

# [MS-OMWWH]: Office Mobile Word Web Handler Protocol

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## Revision Summary

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# 1 Introduction

The Office Mobile Word Web Handler protocol retrieves document display information from the protocol server for a document that is optimized for viewing on a mobile device.

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

## 1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

**Hypertext Transfer Protocol (HTTP)**  
**Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**  
**Secure Sockets Layer (SSL)**  
**SOAP**  
**XML namespace**

The following terms are defined in [\[MS-OFCGLOS\]](#):

**absolute URL**  
**front-end web server**  
**HTTP GET**  
**hyperlink**  
**site**  
**Uniform Resource Locator (URL)**  
**Web Services Description Language (WSDL)**  
**WSDL message**  
**XML schema**

The following terms are specific to this document:

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

## 1.2 References

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the technical documents, which are updated frequently. References to other documents include a publishing year when one is available.

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto: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>

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

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

[XMLSCHEMA1] Thompson, H.S., Beech, D., Maloney, M., Eds., 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., and Malhotra, A., Eds., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

### 1.2.2 Informative References

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

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

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

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

[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>

[SOAP1.2/2] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 2: Adjuncts", W3C Recommendation, June 2003, <http://www.w3.org/TR/2003/REC-soap12-part2-20030624>

### 1.3 Overview

This protocol specifies the communication between the client and the **front-end Web server** to obtain the contents of a document [<1>](#) stored on the server in a form suitable to be displayed on mobile devices.

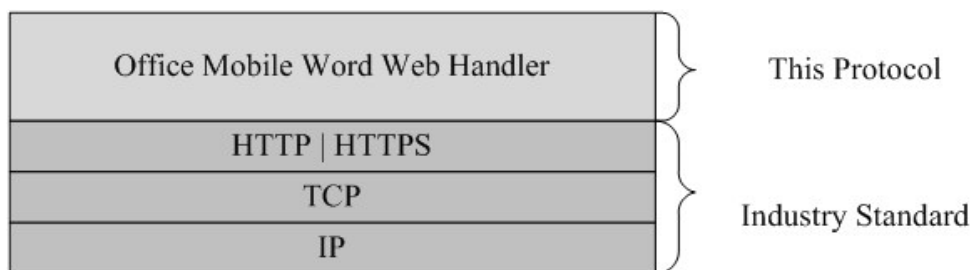
All communication is transported over **Hypertext Transfer Protocol (HTTP)**, as described in [\[RFC2616\]](#), or **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**, as described in [\[RFC2818\]](#).

Each method is an **HTTP GET** request, as described in [\[RFC2616\]](#), that accepts a set of parameters and returns an HTTP response depending upon the method invoked. The parameters of the method are sent as query parameters as part of the **URL**, as described in [\[RFC2616\]](#) section 9.1.

### 1.4 Relationship to Other Protocols

This protocol uses HTTP, as described in [\[RFC2616\]](#), or HTTPS, as described in [\[RFC2818\]](#).

The following diagram shows the underlying messaging and transport stack used by the protocol:



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

## 1.5 Prerequisites/Preconditions

This protocol operates against a **site (2)** that is identified by a URL that is known by protocol clients.

The protocol server endpoint to send requests for the document metadata is formed by appending `"/_layouts/MobileDocHandler.ashx"` to the URL of the site (2), for example:  
[http://www.contoso.com/Repository/\\_layouts/MobileDocHandler.ashx](http://www.contoso.com/Repository/_layouts/MobileDocHandler.ashx).

The protocol server endpoint to send requests for a page image is formed by appending the value of the **url** attribute of the **CT\_PageImage** element (section [3.1.4.1.1.4.4](#)) contained in the metadata of the requested document to the URL of the site (2), for example:  
[http://www.contoso.com/Repository/\\_layouts/MobilePageHandler.ashx](http://www.contoso.com/Repository/_layouts/MobilePageHandler.ashx).

The protocol server endpoint to send requests for page information is formed by appending the value of the **url** attribute of the **CT\_PageXml** element (section [3.1.4.1.1.4.3](#)) contained in the metadata of the requested document to the URL of the site (2), for example:  
[http://www.contoso.com/Repository/\\_layouts/MobilePageHandler.ashx](http://www.contoso.com/Repository/_layouts/MobilePageHandler.ashx).

This protocol assumes that authentication has been performed by the underlying protocols.

## 1.6 Applicability Statement

This protocol is a precursor to the **SOAP** protocol, as described in [\[SOAP1.1\]](#), [\[SOAP1.2/1\]](#), and [\[SOAP1.2/2\]](#), and can be used in similar situations.

## 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 uses HTTP or HTTPS as transport for the HTTP GET methods. The HTTP headers used are discussed in the following individual protocol sections.

