

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

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1 Introduction

This document specifies the Office Mobile Word Web Handler Protocol. This protocol acquires information from the protocol server that is required to display a document [<1>](#) that is optimized for viewing on a mobile device.

1.1 Glossary

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

Hypertext Transfer Protocol (HTTP)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)

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

absolute URL
document
footnote
front-end Web server
header row
HTTP GET
hyperlink
point
site
SOAP (Simple Object Access Protocol)
URI (Uniform Resource Identifier)
URL (Uniform Resource Locator)
XML namespace
XML Schema

The following terms are specific to this document:

endnote: A note that appears at the end of a section or document and that is referenced by text in the main body of the document. An endnote consists of two linked parts, a reference mark within the main body of text and the corresponding text of the note.

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.ietf.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] World Wide Web Consortium, "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation 8 December 2009, <http://www.w3.org/TR/REC-xml-names/>

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

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

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

[MS-OFCGLOS] Microsoft Corporation, "[Microsoft Office Master Glossary](#)", June 2008.

[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 Protocol Overview (Synopsis)

This protocol specifies the communication between the client and the **front-end Web server** to obtain the contents of a document stored on the server in a form suitable to be displayed on mobile devices.

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 [\[RFC2616\]](#). All communication is transported over HTTP or secure HTTP (HTTPS), 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:

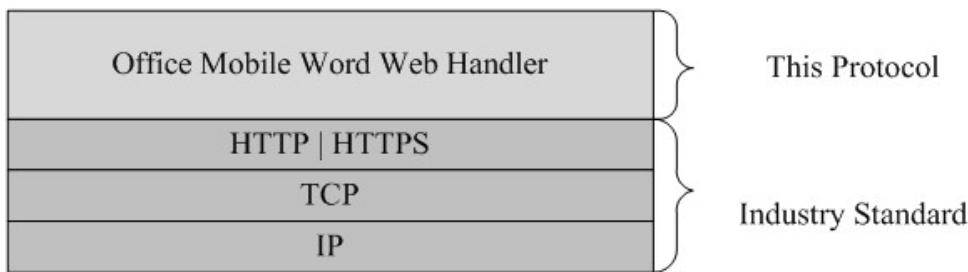


Figure 1: This protocol in relation to other protocols

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.

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.

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.

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 secure HTTP (HTTPS) version 1.1 (as specified in [\[RFC2616\]](#)) 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 used by this protocol. The syntax of the definitions uses **XML Schema (1)** as defined in [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#).

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)	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1]

2.2.2 Messages

None.

2.2.3 Elements

This specification does not define any common XML Schema (1) element definitions.

2.2.4 Complex Types

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

2.2.5 Simple Types

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

2.2.6 Attributes

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

2.2.7 Groups

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

2.2.8 Attribute Groups

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

3 Protocol Details

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 Status Code Definitions).

3.1 Server Details

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

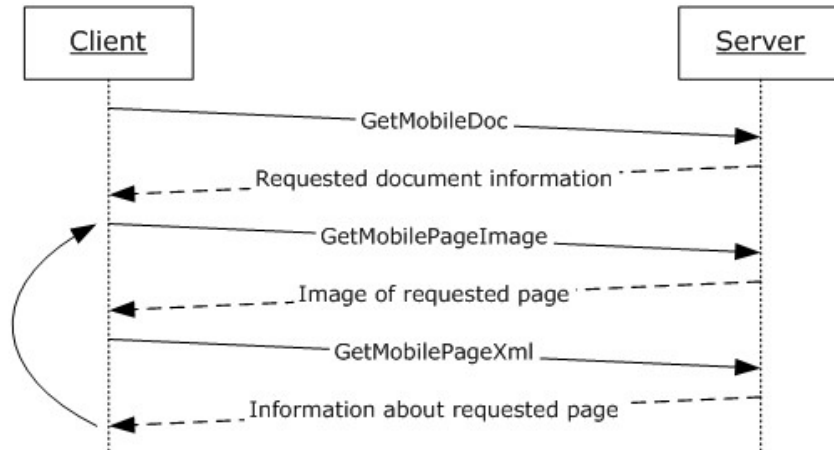


Figure 2: Sample communication between protocol client and protocol server

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 maintained by an implementation to participate in this protocol. The described organization is provided to facilitate the explanation of how this 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.

