smtpAddress" type="xs:string" minOccurs="0" />
          <xs:element name="error" type="tns:tUserError" />
          <xs:element name="customData" type="xs:string" minOccurs="0" />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="userInfo" type="tns:tUserInfo" />
      <xs:element name="GetUserInfoResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element name="GetUserInfoResult" type="xs:string" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>

      <!-- DeliverXms Method: The Schema of xmsData Xml -->
      <xs:simpleType name="tRequiredServiceTypeEnum">
          <xs:restriction base="xs:string">
              <xs:enumeration value="SMS_SENDER" />
              <xs:enumeration value="MMS_SENDER" />
          </xs:restriction>
      </xs:simpleType>
      <xs:complexType name="tTo">
        <xs:sequence>
          <xs:element maxOccurs="unbounded" name="recipient" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="tXmsHeader">
        <xs:sequence>
          <xs:element name="scheduled" type="xs:dateTime" minOccurs="0" />
          <xs:element name="requiredService" type="tns:tRequiredServiceTypeEnum"
minOccurs="0" />
          <xs:element name="sourceType" type="xs:string" minOccurs="0" />
          <xs:element name="to" type="tns:tTo" />
          <xs:element name="subject" type="xs:string" minOccurs="0" />
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="tUser">
        <xs:sequence>
          <xs:element name="userId" type="xs:string" minOccurs="0" />
          <xs:element name="password" type="xs:string" minOccurs="0" />
          <xs:element name="replyPhone" type="xs:string" minOccurs="0" />
          <xs:element name="customData" type="xs:string" minOccurs="0" />
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="tMeta">
        <xs:attribute name="name" type="xs:string" use="required" />
        <xs:attribute name="content" type="xs:string" use="required" />
      </xs:complexType>
      <xs:complexType name="tRoot-layout">
        <xs:attribute name="width" type="xs:unsignedInt" use="required" />
        <xs:attribute name="height" type="xs:unsignedByte" use="required" />
        <xs:attribute name="background-color" type="xs:string" use="required" />
```

```
</xs:complexType>
<xs:complexType name="tRegion">
  <xs:attribute name="id" type="xs:string" use="required" />
  <xs:attribute name="left" type="xs:unsignedInt" use="required" />
  <xs:attribute name="top" type="xs:unsignedInt" use="required" />
  <xs:attribute name="width" type="xs:unsignedInt" use="required" />
  <xs:attribute name="height" type="xs:unsignedInt" use="required" />
</xs:complexType>
<xs:complexType name="tLayout">
  <xs:sequence>
    <xs:element name="root-layout" type="tns:tRoot-layout" />
    <xs:element name="region" type="tns:tRegion" maxOccurs="2" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tHeader">
  <xs:sequence>
    <xs:element name="meta" type="tns:tMeta" minOccurs="0" />
    <xs:element name="layout" type="tns:tLayout" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tImg">
  <xs:attribute name="src" type="xs:string" use="required" />
  <xs:attribute name="region" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="tText">
  <xs:attribute name="src" type="xs:string" use="required" />
  <xs:attribute name="region" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="tAudio">
  <xs:attribute name="src" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="tPar">
  <xs:sequence>
    <xs:element name="img" type="tns:tImg" minOccurs="0" />
    <xs:element name="text" type="tns:tText" minOccurs="0" />
    <xs:element name="audio" type="tns:tAudio" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="dur" type="xs:unsignedInt" use="required" />
</xs:complexType>
<xs:complexType name="tBody">
  <xs:sequence>
    <xs:element name="par" type="tns:tPar" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tMmsSlides">
  <xs:sequence>
    <xs:element name="head" type="tns:tHeader" minOccurs="0" />
    <xs:element name="body" type="tns:tBody" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tContent">
  <xs:simpleContent>
    <xs:extension base="xs:string">
      <xs:attribute name="contentType" type="xs:string" use="required" />
      <xs:attribute name="contentId" type="xs:string" use="required" />
      <xs:attribute name="contentLocation" type="xs:string" use="required" />
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

```
<xs:complexType name="tXmsBody">
  <xs:sequence>
    <xs:element name="mmsSlides" type="tns:tMmsSlides" />
    <xs:element name="content" type="tns:tContent" maxOccurs="unbounded" />
  </xs:sequence>
  <xs:attribute name="format" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="tXmsData">
  <xs:sequence>
    <xs:element name="user" type="tns:tUser" minOccurs="0" />
    <xs:element name="xmsHead" type="tns:tXmsHeader" minOccurs="0" />
    <xs:element name="xmsBody" type="tns:tXmsBody" />
  </xs:sequence>
  <xs:attribute name="client" type="xs:string" />
</xs:complexType>
<xs:element name="xmsData" type="tns:tXmsData" />
<xs:element name="DeliverXms">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="xmsData"  type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

<!-- DeliverXms Method: The Schema of Response Xml -->
<xs:complexType name="tDeliveryError">
  <xs:sequence>
    <xs:element name="content" type="xs:string" minOccurs="0" />
    <xs:element name="recipientList" type="xs:string" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="code" type="xs:string" use="required" />
  <xs:attribute name="severity" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="tXmsResponse">
  <xs:sequence>
    <xs:element name="error" type="tns:tDeliveryError" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:element name="xmsResponse" type="tns:tXmsResponse" />
<xs:element name="DeliverXmsResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="DeliverXmsResult" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