### 2.2 Common Message Syntax

This section contains common definitions that are used by this protocol. The syntax of the definitions uses **XML schema**, as specified in [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#), and **WSDL**, 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 prefix for each XML namespace that is used, the choice of any particular prefix is implementation-specific and not significant for interoperability.

Prefix	Namespace URI	Reference
(none)	<a href="http://www.w3.org/2001/XMLSchema">http://www.w3.org/2001/XMLSchema</a>	<a href="#">[XMLSCHEMA1]</a>

#### 2.2.2 Messages

This specification does not define any common **WSDL message** definitions.

#### 2.2.3 Elements

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

#### 2.2.4 Complex Types

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

#### 2.2.5 Simple Types

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

#### 2.2.6 Attributes

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

#### 2.2.7 Groups

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

#### 2.2.8 Attribute Groups

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

## 2.2.9 Common Data Structures

This specification does not define any common XML schema data structures.

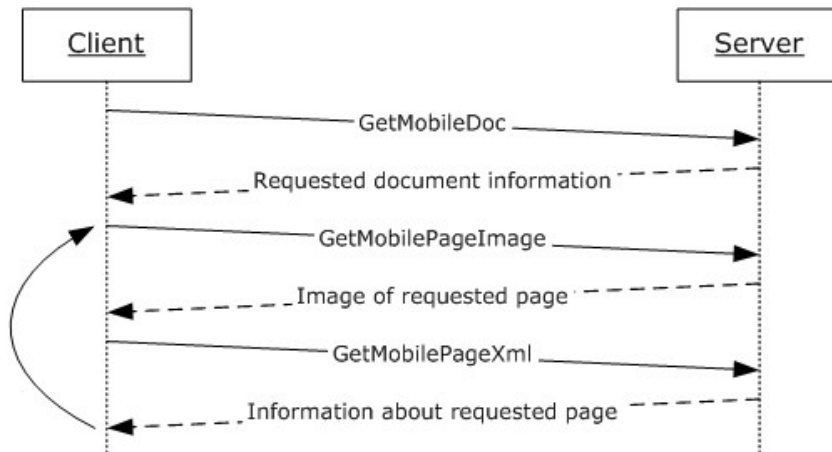
### 3 Protocol Details

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.

Except where specified, protocol clients MUST interpret HTTP status codes returned by the protocol server as specified in [\[RFC2616\]](#) section 10.

#### 3.1 Server Details

The following high-level sequence diagram illustrates the operation of this protocol.



**Figure 2: Sample communication between protocol client and protocol server**

First, a protocol client calls **GetMobileDoc** (section [3.1.4.1.1](#)), and the protocol server responds with the information about the requested document.

The protocol client, using the previous information, makes one or more calls to **GetMobilePageImage** (section [3.1.4.2.1](#)) and **GetMobilePageXml** (section [3.1.4.2.2](#)), and the protocol server responds with the image of the requested page and information about the requested page, respectively.

##### 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 specification does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this specification.

##### 3.1.2 Timers

None.

### 3.1.3 Initialization

The protocol server MUST expose its Web methods at a URL, which builds upon a base URL.

The URL MUST be constructed as base URL/\_layouts/handler name.

The base URL can be any web site URL, such as "http://www.contoso.com/Repository". The part of \_layouts/handler Name can be either of the following:

```
_layouts/MobileDocHandler.ashx  
_layouts/MobilePageHandler.ashx
```

### 3.1.4 Message Processing Events and Sequencing Rules

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

Operation	Description
<b>GetMobileDoc</b>	Retrieves the metadata of a document.
<b>GetMobilePageImage</b>	Retrieves the image of a page in a document.
<b>GetMobilePageXml</b>	Retrieves information about content of a page in a document.
<b>GetLatestDocumentVersion</b>	Retrieves the current version of a document.

#### 3.1.4.1 MobileDocHandler

The methods in this section are supported by MobileDocHandler.ashx.

##### 3.1.4.1.1 GetMobileDoc

This method retrieves the metadata of a document. The URL for this method is constructed by appending "\_layouts/MobileDocHandler.ashx" to the site (2) name. The parameters to be passed while calling this method are as follows:

**doc:** A string element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the **absolute URL** of the document.

If any of the preceding conditions for the parameters are not satisfied, the method returns one of the error values as specified in section [3.1.4.1.1.1](#).

##### 3.1.4.1.1.1 Return Values

This operation sends an HTTP response back to the client, and the HTTP response status code MUST be one of the values in the following table.

Value	Description
200	Success. The protocol server returns XML specifying the document metadata, which contains a <b>mobileDoc</b> (section <a href="#">3.1.4.1.1.3.1</a> ) root element. An <b>X-DocVersion</b> HTTP header is present, which is an xsd:string ( <a href="#">[XMLSCHEMA2]</a> section 3.2.1) that specifies the version of the document. An <b>X-DocUrl</b> HTTP header is present, which is an xsd:string ( <a href="#">[XMLSCHEMA2]</a> section 3.2.1) that specifies the URL of the document.

