[MS-OXWSPHOTO]:

Photo Web Service Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
7/16/2012	0.1	New	Released new document.
10/8/2012	1.0	Major	Significantly changed the technical content.
2/11/2013	2.0	Major	Significantly changed the technical content.
7/26/2013	2.0	None	No changes to the meaning, language, or formatting of the technical content.
11/18/2013	2.0	None	No changes to the meaning, language, or formatting of the technical content.
2/10/2014	2.0	None	No changes to the meaning, language, or formatting of the technical content.
4/30/2014	3.0	Major	Significantly changed the technical content.
7/31/2014	4.0	Major	Significantly changed the technical content.
10/30/2014	4.0	None	No changes to the meaning, language, or formatting of the technical content.
5/26/2015	5.0	Major	Significantly changed the technical content.
9/14/2015	5.0	None	No changes to the meaning, language, or formatting of the technical content.
6/13/2016	6.0	Major	Significantly changed the technical content.

Table of Contents

1 Introduction

The Photo Web Service Protocol enables the transfer of a user photo from a **mailbox** to a client application that can authenticate and send an **HTTP GET** request.

Sections 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

1.1 Glossary

This document uses the following terms:

email address: A string that identifies a user and enables the user to receive Internet messages.

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

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

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

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

web service: A unit of application logic that provides data and services to other applications and can be called by using standard Internet transport protocols such as **HTTP**, Simple Mail Transfer Protocol (SMTP), or File Transfer Protocol (FTP). Web services can perform functions that range from simple requests to complicated business processes.

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

WSDL operation: A single action or function of a web service. The execution of a WSDL operation typically requires the exchange of messages between the service requestor and the service provider.

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

XML namespace prefix: An abbreviated form of an **XML namespace**, as described in [XML].

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

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

1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the Errata.

1.2.1 Normative References

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

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

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

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

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

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

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

[WSIBASIC] Ballinger, K., Ehnebuske, D., Gudgin, M., et al., Eds., "Basic Profile Version 1.0", Final Material, April 2004, http://www.ws-i.org/Profiles/BasicProfile-1.0-2004-04-16.html

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

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

1.2.2 Informative References

[MS-OCAUTHWS] Microsoft Corporation, "OC Authentication Web Service Protocol".

1.3 Overview

The Photo Web Service Protocol enables client applications to use a **web service** to request an image that represents a mailbox. This image, typically a photo of the mailbox owner, can be used by a client application to identify the mailbox.

1.4 Relationship to Other Protocols

A client that implements this protocol can use the Autodiscover Publishing and Lookup SOAP-Based Web Service Protocol, as described in [MS-OXWSADISC].

For conceptual background information and overviews of the relationships and interactions between this and other protocols, see [MS-OXPROTO].

1.5 Prerequisites/Preconditions

This protocol is accessible only to authenticated users, either directly through a client application or indirectly through a trusted server application. This protocol uses the OC Authentication Web Service Protocol, as described in [MS-OCAUTHWS], for authentication.

1.6 Applicability Statement

This protocol applies to environments that use a web service to transfer images.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

This protocol is transported by **HTTPS**, as specified in [RFC2818].

2.2 Message Syntax

This section contains common definitions that are used by this protocol. The syntax of the definitions uses **XML schema**, as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and **Web Services Description Language (WSDL)**, as defined in [WSDL].

2.2.1 Namespaces

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

Prefix	Namespace URI	Reference
m	http://schemas.microsoft.com/exchange/services/2006/messages	
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
t	http://schemas.microsoft.com/exchange/services/2006/types	
tns	http://schemas.microsoft.com/exchange/services/2006/messages	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]
wsi	http://ws-i.org/schemas/conformanceClaim/	[WSIBASIC]
xs	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] [XMLSCHEMA2]

3 Protocol Details

3.1 Server Details

This section applies to the REST **endpoint** for this protocol.

3.1.1 Abstract Data Model

None.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

This protocol manipulates the resource listed in the following table.

Resource	Description
UserPhoto	The profile image for a mailbox.

The responses to all the operations can result in the status codes listed in the following table.