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 two:

1. _layouts/MobileDocHandler.ashx
2. _layouts/MobilePageHandler.ashx

3.1.4 Message Processing Events and Sequencing Rules

Operation	Description
GetMobileDoc	Retrieves the metadata of a document.
GetMobilePageImage	Retrieves the image of a page in a document.
GetMobilePageXml	Retrieves information about content of a page in a document.
GetLatestDocumentVersion	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 mobileDoc (section 3.1.4.1.1.3.1) root element. An X-DocVersion HTTP header is present, which is an xsd:string ([XMLSCHEMA2] section 3.2.1) that specifies the version of the document. An X-DocUrl HTTP header is present, which is an xsd:string ([XMLSCHEMA2] section 3.2.1) that specifies the URL of the document.
503	Failure. The server also sets an HTTP header X-Error xsd:unsignedInt ([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.

Value	Description
404	Failure.

3.1.4.1.1.2 Messages

None.

3.1.4.1.1.3 Elements

3.1.4.1.1.3.1 mobileDoc

A **CT_MobileDoc** (section [3.1.4.1.1.4.7](#)) element that specifies the metadata of the document.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="mobileDoc" type="CT_MobileDoc"/>
```

3.1.4.1.1.4 Complex Types

The following XML Schema (1) complex type definitions are specific to this operation.

3.1.4.1.1.4.1 CT_PageSet

Referenced by: [CT_Document](#)

This complex type specifies a page set in the document. A page set is a set of contiguous pages that have the same width and height.

Attributes:

width: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the width of a page in the current page set in terms of dots. The width of the page in inches **MUST** be set to **width** divided by **dpxInch**, as specified in **CT_Document** (section [3.1.4.1.1.4.2](#)).

height: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the height of a page in the current page set in terms of dots. The height of the page, in inches, **MUST** be set to **height** divided by **dypInch**, as specified in **CT_Document** (section [3.1.4.1.1.4.2](#)).

count: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the number of pages in the page set.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_PageSet">
  <xsd:attribute name="width" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="height" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="count" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>
```

3.1.4.1.1.4.2 CT_Document

Referenced by: [CT_DocData](#), [CT_MobileDoc](#)

This complex type contains the metadata of the document.

Child Elements:

pageset: A **CT_PageSet** element (section [3.1.4.1.1.4.1](#)) that specifies a set of contiguous pages that have the same width and height. The **CT_PageSet** (section [3.1.4.1.1.4.1](#)) elements MUST occur in the order in which the page sets themselves occur in the **document**.

Attributes:

pages: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the number of pageset elements in the CT_Document type element.

dxpInch: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the number of dots per inch in the horizontal direction of the document.

dypInch: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the number of dots per inch in the vertical direction of the document.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Document">
  <xsd:sequence>
    <xsd:element name="pageset" type="CT_PageSet" minOccurs="1" maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="pages" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="dypInch" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="dypInch" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>
```

3.1.4.1.1.4.3 CT_PageXml

Referenced by: [CT_MobileDoc](#)

This complex type specifies the information required to retrieve the information about pages of the document.

Attributes:

url: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the relative URL of the **MobilePageHandler** (section [3.1.4.2](#)).

page: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the name of the parameter that defines the page range for which information is requested. The value of this attribute MUST be set to **n**. For more details on **n**, see **GetMobilePageXml** (section [3.1.4.2.1](#)). The parameter is combined with **url** to construct the complete request URL to obtain the page information.

start: This attribute MUST be ignored by client on receipt.

length: This attribute MUST be ignored by client on receipt.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_PageXml">
  <xsd:attribute name="url" type="xsd:string" use="required"/>
  <xsd:attribute name="page" type="xsd:string" use="required"/>
  <xsd:attribute name="start" type="xsd:string" use="required"/>
  <xsd:attribute name="length" type="xsd:string" use="required"/>
</xsd:complexType>
```

3.1.4.1.1.4.4 CT_PageImage

Referenced by: [CT_MobileDoc](#)

This complex type specifies the information required to obtain the image of a page in the document.