<!-- DeliverXmsBatch Method: The Schema of packageXml Xml -->
<xs:complexType name="tXmsDataInBatch">
  <xs:sequence>
    <xs:element name="user" type="tns:tUser" minOccurs="0" />
    <xs:element name="xmsHead" type="tns:tXmsHeader" minOccurs="0" />
    <xs:element name="xmsBody" type="tns:tXmsBody" />
  </xs:sequence>
  <xs:attribute name="id" type="xs:unsignedInt" use="required" />
</xs:complexType>
<xs:complexType name="tXmsBatch">
  <xs:sequence>
    <xs:element name="xmsData" type="tns:tXmsDataInBatch"
```

```
                    maxOccurs="unbounded" />
        </xs:sequence>
        <xs:attribute name="client" type="xs:string" />
      </xs:complexType>
      <xs:element name="packageXml" type="tns:tXmsBatch" />
      <xs:element name="DeliverXmsBatch">
        <xs:complexType>
          <xs:sequence>
            <xs:element name="packageXml" type="xs:string" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>

      <!-- DeliverXmsBatch Method: The Schema of Response Xml -->
      <xs:complexType name="tXmsResponseWithId">
        <xs:sequence>
          <xs:element name="error" type="tns:tDeliveryError"
                      maxOccurs="unbounded" />
        </xs:sequence>
        <xs:attribute name="id" type="xs:unsignedInt" use="required" />
      </xs:complexType>
      <xs:element name="xmsResponses">
        <xs:complexType>
          <xs:sequence>
            <xs:element name="xmsResponse" type="tns:tXmsResponseWithId"
                        maxOccurs="unbounded" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="DeliverXmsBatchResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element name="DeliverXmsBatchResult" type="xs:string" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="GetServiceInfoSoapIn">
    <wsdl:part name="parameters" element="tns:GetServiceInfo" />
  </wsdl:message>
  <wsdl:message name="GetServiceInfoSoapOut">
    <wsdl:part name="parameters" element="tns:GetServiceInfoResponse" />
  </wsdl:message>
  <wsdl:message name="GetUserInfoSoapIn">
    <wsdl:part name="parameters" element="tns:GetUserInfo" />
  </wsdl:message>
  <wsdl:message name="GetUserInfoSoapOut">
    <wsdl:part name="parameters" element="tns:GetUserInfoResponse" />
  </wsdl:message>
  <wsdl:message name="DeliverXmsSoapIn">
    <wsdl:part name="parameters" element="tns:DeliverXms" />
  </wsdl:message>
  <wsdl:message name="DeliverXmsSoapOut">
    <wsdl:part name="parameters" element="tns:DeliverXmsResponse" />
  </wsdl:message>
  <wsdl:message name="DeliverXmsBatchSoapIn">
    <wsdl:part name="parameters" element="tns:DeliverXmsBatch" />
  </wsdl:message>
```

```
  <wsdl:message name="DeliverXmsBatchSoapOut">
    <wsdl:part name="parameters" element="tns:DeliverXmsBatchResponse" />
  </wsdl:message>

  <wsdl:portType name="OMSServiceSoap">
    <wsdl:operation name="GetServiceInfo">
      <wsdl:input message="tns:GetServiceInfoSoapIn" />
      <wsdl:output message="tns:GetServiceInfoSoapOut" />
    </wsdl:operation>
    <wsdl:operation name="GetUserInfo">
      <wsdl:input message="tns:GetUserInfoSoapIn" />
      <wsdl:output message="tns:GetUserInfoSoapOut" />
    </wsdl:operation>
    <wsdl:operation name="DeliverXms">
      <wsdl:input message="tns:DeliverXmsSoapIn" />
      <wsdl:output message="tns:DeliverXmsSoapOut" />
    </wsdl:operation>
    <wsdl:operation name="DeliverXmsBatch">
      <wsdl:input message="tns:DeliverXmsBatchSoapIn" />
      <wsdl:output message="tns:DeliverXmsBatchSoapOut" />
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="OMSServiceSoap" type="tns:OMSServiceSoap">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="GetServiceInfo">
      <soap:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/GetServiceInfo"
                      style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserInfo">
      <soap:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/GetUserInfo"
                      style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="DeliverXms">
      <soap:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXms"
                      style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="DeliverXmsBatch">
```

```
      <soap:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXmsBatch"
                      style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:binding name="OMSServiceSoap12" type="tns:OMSServiceSoap">
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="GetServiceInfo">
      <soap12:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/GetServiceInfo"
                        style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="GetUserInfo">
      <soap12:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/GetUserInfo"
                        style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="DeliverXms">
      <soap12:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXms"
                        style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="DeliverXmsBatch">
      <soap12:operation
soapAction="http://schemas.microsoft.com/office/Outlook/2006/OMS/DeliverXmsBatch"
                        style="document" />
      <wsdl:input>
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap12:body 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 Microsoft products or supplemental software. References to product versions include released service packs:

- Microsoft® Office Outlook® 2007
- Microsoft® Outlook® 2010
- Microsoft® SharePoint® Foundation 2010

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

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

<1> Section 3.1.4: To support Office Outlook 2007, the protocol server MUST implement a **SendXms** operation that MUST be the same as the **DeliverXms** operation.

<2> Section 3.1.4: Use the **DeliverXmsBatch** operation in implementations for SharePoint Foundation 2010 but not for Office Outlook 2007 or Outlook 2010.

8 Change Tracking

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

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