Value	Description
503	Failure. The server also sets an HTTP header <b>X-Error xsd:unsignedInt</b> ( <a href="#">[XMLSCHEMA2]</a> section 3.3.22) in the response. If the value is greater than or equal to 100 and less than 200, the protocol client SHOULD retry this call; otherwise, this header MUST be ignored.
404	Failure.

### 3.1.4.1.1.2 Messages

None.

### 3.1.4.1.1.3 Elements

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

Element	Description
<b>mobileDoc</b>	A <b>CT_MobileDoc</b> element (section <a href="#">3.1.4.1.1.4.7</a> ) that specifies the metadata of the document.

### 3.1.4.1.1.3.1 mobileDoc

### 3.1.4.1.1.4 Complex Types

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

Complex type	Description
<b>CT_PageSet</b>	A page set in the document.
<b>CT_Document</b>	The metadata of the document.
<b>CT_PageXml</b>	The information required to retrieve the information about pages of the document.
<b>CT_PageImage</b>	The information required to obtain the image of a page in the document.
<b>CT_DocData</b>	Metadata of the document.
<b>CT_Ignorable</b>	Reserved. MUST be ignored by client.
<b>CT_MobileDoc</b>	A root element that specifies the metadata of the document.

#### **3.1.4.1.1.4.1 CT\_PageSet**

#### **3.1.4.1.1.4.2 CT\_Document**

#### **3.1.4.1.1.4.3 CT\_PageXml**

#### **3.1.4.1.1.4.4 CT\_PageImage**

#### **3.1.4.1.1.4.5 CT\_DocData**

#### **3.1.4.1.1.4.6 CT\_Ignorable**

#### **3.1.4.1.1.4.7 CT\_MobileDoc**

#### **3.1.4.1.1.5 Simple Types**

None.

#### **3.1.4.1.1.6 Attributes**

None.

#### **3.1.4.1.1.7 Groups**

None.

#### **3.1.4.1.1.8 Attribute Groups**

None.

### **3.1.4.1.2 GetLatestDocumentVersion**

This method retrieves the current version of document. The URL for this method is constructed by appending "\_layouts/MobileDocHandler.ashx" to the site (2) name. The parameters to be passed while calling this method are as follows:

**doc:** A **string** element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the absolute URL of the document.

**getCurrentDocumentVersion:** A **string** element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies that the current version of the document is to be returned. The value of this parameter **MUST** be set to **true**, or this parameter is ignored on receipt. When this parameter is ignored on reception, the return value is 200.

If any of the preceding conditions for the parameters are not satisfied, this method returns one of the error values as specified in section [3.1.4.1.2.1](#).

#### **3.1.4.1.2.1 Return Values**

This method sends an HTTP response back to the client, and the HTTP response status code **MUST** be one of the values in the following table.

Value	Description
200	Success. The protocol server sets an <b>X-DocVersion</b> HTTP header that is an <b>xsd:string</b> ([XMLSCHEMA2] section 3.2.1) that specifies the version of the document. An <b>X-DocUrl</b> HTTP header is present, which is an <b>xsd:string</b> ([XMLSCHEMA2] section 3.2.1) that specifies the URL of the document.
503	Failure. The server also sets an HTTP header <b>X-Error xsd:unsignedInt</b> ([XMLSCHEMA2] section 3.3.22) in the response. If the value is greater than or equal to 100 and less than 200, the protocol client SHOULD retry this call; otherwise, this header MUST be ignored.
404	Failure.

### 3.1.4.1.3 PrepareThumbnail

This method starts the preparation of the thumbnail of the first page of a document. The URL for this method is constructed by appending "\_layouts/MobileDocHandler.ashx" to the site (2) name. The parameters to be passed while calling this method are as follows:

**doc:** A **string** element ([XMLSCHEMA2] section 3.2.1) that specifies the absolute URL of the document.

**type:** A **string** element ([XMLSCHEMA2] section 3.2.1) that specifies that the thumbnail of the first page of the document is to be prepared. The value of this parameter MUST be set to **thumbnail**, or this parameter is ignored on receipt.

If any of the preceding conditions for the parameters are not satisfied, the method returns one of the error values specified in section [3.1.4.1.3.1](#).

#### 3.1.4.1.3.1 Return Values

This operation sends an HTTP response back to the client, and the HTTP response status code MUST be one of the values in the following table:

Value	Description
200	<b>Success:</b> The protocol server returns XML specifying the document metadata, which contains a <b>mobileDoc</b> (section <a href="#">3.1.4.1.1.3.1</a> ) root element. An <b>X-DocVersion</b> HTTP header is present, which is an <b>xsd:string</b> ([XMLSCHEMA2] section 3.2.1) that specifies the version of the document. An <b>X-DocUrl</b> HTTP header is present, which is an <b>xsd:string</b> ([XMLSCHEMA2] section 3.2.1) that specifies the URL of the document.
503	<b>Failure:</b> The server also sets an HTTP header <b>X-Error xsd:unsignedInt</b> ([XMLSCHEMA2] section 3.3.22) in the response. If the value is greater than or equal to 100 and less than 200, the protocol client SHOULD retry this call; otherwise, this header MUST be ignored.