Attributes:

url: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the relative URL of the **MobilePageHandler** (section [3.1.4.2](#)).

image: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the name of the parameter that defines the page for which the image is requested. The value of this attribute MUST be set to **n**. For more details on **n**, see **CT_PageImage** (section [3.1.4.2.1](#)). This parameter is combined with **url** to construct the complete request URL to obtain the page images.

start: This attribute MUST be ignored by client on receipt.

length: This attribute MUST be ignored by client on receipt.

width: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the name of the parameter that defines the width of the image requested. The value of this attribute MUST be set to **width**. This parameter is combined with **url** to construct the complete request URL to obtain the page images.

height: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the name of the parameter that defines the height of the image requested. The value of this attribute MUST be set to **height**. This parameter is combined with **url** to construct the complete request URL to obtain the page images.

format: A string attribute ([\[XMLSCHEMA2\]](#) section 3.2.1) that specifies the name of the parameter that defines the format of the image requested. The value of this attribute MUST be set to **fmt**. This parameter is combined with **url** to construct the complete request URL to obtain the page images.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_PageImage">
  <xsd:attribute name="url" type="xsd:string" use="required"/>
  <xsd:attribute name="image" type="xsd:string" use="required"/>
  <xsd:attribute name="start" type="xsd:string" use="required"/>
  <xsd:attribute name="length" type="xsd:string" use="required"/>
  <xsd:attribute name="width" type="xsd:string" use="required"/>
  <xsd:attribute name="height" type="xsd:string" use="required"/>
  <xsd:attribute name="format" type="xsd:string" use="required"/>
</xsd:complexType>
```

```
</xsd:complexType>
```

3.1.4.1.1.4.5 CT_DocData

Referenced by: [CT_MobileDoc](#)

This complex type contains metadata of the document.

Child Elements:

document: A [CT_Document](#) element that specifies the metadata of the document.

manifest: A [CT_Ignorable](#) element that is reserved. It MUST be ignored by client.

status: Reserved. MUST be ignored by client.

dialog: A [CT_Ignorable](#) element that is reserved. It MUST be ignored by client.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_DocData">
  <xsd:sequence>
    <xsd:element name="document" type="CT_Document" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="manifest" type="CT_Ignorable" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="status" type="xsd:string" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="dialog" type="CT_Ignorable" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

3.1.4.1.1.4.6 CT_Ignorable

Referenced by: [CT_DocData](#), [CT_Page](#)

Reserved. MUST be ignored by client.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Ignorable">
  <xsd:sequence>
    <xsd:any processContents="skip"/>
  </xsd:sequence>
</xsd:complexType>
```

3.1.4.1.1.4.7 CT_MobileDoc

Referenced by: [mobileDoc](#)

This complex type is a root element and specifies the metadata of the document. When [CT_MobileDoc](#) is returned by using **PrepareThumbnail**, it must have a **docdata** child element. Otherwise, it must have a **document** child element. A [CT_MobileDoc](#) element MUST NOT have both **docdata** and **document** as child elements.

Child Elements:

docdata: A [CT_DocData](#) element that specifies information about the document. This child **MUST** be present if **document** is not present.

document: A **CT_Document** element (section [3.1.4.1.1.4.2](#)) that specifies the document metadata. This child **MUST** be present if **docdata** is not present.

pageXml: A **CT_PageXml** element (section [3.1.4.1.1.4.3](#)) that specifies information required to obtain information for pages of the document.

pageImage: A **CT_PageImage** element (section [3.1.4.1.1.4.4](#)) that specifies information required to obtain images of the pages of the document.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_MobileDoc">
  <xsd:sequence>
    <xsd:element name="docdata" type="CT_DocData" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="document" type="CT_Document" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="pageXml" type="CT_PageXml" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="pageImage" type="CT_PageImage" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

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 X-DocVersion HTTP header that is an xsd:string ([XMLSCHEMA2] section 3.2.1) that specifies the version of the document. An X-DocUrl HTTP header is present, which is an xsd:string ([XMLSCHEMA2] section 3.2.1) that specifies the URL of the document.
503	Failure. The server also sets an HTTP header X-Error xsd:unsignedInt ([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 an error.