Status code	Description
200	An image is available for the specified mailbox, and the binary image is the contents of the response.
304	The image has not changed since the **ETag** header was returned to the client application.
400	The request could not be understood by the server due to malformed syntax.
401	The request requires user authentication.
404	No image is available for the specified mailbox.

The server returns an **ETag** header, as specified in [RFC2616], in the response to the request for a user image. The **ETag** header remains the same for the user image until the image is updated. You can return this **ETag** header to the server in the **HTTPS GET** request for the user image in an **If-**

None-Match header, as specified in [RFC2616]. If the image has not changed since the last request, the server responds with an HTTP 304 response that indicates that the image has not changed since the last request.

3.1.5.1 UserPhoto

The following table lists the operations that are allowed to be performed on this resource.

Operation	Description
GetUserPhoto	Retrieves the profile image for a mailbox.

3.1.5.1.1 GetUserPhoto

The **GetUserPhoto** operation retrieves the profile image for a mailbox.

```
https://<Exchange Server>/ews/Exchange.asmx/s/GetUserPhoto?email=<email address>&size=<size
code>
```

The Autodiscover service **GetUserSetting** **WSDL operation**, as specified in [MS-OXWSADISC], is used to retrieve the **ExternalPhotosUrl** setting, which contains the URL of the web service endpoint and the location of the Exchange.asmx **HTTP** handler that returns the user images.

email: Represents the **email address** of the user account.

size: Contains the size code of the user image. The following table describes possible values. The size code always returns the directory service thumbnail image if it is available as long as no image is stored on the server.

Size code	Description
HR48x48	The image is 48 pixels high and 48 pixels wide.
HR64x64	The image is 64 pixels high and 64 pixels wide.
HR96x96	The image is 96 pixels high and 96 pixels wide.
HR120x120	The image is 120 pixels high and 120 pixels wide.
HR240x240	The image is 240 pixels high and 240 pixels wide.
HR360x360	The image is 360 pixels high and 360 pixels wide.
HR432x432	The image is 432 pixels high and 432 pixels wide.
HR504x504	The image is 504 pixels high and 504 pixels wide.
HR648x648	The image is 648 pixels high and 648 pixels wide.

If the request specifies a size that is not available, the operation returns the largest available photo. If no image is stored on the server, the operation returns the thumbnail image stored in the directory service. The thumbnail image is not necessarily square, even if the size code specifies a square image.

The **Accept** header, as specified in [RFC2616], is not processed by the server.

Response:

The requested image is returned in the payload of the HTTP response. The type of the image is indicated by the **Content-Type** header, as specified in [RFC2616]. Optionally, the **ETag** header, as specified in [RFC2616], is also returned.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

4 Protocol Examples

The following example shows how the client retrieves a photo. This example requests a photo 96 pixels high and 96 pixels wide associated with the email address "user1@contoso.com".

```
Request (HTTP GET)
https://outlook.office365.com/ews/Exchange.asmx/s/GetUserPhoto?email=user1%40contoso.com&size
=HR120x120
Response
Headers
Content-Type       image/jpeg
ETag       "889B7442"
Body (payload)
<binary JPEG image>
```

5 Security

5.1 Security Considerations for Implementers

This protocol relies on the web server that hosts the application to perform authentication.

5.2 Index of Security Parameters

None.

6 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 Exchange Server 2013
- Microsoft Lync Client 2013/Skype for Business
- Microsoft Skype for Business 2016
- Microsoft Exchange Server 2016

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.

7 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as New, Major, Minor, Editorial, or No change.

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

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

- A document revision that incorporates changes to interoperability requirements or functionality.
- The removal of a document from the documentation set.

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

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

The revision class **No change** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the technical content of the document is identical to the last released version.

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

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

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

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

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

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

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
3 Protocol Details	Removed information about SOAP interface. The information was moved to MS-OXWSCONT.	Y	Content removed.
4 Protocol Examples	Updated example description and code.	N	Content update.
6 Appendix B: Product Behavior	Updated the list of applicable products.	Y	Content update.

8 Index