### 3.1.4.2 MobilePageHandler

The methods in this section are supported by MobilePageHandler.ashx.

#### 3.1.4.2.1 GetMobilePageImage

This method obtains images of pages in a document. The URL for this method is constructed by appending the value of the **url** attribute of the **CT\_PageImage** (section [3.1.4.1.1.4.4](#)) element contained in the metadata of the requested document to the URL of the site (2). The URL of the site

(2) MUST first have "/\_layouts/" appended to it. The parameters to be passed while calling this method are as follows:

**n:** A **string** element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the page image to be obtained. To request the image of page 1, **n** MUST be set to **p1.img**. To request the image of page 2, **n** MUST be set to **p2.img**. The value of **n** MUST be of the form **pk.img**, where **k** is an integer greater than or equal to 1 and less than or equal to the number of pages in the document. The number of pages in the document is calculated as the sum of the **count** attribute of all **CT\_PageSet** (section [3.1.4.1.1.4.1](#)) elements.

**width:** An **unsignedInt** element ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the width of the requested image, in pixels. This parameter is optional. The default value of this parameter is 480. The maximum permissible value of this parameter is 1500.

**height:** An **unsignedInt** element ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the height of the requested image, in pixels. This parameter is optional. The default value of this parameter is 621. The maximum permissible value of this parameter is 2000.

**fmt:** A **string** element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the image format of the requested image. Image formats other than **png** and **jpeg** are encoded to **jpeg** by default.

When one of these two parameters, **width** and **height** is sent with a valid value, and the other one is not sent or sent with an empty value or sent with value 0, or both parameters are sent with value 0, the image returned has the default values of width and height.

When the **fmt** parameter is not sent or sent with an empty value or sent with an invalid value, the image returned has the default value of **fmt**.

If any of the preceding conditions for the parameters are not satisfied, the method returns one of the error values specified in section [3.1.4.2.1.1](#).

### 3.1.4.2.1.1 Return Values

This method sends an HTTP response back to the client, and the HTTP response status code MUST be one of the values in the following table.

Value	Description
200	<b>Success:</b> The protocol server returns an image of the requested page in the specified format.
503	<b>Failure:</b> The server also sets an HTTP header <b>X-Error</b> xsd:unsignedInt ( <a href="#">[XMLSCHEMA2]</a> section 3.3.22) in the response. If the value is greater than or equal to 100 and less than 200, the protocol client SHOULD retry this call; otherwise, this header MUST be ignored.
404	<b>Failure.</b>

### 3.1.4.2.2 GetMobilePageXml

This method obtains information about the content of pages in a document. The URL for this method is constructed by appending the value of the **url** attribute of the [CT\\_PageXml](#) (section [3.1.4.1.1.4.3](#)) element contained in the metadata of the requested document to the URL of the site (2). The URL of the site (2) MUST first have "/\_layouts/" appended to it. The parameters to be passed while calling this method are as follows:

**n:** A **string** element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the page range for which the information is to be obtained. To request the information for the first 10 pages, **n** MUST be set to



**p\_1\_10.xml**. To request the information for the next 10 pages, **n** MUST be set to **p\_11\_20.xml**. The value of **n** MUST be of the form **p\_i\_j.xml**, where  $i = 10 * (k - 1) + 1$  and  $j = 10 * k$ , where **k** is an integer greater than or equal to 1 and less than or equal to 1/10 of the number of pages in the document, rounded off to the next integer. The number of pages in the document is calculated as the sum of the **count** attribute of all **CT\_PageSet** (section [3.1.4.1.1.4.1](#)) elements.

If any of the preceding conditions for the parameters are not satisfied, the method returns of the error values as specified in section [3.1.4.2.2.1](#).

### 3.1.4.2.2.1 Return Values

This method sends an HTTP response back to the client, and the HTTP response status code MUST be one of the values in the following table.

Value	Description
200	<b>Success:</b> The protocol server returns XML specifying information about the requested page range, which contains a <b>Pages</b> (section <a href="#">3.1.4.2.2.3.1</a> ) root element.
503	<b>Failure:</b> The server also sets an HTTP header <b>X-Error</b> xsd:unsignedInt ( <a href="#">[XMLSCHEMA2]</a> section 3.3.22) in the response. If the value is greater than or equal to 100 and less than 200, the protocol client SHOULD retry this call; otherwise, this header MUST be ignored.
404	<b>Failure.</b>

### 3.1.4.2.2.2 Messages

None.