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	Success. The protocol server returns XML specifying the document metadata, which contains a mobileDoc (section 3.1.4.1.1.3.1) root element. An X-DocVersion HTTP header is present, which is an xsd:string ([XMLSCHEMA2] section 3.2.1) that specifies the version of the document. An X-DocUrl HTTP header is present, which is an xsd:string ([XMLSCHEMA2] section 3.2.1) that specifies the URL of the document.
503	Failure. The server also sets an HTTP header X-Error xsd:unsignedInt ([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	Success. The protocol server returns an image of the requested page in the specified format.
503	Failure. The server also sets an HTTP header X-Error <code>xsd:unsignedInt</code> ([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.

3.1.4.2.2 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	Success. The protocol server returns XML specifying information about the requested page range, which contains a Pages (section 3.1.4.2.2.3.1) root element.
503	Failure. The server also sets an HTTP header X-Error xsd:unsignedInt ([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.

3.1.4.2.2.2 Messages

None.

3.1.4.2.2.3 Elements

3.1.4.2.2.3.1 Pages

This element is a **CT_Pages** (section [3.1.4.2.2.3.1](#)) element that specifies the content of pages requested by this operation.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this element.

```
<xsd:element name="Pages" type="CT_Pages"/>
```

3.1.4.2.2.4 Complex Types

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

3.1.4.2.2.4.1 CT_TextLine

Referenced by: [CT Paragraph](#), [CT Page](#)

This complex type specifies a line of text.

Attributes:

id: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies a unique identifier of the text line. This value **MUST** be unique across all text lines that occur in the document, and **MUST** be ordered in sequence, based on the order in which the text lines appear in the document. This value **MUST** be zero-indexed.

l: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the left-most position of the text line, in **points** relative to the top left of the page on which it occurs. This value **MUST** be greater than or equal to zero and less than the width of the page, as specified by **width** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

t: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the top-most position of the text line, in points relative to the top left of the page on which it occurs. This value **MUST** be greater than or equal to zero and less than the height of the page, as specified by **height** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

w: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the width of the text line, in points. This value **MUST** be greater than zero.

h: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the height of the text, in points. This value **MUST** be greater than zero.

b: An **unsignedByte** attribute ([\[XMLSCHEMA2\]](#) section 3.3.24) that specifies that a line break follows the text line. This value **MUST** be set to 1 when a new line follows the text line. Otherwise, this attribute **MUST** be omitted.

a: An **unsignedShort** attribute ([\[XMLSCHEMA2\]](#) section 3.3.23) that specifies the angle of vertical text. This value **MUST** be set to 90 or 270. If the text is horizontal, this value **MUST** be omitted. The possible values are described in the following table.

Value	Description
90	The text is rotated 90 degrees clockwise from the horizontal.
270	The text is rotated 270 degrees clockwise from the horizontal.

rtl: An **unsignedByte** attribute ([\[XMLSCHEMA2\]](#) section 3.3.24) that specifies that the text flow direction is right to left. This value **MUST** be 1 when the text flow is right to left. Otherwise, this attribute **MUST** be omitted.

s: An **unsignedByte** attribute ([\[XMLSCHEMA2\]](#) section 3.3.24) that specifies that the text line is stretched or condensed horizontally. The value **MUST** be 1 to represent that the text line is changed horizontally either by stretching or condensing. Otherwise, this attribute **MUST** be omitted.

type: An [ST_TextLineType](#) (section [3.1.4.2.2.5.3](#)) attribute that specifies the text line type.

gr: An **unsignedByte** attribute ([\[XMLSCHEMA2\]](#) section 3.3.24) that specifies that the glyphs in the text line are rotated. This value **MUST** be set to 1 when the text line glyphs are rotated. Otherwise, this attribute **MUST** be omitted.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```

<xsd:complexType name="CT_TextLine">
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="id" type="xsd:unsignedInt" use="required"/>
      <xsd:attribute name="l" type="xsd:float" use="required"/>
      <xsd:attribute name="t" type="xsd:float" use="required"/>
      <xsd:attribute name="w" type="xsd:float" use="required"/>
      <xsd:attribute name="h" type="xsd:float" use="required"/>
      <xsd:attribute name="b" type="xsd:unsignedByte" use="optional"/>
      <xsd:attribute name="a" type="xsd:unsignedShort" use="optional"/>
      <xsd:attribute name="rtl" type="xsd:unsignedByte" use="optional"/>
      <xsd:attribute name="s" type="xsd:unsignedByte" use="optional"/>
      <xsd:attribute name="type" type="ST_TextLineType" use="optional"/>
      <xsd:attribute name="gr" type="xsd:unsignedByte" use="optional"/>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>

```

3.1.4.2.2.4.2 CT_LinkTargetInternal

Referenced by: [CT_Link](#)

This complex type specifies an internal **hyperlink** destination. The destination specifies the target page and target position relative to the top left of the page.

Attributes:

p: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the target page number. This value **MUST** be greater than or equal to 1 and less than or equal to the total number of pages in the document.

l: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the left-most position of the hyperlink destination, in points relative to the left of the target page. This value **MUST** be greater than or equal to zero and less than the width of the page, as specified by **width** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

t: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the top position of the hyperlink destination, in points relative to the top of the target page. This value **MUST** be greater than or equal to zero and less than the height of the page, as specified by **height** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```

<xsd:complexType name="CT_LinkTargetInternal">
  <xsd:attribute name="p" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="l" type="xsd:float" use="required"/>
  <xsd:attribute name="t" type="xsd:float" use="required"/>
</xsd:complexType>

```

3.1.4.2.2.4.3 CT_Link

Referenced by: [CT_Paragraph](#), [CT_Page](#)

This complex type specifies a hyperlink. The attributes **l**, **t**, **w**, and **h** specify the source rectangle relative to the top left of the page on which it occurs.

If the hyperlink source element for the link is of type **CT_TextLine** (section [3.1.4.2.2.4.1](#)), the attributes **s** and **n** specify the location of the source text in the following text line. The **CT_Link** element MUST appear before the **CT_TextLine** (section [3.1.4.2.2.4.1](#)) element of the text line or another **CT_Link** element that occurs in the same text line. Hyperlink sources that occur in the same text line MUST NOT overlap.

If the hyperlink source element for the link is of type **CT_Image** (section [3.1.4.2.2.4.5](#)), the attributes **s** and **n** MUST be zero, and the **CT_Link** element MUST appear before the **CT_Image** (section [3.1.4.2.2.4.5](#)) element.

If the destination of the hyperlink is located in the document, it MUST have a child of type **CT_LinkTargetInternal** (section [3.1.4.2.2.4.2](#)). Otherwise, the text of the **CT_Link** (section [3.1.4.2.2.4.3](#)) element MUST be the destination **URI**. The **CT_Link** (section [3.1.4.2.2.4.3](#)) element MUST NOT have both a child of type **CT_LinkTargetInternal** (section [3.1.4.2.2.4.2](#)) and text.

Child Elements:

LT: A **CT_LinkTargetInternal** (section [3.1.4.2.2.4.2](#)) element that specifies an internal hyperlink destination.

Attributes:

l: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the left-most position of the hyperlink source rectangle, in points relative to the top left of the page on which it occurs. This value MUST be greater than or equal to zero and less than the width of the page, as specified by **width** of **CT_PageSet** (section [3.1.4.1.1.4.1](#)).

t: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the top position of the hyperlink source rectangle, in points relative to the top left of the page on which it occurs. This value MUST be greater than or equal to zero and less than the height of the page, as specified by **height** of **CT_PageSet** (section [3.1.4.1.1.4.1](#)).

w: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the width of the hyperlink source rectangle, in points relative to the top left of the page on which it occurs. This value MUST be greater than zero and less than or equal to the width of the page, as specified by **width** of **CT_PageSet** (section [3.1.4.1.1.4.1](#)).

h: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the height of the hyperlink source rectangle, in points relative to the top left of the page on which it occurs. This value MUST be greater than zero and less than or equal to the height of the page, as specified by **height** of **CT_PageSet** (section [3.1.4.1.1.4.1](#)).