### 3.1.4.2.2.3 Elements

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

Element	Description
<b>Pages</b>	A <b>CT_Pages</b> element (section <a href="#">3.1.4.2.2.3.1</a> ) that specifies the content of pages requested by this operation.

### 3.1.4.2.2.3.1 Pages

### 3.1.4.2.2.4 Complex Types

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

Complex type	Description
<b>CT_TextLine</b>	A line of text.
<b>CT_LinkTargetInternal</b>	An internal <b>hyperlink</b> destination.
<b>CT_Link</b>	A hyperlink.
<b>CT_Paragraph</b>	A paragraph.

Complex type	Description
<b>CT_Image</b>	The type and position of an image.
<b>CT_EndNote</b>	An endnote.
<b>CT_FootNote</b>	A footnote.
<b>CT_TableOfContents</b>	The table of contents of a document.
<b>CT_TextBox</b>	A textbox.
<b>CT_List</b>	A list.
<b>CT_TableDataCell</b>	A data cell in a table row, as specified in <a href="#">CT_TableRow</a> (section <a href="#">3.1.4.2.2.4.13</a> ).
<b>CT_TableRow</b>	A row in a table, as specified in <a href="#">CT_Table</a> (section <a href="#">3.1.4.2.2.4.14</a> ).
<b>CT_Table</b>	A table.
<b>CT_Page</b>	A page.
<b>CT_Pages</b>	The set of pages in a document.

- 3.1.4.2.2.4.1 CT\_TextLine**
- 3.1.4.2.2.4.2 CT\_LinkTargetInternal**
- 3.1.4.2.2.4.3 CT\_Link**
- 3.1.4.2.2.4.4 CT\_Paragraph**
- 3.1.4.2.2.4.5 CT\_Image**
- 3.1.4.2.2.4.6 CT\_EndNote**
- 3.1.4.2.2.4.7 CT\_FootNote**
- 3.1.4.2.2.4.8 CT\_TableOfContents**
- 3.1.4.2.2.4.9 CT\_TextBox**
- 3.1.4.2.2.4.10 CT\_List**
- 3.1.4.2.2.4.11 CT\_TableDataCell**
- 3.1.4.2.2.4.12 CT\_TableHeaderCell**
- 3.1.4.2.2.4.13 CT\_TableRow**
- 3.1.4.2.2.4.14 CT\_Table**
- 3.1.4.2.2.4.15 CT\_Page**
- 3.1.4.2.2.4.16 CT\_Pages**
- 3.1.4.2.2.5 Simple Types**

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

Simple type	Description
<b>ST_ImageType</b>	The type of an image, as specified in <b>CT_Image</b> (section <a href="#">3.1.4.2.2.4.5</a> ).
<b>ST_ParagraphType</b>	The type of a paragraph, as specified in <b>CT_Paragraph</b> (section <a href="#">3.1.4.2.2.4.4</a> ).
<b>ST_TextLineType</b>	The type of a text line, as specified in <b>CT_TextLine</b> (section <a href="#">3.1.4.2.2.4.1</a> ).

#### 3.1.4.2.2.5.1 ST\_ImageType

#### 3.1.4.2.2.5.2 ST\_ParagraphType

#### 3.1.4.2.2.5.3 ST\_TextLineType

#### 3.1.4.2.2.6 Attributes

None.

#### 3.1.4.2.3 GetThumbnail

This method obtains the thumbnail of the first page of a document. The URL for this method is constructed by appending the value of the **url** attribute of the **CT\_PageImage** (section [3.1.4.1.1.4.4](#)) element contained in the metadata of the requested document returned by **PrepareThumbnail** to the URL of the site (2). The URL of the site (2) MUST first have **"/\_layouts/"** appended to it. The parameters to be passed while calling this method are as follows:

**n:** A **string** element ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the thumbnail to be obtained. The value of this parameter MUST be set to **t1.jpg** or this parameter is ignored on receipt.

If any of the preceding conditions for the parameters are not satisfied, the method returns one of the error values as specified in section [3.1.4.2.3.1](#).

##### 3.1.4.2.3.1 Return Values

This method sends an HTTP response back to the client, and the HTTP response status code MUST be one of the values in the following table.

Value	Description
200	<b>Success:</b> The protocol server returns a thumbnail of the first page of the document.
503	<b>Failure:</b> The server also sets an HTTP header <b>X-Error xsd:unsignedInt</b> ( <a href="#">[XMLSCHEMA2]</a> section 3.3.22) in the response. If the value is greater than or equal to 100 and less than 200, the protocol client SHOULD retry this call; otherwise, this header MUST be ignored.
404	<b>Failure.</b>

#### 3.1.5 Timer Events

None.

#### 3.1.6 Other Local Events

None.