s: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the starting character of the hyperlink source text. When the hyperlink source contains text from a text line, as specified by **CT_TextLine** (section [3.1.4.2.2.4.1](#)), **s** specifies the index of the first character of the hyperlink source in the Unicode text. The first character in the Unicode text line is zero-indexed. This value MUST be greater than or equal to zero and MUST be less than the total number of characters in the text line, minus 1. If the hyperlink source does not contain text, **s** MUST be zero.

n: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the number of characters that the hyperlink source text spans in the text line, as specified by **CT_TextLine** (section [3.1.4.2.2.4.1](#)). This value MUST be greater than or equal to zero and less than or equal to the number of characters in the text line, minus **s**. If the hyperlink source does not contain text, **n** MUST be set to zero.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Link" mixed="true">
  <xsd:choice maxOccurs="1" minOccurs="0">
    <xsd:element name="LT" type="CT_LinkTargetInternal"/>
  </xsd:choice>
  <xsd:attribute name="l" type="xsd:float" use="required"/>
  <xsd:attribute name="t" type="xsd:float" use="required"/>
  <xsd:attribute name="w" type="xsd:float" use="required"/>
  <xsd:attribute name="h" type="xsd:float" use="required"/>
  <xsd:attribute name="s" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="n" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>
```

3.1.4.2.2.4.4 CT_Paragraph

Referenced by: CT_Paragraph, [CT_EndNote](#), [CT_TableDataCell](#), [CT_List](#), [CT_TableHeaderCell](#), [CT_FootNote](#), [CT_TableOfContents](#), [CT_TextBox](#), [CT_Page](#)

This complex type specifies a paragraph.

Child Elements:

T: A [CT_TextLine](#) (section [3.1.4.2.2.4.1](#)) element that specifies a text line in a paragraph.

L: A [CT_Link](#) (section [3.1.4.2.2.4.3](#)) element that specifies a link in a paragraph.

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a paragraph.

Attributes:

id: This attribute MUST be ignored by client on receipt.

storyId: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the unique identifier of the text flow in which this paragraph occurs. Each story represents a distinct text flow in the document.

type: An **ST_ParagraphType** attribute (section [3.1.4.2.2.5.2](#)) that specifies the type of paragraph.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Paragraph">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="T" type="CT_TextLine"/>
    <xsd:element name="L" type="CT_Link"/>
    <xsd:element name="P" type="CT_Paragraph"/>
  </xsd:choice>
  <xsd:attribute name="id" type="xsd:unsignedInt" use="optional"/>
  <xsd:attribute name="storyId" type="xsd:unsignedInt" use="required"/>
  <xsd:attribute name="type" type="ST_ParagraphType" use="optional"/>
</xsd:complexType>
```

3.1.4.2.2.4.5 CT_Image

Referenced by: [CT_EndNote](#), [CT_FootNote](#), [CT_Page](#)

This complex type specifies the type and position of an image.

Attributes:

type: An **ST_ImageType** (section [3.1.4.2.2.5.1](#)) attribute that specifies the image type.

l: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the left-most position of the image, in points relative to the top left of the page on which it occurs. This value **MUST** be less than the width of the page, as specified by **width** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

t: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the top position of the image, in points relative to the top left of the page on which it occurs. This value **MUST** be greater than or equal to zero and less than the height of the page, as specified by **height** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

w: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the width of the image, in points. This value **MUST** be greater than zero and less than the width of the page, as specified by **width** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

h: A float attribute ([\[XMLSCHEMA2\]](#) section 3.2.4) that specifies the height of the image, in points. This value **MUST** be greater than zero and less than the height of the page, as specified by **height** of [CT_PageSet](#) (section [3.1.4.1.1.4.1](#)).