## 4 Protocol Examples

The following examples contain a sample interaction between the protocol client and the protocol server. These examples are illustrative of the preceding specification, and they do not cover all possible structure usage scenarios. They are not intended to replace the preceding specification, but rather to clarify and enhance it. In the following examples, the client is attempting to view a document located at <http://spptestamd/testdocs/Example%20Document.docx>.

### 4.1 Document Information

The URL for **GetMobileDoc** (section [3.1.4.1.1](#)) is constructed as follows:

```
http://spptestamd/_layouts/MobileDocHandler.ashx?doc=http://spptestamd/testdocs/Example%20Document.docx
```

The protocol client then performs an HTTP GET on this URL.

The protocol server responds with a **CT\_MobileDoc** (section [3.1.4.1.1.4.7](#)) that contains information about the document.

```
<?xml version="1.0" encoding="utf-8"?>
<mobileDoc>
  <document pages="1" dypInch="294912" dypInch="294912">
    <pageset width="983040" height="1474560" count="4" />
  </document>
  <pageXml
    url="/MobilePageHandler.ashx?d=H%3Asptestamd%2F%2Ftestdocs%2FExample%20Document%2Edocx&z=B15D182E-D3F6-4383-AC4A-23EB2D3C64C92&v=00000000-0000-0000-0000-00000000010b" page="n"
    start="s" length="1" />
  <pageImage
    url="/MobilePageHandler.ashx?d=H%3Asptestamd%2F%2Ftestdocs%2FExample%20Document%2Edocx&z=B15D182E-D3F6-4383-AC4A-23EB2D3C64C92&v=00000000-0000-0000-0000-00000000010b" image="n"
    start="s" length="1" width="width" height="height" format="fmt" />
</mobileDoc>
```

The contained **pageXml** and **pageImage** elements specify information about how to obtain the page information and page images, respectively.

### 4.2 Page Image

The **pageImage** element of the **CT\_MobileDoc** (section [3.1.4.1.1.4.7](#)) specifies how to obtain the page images.

The URL to obtain the image of the first page is constructed as follows:

```
http://spptestamd/_layouts/MobilePageHandler.ashx?d=H%3Asptestamd%2F%2Ftestdocs%2FExample%20Document%2Edocx&z=B15D182E-D3F6-4383-AC4A-23EB2D3C64C92&v=00000000-0000-0000-0000-00000000010b&n=p1.img
```

The protocol client performs an HTTP GET on this URL to obtain the default-sized image of the first page.

## 4.3 Page Information

The **pageXml** element of the **CT\_MobileDoc** (section [3.1.4.1.1.4.7](#)) specifies how to obtain page information.

The URL to obtain information about pages 1 to 10 is as follows:

```
http://sptestamd/_layouts/MobilePageHandler.ashx?d=H%3Asptestamd%2F%2Ftestdocs%2FExample%20Document%2Edocx&z=B15D182E-D3F6-4383-AC4A-23EB2D3C64C92&v=00000000-0000-0000-0000-00000000010b&n=p_1_10.xml
```

The protocol client performs an HTTP GET on this URL.