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Image">
  <xsd:attribute name="type" type="ST_ImageType" use="required"/>
  <xsd:attribute name="l" type="xsd:float" use="required"/>
  <xsd:attribute name="t" type="xsd:float" use="required"/>
  <xsd:attribute name="w" type="xsd:float" use="required"/>
  <xsd:attribute name="h" type="xsd:float" use="required"/>
</xsd:complexType>
```

3.1.4.2.2.4.6 CT_EndNote

Referenced by: [CT_Page](#)

This complex type specifies an **endnote**.

Child Elements:

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in an endnote.

Table: A [CT_Table](#) (section [3.1.4.2.2.4.14](#)) element that specifies a table in an endnote.

Image: A [CT_Image](#) (section [3.1.4.2.2.4.5](#)) element that specifies an image in an endnote.

List: A [CT_List](#) (section [3.1.4.2.2.4.10](#)) element that specifies a list in an endnote.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```

<xsd:complexType name="CT_EndNote">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="Table" type="CT_Table"/>
    <xsd:element name="Image" type="CT_Image"/>
    <xsd:element name="List" type="CT_List"/>
  </xsd:choice>
</xsd:complexType>

```

3.1.4.2.2.4.7 CT_FootNote

Referenced by: [CT Page](#)

This complex type specifies a **footnote**.

Child Elements:

P: A [CT Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a footnote.

Image: A [CT Image](#) (section [3.1.4.2.2.4.5](#)) element that specifies an image in a footnote.

Table: A [CT Table](#) (section [3.1.4.2.2.4.14](#)) element that specifies a table in a footnote.

List: A [CT List](#) (section [3.1.4.2.2.4.10](#)) element that specifies a list in a footnote.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```

<xsd:complexType name="CT_FootNote">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="Image" type="CT_Image"/>
    <xsd:element name="Table" type="CT_Table"/>
    <xsd:element name="List" type="CT_List"/>
  </xsd:choice>
</xsd:complexType>

```

3.1.4.2.2.4.8 CT_TableOfContents

Referenced by: [CT Page](#)

This complex type specifies the table of contents of a document.

Child Elements:

P: A [CT Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a table of contents.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```

<xsd:complexType name="CT_TableOfContents">
  <xsd:sequence>
    <xsd:element maxOccurs="unbounded" name="P" type="CT_Paragraph"/>
  </xsd:sequence>
</xsd:complexType>

```


3.1.4.2.2.4.9 CT_TextBox

Referenced by: [CT_Page](#)

This complex type specifies a text box.

Child Elements:

List: A [CT_List](#) element that specifies a list in a text box.

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a text box.

Table: A [CT_Table](#) element that specifies a table in a text box.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_TextBox">
  <xsd:choice maxOccurs="unbounded" minOccurs="0">
    <xsd:element name="List" type="CT_List"/>
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="Table" type="CT_Table"/>
  </xsd:choice>
</xsd:complexType>
```

3.1.4.2.2.4.10 CT_List

Referenced by: [CT_TableDataCell](#), [CT_List](#), [CT_TableHeaderCell](#), [CT_EndNote](#), [CT_FootNote](#), [CT_TextBox](#), [CT_Page](#)

This complex type specifies a list.

Child Elements:

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a list.

List: A [CT_List](#) (section [3.1.4.2.2.4.10](#)) element that specifies a sub-list.

Attributes:

i: An unsignedInt attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the level of indent of the list. This value MUST be greater or equal to zero. This value is zero-based. For each level of indent, the value increases by one.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_List">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="List" type="CT_List"/>
  </xsd:choice>
  <xsd:attribute name="i" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>
```

3.1.4.2.2.4.11 CT_TableDataCell

Referenced by: [CT_TableRow](#)

This complex type specifies a data cell in a table row, as specified by CT_TableRow (section [3.1.4.2.2.4.13](#)).

Child Elements:

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a data cell.

List: A [CT_List](#) (section [3.1.4.2.2.4.10](#)) element that specifies a list in a data cell.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_TableDataCell">
  <xsd:choice minOccurs="0" maxOccurs="unbounded">
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="List" type="CT_List"/>
  </xsd:choice>
</xsd:complexType>
```

3.1.4.2.2.4.12 CT_TableHeaderCell

Referenced by: [CT_TableRow](#)

This complex type specifies a cell in a table **header row**, as specified by CT_TableRow (section [3.1.4.2.2.4.13](#)).

Child Elements:

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a header cell.

List: A [CT_List](#) (section [3.1.4.2.2.4.10](#)) element that specifies a list in a header cell.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_TableHeaderCell">
  <xsd:choice maxOccurs="unbounded">
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="List" type="CT_List"/>
  </xsd:choice>
</xsd:complexType>
```

3.1.4.2.2.4.13 CT_TableRow

Referenced by: [CT_Table](#)

This complex type specifies a row in a table, as specified by CT_Table (section [3.1.4.2.2.4.14](#)).