The protocol server responds with a **CT\_Pages** complex type (section [3.1.4.2.2.4.16](#)) that contains information about the requested page range.

```
<?xml version="1.0"?>
<Pages>
  <Page id="1">
    <Header>
      <P storyId="2">
        <T id="0" l="0" t="2.9" w="47.2" h="13" b="1">Header </T>
      </P>
    </Header>
    <Footer>
      <P storyId="3">
        <T id="1" l="0" t="467.8" w="43.1" h="13" b="1">Footer </T>
      </P>
    </Footer>
    <P storyId="1">
      <L l="-3" t="16.3" w="195.2" h="32.1" s="0" n="26">
        <LT p="2" l="-3" t="16.3"></LT>
      </L>
      <T id="2" l="0" t="19.9" w="192.6" h="13" b="1">DOCMAPBEGIN:00:DOCMAPBEGIN </T>
    </P>
    <P storyId="1">
      <L l="-3" t="48.3" w="147.2" h="32.1" s="0" n="21">
        <LT p="2" l="-3" t="160.6"></LT>
      </L>
      <T id="3" l="0" t="52" w="149.5" h="13" b="1">DOCMAPIITEM:1:Header 1 </T>
    </P>
    <P storyId="1">
      <L l="-3" t="80.4" w="146.7" h="32.1" s="0" n="21">
        <LT p="3" l="0" t="0"></LT>
      </L>
      <T id="4" l="0" t="84" w="145.5" h="13" b="1">DOCMAPIITEM:1:Contents </T>
    </P>
    <P storyId="1">
      <L l="-3" t="112.4" w="365.6" h="32.1" s="0" n="23">
        <LT p="3" l="0" t="0"></LT>
      </L>
      <T id="5" l="0" t="116.1" w="369.2" h="13" b="1">DOCMAPEND:00:DOCMAPEND </T>
    </P>
  </Page>
  <Page id="2">
    <Header>
      <P storyId="2">
        <T id="6" l="0" t="2.9" w="47.2" h="13" b="1">Header </T>
      </P>
    </Header>
  </Page>
</Pages>
```

```

    </P>
</Header>
<Footer>
    <P storyId="3">
        <T id="7" l="0" t="467.8" w="43.1" h="13" b="1">Footer </T>
    </P>
</Footer>
<P storyId="1">
    <T id="8" l="0" t="18.9" w="304.1" h="13">You can easily change the formatting of
selected text in </T>
    <T id="9" l="0" t="37.9" w="321.2" h="13">the document text by choosing a look for the
selected text </T>
    <T id="10" l="0" t="57" w="303.1" h="13">from the Quick Styles gallery on the Home tab.
You can </T>
    <T id="11" l="0" t="75" w="321.1" h="13">also format text directly by using the other
controls on the </T>
    <T id="12" l="0" t="94" w="309.1" h="13">Home tab. Most controls offer a choice of
using the look </T>
    <T id="13" l="0" t="113.1" w="318" h="13">from the current theme or using a format
specified.</T>
    <T id="14" l="0" t="129.2" w="58.2" h="16.9" b="1">directly.1 </T>
</P>
<P storyId="1" type="Heading">
    <T id="15" l="0" t="181.4" w="76.2" h="16" b="1">Header 1 </T>
</P>
<P storyId="1">
    <L l="-3" t="200.9" w="73.3" h="32.1" s="0" n="13">
        <LT p="2" l="-3" t="160.6"></LT>
    </L>
    <T id="16" l="0" t="205.3" w="76.2" h="13" b="1">Internal Link </T>
</P>
<P storyId="1">
    <L l="-3" t="232.9" w="72.7" h="32.1" s="0" n="13">http://www.contoso.com/</L>
    <T id="17" l="0" t="237.3" w="77.2" h="13" b="1">External link </T>
</P>
<Footer>
    <P storyId="4">
        <T id="18" l="0" t="434.8" w="200.6" h="13" b="1">
</T>
    </P>
</Footer>
<Footnote>
    <P storyId="1">
        <T id="19" l="0" t="446.9" w="167.5" h="16.9" b="1">1 This is an example footnote.
</T>
    </P>
</Footnote>
</Page>
<Page id="3">
    <Header>
        <P storyId="2">
            <T id="20" l="0" t="2.9" w="47.2" h="13" b="1">Header </T>
        </P>
    </Header>
    <Footer>
        <P storyId="3">
            <T id="21" l="0" t="467.8" w="43.1" h="13" b="1">Footer </T>
        </P>
    </Footer>
    <P storyId="1">

```

```

    <T id="22" l="0" t="256.5" w="127.4" h="16.9" b="1"> Text with an endnotei </T>
  </P>
  <List i="0">
    <P storyId="1" id="0" type="ListBody">
      <T id="23" l="24.1" t="291.9" w="87.3" h="13.6" b="1">* Bullet one </T>
    </P>
    <P storyId="1" id="0" type="ListBody">
      <T id="24" l="24.1" t="312" w="87.3" h="13.6" b="1">* Bullet two </T>
    </P>
    <P storyId="1" id="0" type="ListBody">
      <T id="25" l="24.1" t="331" w="95.3" h="13.6" b="1">* Bullet three </T>
    </P>
  </List>
  <TOC>
    <P storyId="1" type="TOCI">
      <T id="26" l="0" t="380.8" w="74.2" h="16" b="1">Contents </T>
    </P>
    <P storyId="1" type="TOCI">
      <L l="-3" t="400.2" w="250.4" h="25.4" s="0" n="72">
        <LT p="2" l="-3" t="160.6"></LT>
      </L>
      <T id="27" l="0" t="403.7" w="252.8" h="13" b="1">Header 1
      .....1 </T>
    </P>
    <P storyId="1" type="TOCI">
      <T id="28" l="0" t="430.7" w="8" h="13" b="1"> </T>
    </P>
  </TOC>
  <Image type="Figure" l="1" t="16.3" w="319" h="271.7"/>
</Page>
<Page id="4">
  <Header>
    <P storyId="2">
      <T id="29" l="0" t="2.9" w="47.2" h="13" b="1">Header </T>
    </P>
  </Header>
  <Footer>
    <P storyId="3">
      <T id="30" l="0" t="467.8" w="43.1" h="13" b="1">Footer </T>
    </P>
  </Footer>
  <Table>
    <TR>
      <TD>
        <P storyId="1">
          <T id="31" l="0" t="18.9" w="67.2" h="13" b="1">Header cell </T>
        </P>
      </TD>
      <TD>
        <P storyId="1">
          <T id="32" l="81.3" t="18.9" w="6" h="13" b="1"> </T>
        </P>
      </TD>
      <TD>
        <P storyId="1">
          <T id="33" l="161.5" t="18.9" w="6" h="13" b="1"> </T>
        </P>
      </TD>
    </TR>
  </Table>

```



```

        <P storyId="1">
            <T id="34" l="240.7" t="18.9" w="6" h="13" b="1"> </T>
        </P>
    </TD>
</TR>
<TR>
    <TD>
        <P storyId="1">
            <T id="35" l="0" t="35.9" w="53.2" h="13" b="1">Data cell </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="36" l="81.3" t="35.9" w="6" h="13" b="1"> </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="37" l="161.5" t="35.9" w="6" h="13" b="1"> </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="38" l="240.7" t="35.9" w="6" h="13" b="1"> </T>
        </P>
    </TD>
</TR>
<TR>
    <TD>
        <P storyId="1">
            <T id="39" l="0" t="52" w="6" h="13" b="1"> </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="40" l="81.3" t="52" w="6" h="13" b="1"> </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="41" l="161.5" t="52" w="6" h="13" b="1"> </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="42" l="240.7" t="52" w="6" h="13" b="1"> </T>
        </P>
    </TD>
</TR>
<TR>
    <TD>
        <P storyId="1">
            <T id="43" l="0" t="68" w="6" h="13" b="1"> </T>
        </P>
    </TD>
    <TD>
        <P storyId="1">
            <T id="44" l="81.3" t="68" w="6" h="13" b="1"> </T>
        </P>
    </TD>

```

```

</TD>
<TD>
  <P storyId="1">
    <T id="45" l="161.5" t="68" w="6" h="13" b="1"> </T>
  </P>
</TD>
<TD>
  <P storyId="1">
    <T id="46" l="240.7" t="68" w="6" h="13" b="1"> </T>
  </P>
</TD>
</TR>
<TR>
<TD>
  <P storyId="1">
    <T id="47" l="0" t="84" w="6" h="13" b="1"> </T>
  </P>
</TD>
<TD>
  <P storyId="1">
    <T id="48" l="81.3" t="84" w="6" h="13" b="1"> </T>
  </P>
</TD>
<TD>
  <P storyId="1">
    <T id="49" l="161.5" t="84" w="6" h="13" b="1"> </T>
  </P>
</TD>
<TD>
  <P storyId="1">
    <T id="50" l="240.7" t="84" w="6" h="13" b="1"> </T>
  </P>
</TD>
</TR>
</Table>
<P storyId="1">
  <T id="51" l="0" t="102.1" w="8" h="13" b="1"> </T>
</P>
<P storyId="1">
  <T id="52" l="0" t="134.1" w="8" h="13" b="1"> </T>
</P>
<Footer>
  <P storyId="4">
    <T id="53" l="0" t="165.2" w="200.6" h="13" b="1">
</T>
  </P>
</Footer>
<Endnote>
  <P storyId="1">
    <T id="54" l="0" t="177.3" w="162.5" h="16.9" b="1">i This is an example endnote.
</T>
  </P>
</Endnote>
<TextBox>
  <P storyId="5">
    <T id="55" l="10" t="172.2" w="107.4" h="13">[Type a quote from </T>
    <T id="56" l="10" t="191.3" w="94.3" h="13">the document or </T>
    <T id="57" l="10" t="210.3" w="105.4" h="13">the summary of an </T>
    <T id="58" l="10" t="228.3" w="96.3" h="13">interesting point. </T>

```

```
<T id="59" l="10" t="247.4" w="94.4" h="13">You can position </T>
<T id="60" l="10" t="266.4" w="68.2" h="13">the text box </T>
<T id="61" l="10" t="284.4" w="91.3" h="13">anywhere in the </T>
<T id="62" l="10" t="303.5" w="106.4" h="13">document. Use the </T>
<T id="63" l="10" t="322.5" w="102.4" h="13">Text Box Tools tab </T>
<T id="64" l="10" t="341.6" w="78.3" h="13">to change the </T>
<T id="65" l="10" t="359.6" w="96.3" h="13">formatting of the </T>
<T id="66" l="10" t="378.6" w="83.3" h="13">pull quote text </T>
<T id="67" l="10" t="395.7" w="35.1" h="13" b="1">box.] </T>
</P>
</TextBox>
</Page>
</Pages>
```

## 5 Security

### 5.1 Security Considerations for Implementers

**Secure Sockets Layer (SSL)** is required to securely implement this protocol.

### 5.2 Index of Security Parameters

None.

## 6 Appendix A: Full WSDL

None.

## 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 SharePoint Foundation 2010
- Microsoft Word Mobile 2010
- Microsoft Word Web App

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 1.3:](#) Word Web App supports only the .docx, .docm, .dotx, and .dotm file formats.

## 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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