Child Elements:

TD: A [CT_TableDataCell](#) (section [3.1.4.2.2.4.11](#)) element that specifies a table cell in a row if the row is not a header row.

TH: A [CT_TableHeaderCell](#) (section [3.1.4.2.2.4.12](#)) element that specifies a table cell in a row if the row is a header row.

The following W3C XML Schema ([XMLSCHEMA1](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_TableRow">
  <xsd:choice minOccurs="1" maxOccurs="unbounded">
    <xsd:element name="TD" type="CT_TableDataCell"/>
    <xsd:element name="TH" type="CT_TableHeaderCell"/>
  </xsd:choice>
</xsd:complexType>
```

3.1.4.2.2.4.14 CT_Table

Referenced by: [CT_EndNote](#), [CT_FootNote](#), [CT_TextBox](#), [CT_Page](#)

This complex type specifies a table.

Child Elements:

TR: A [CT_TableRow](#) (section [3.1.4.2.2.4.13](#)) element that specifies a row in a table.

The following W3C XML Schema ([XMLSCHEMA1](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Table">
  <xsd:sequence>
    <xsd:element maxOccurs="unbounded" name="TR" type="CT_TableRow"/>
  </xsd:sequence>
</xsd:complexType>
```

3.1.4.2.2.4.15 CT_Page

Referenced by: [CT_Pages](#)

This complex type specifies a page.

Child Elements:

Table: A [CT_Table](#) (section [3.1.4.2.2.4.14](#)) element that specifies a table in a page.

P: A [CT_Paragraph](#) (section [3.1.4.2.2.4.4](#)) element that specifies a paragraph in a page.

Image: A [CT_Image](#) (section [3.1.4.2.2.4.5](#)) element that specifies an image in a page.

Header: A [CT_Ignorable](#) element that is reserved. It MUST be ignored by client.

Footer: A [CT_Ignorable](#) element that is reserved. It MUST be ignored by client.

TOC: A [CT_TableOfContents](#) (section [3.1.4.2.2.4.8](#)) element that specifies a table of contents in a page.

TextBox: A [CT_TextBox](#) (section [3.1.4.2.2.4.9](#)) element that specifies a text box in a page.

List: A [CT_List](#) (section [3.1.4.2.2.4.10](#)) element that specifies a list in a page.

Footnote: A [CT_FootNote](#) (section [3.1.4.2.2.4.7](#)) element that specifies a footnote in a page.

Endnote: A [CT_EndNote](#) (section [3.1.4.2.2.4.6](#)) element that specifies an endnote in a page.

T: A [CT_TextLine](#) (section [3.1.4.2.2.4.1](#)) element that MUST be ignored by client.

L: A [CT_Link](#) element that specifies a link in a page.

Attributes:

id: An **unsignedInt** attribute ([\[XMLSCHEMA2\]](#) section 3.3.22) that specifies the page number. Page numbers MUST be unique across all elements of type **CT_Page** (section [3.1.4.2.2.4.15](#)) in a document. Pages numbers MUST be in ascending order. The value MUST be greater than or equal to 1 and less than or equal to the number of pages in the document.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Page">
  <xsd:choice maxOccurs="unbounded">
    <xsd:element name="Table" type="CT_Table"/>
    <xsd:element name="P" type="CT_Paragraph"/>
    <xsd:element name="Image" type="CT_Image"/>
    <xsd:element name="Header" type="CT_Ignorable"/>
    <xsd:element name="Footer" type="CT_Ignorable"/>
    <xsd:element name="TOC" type="CT_TableOfContents"/>
    <xsd:element name="TextBox" type="CT_TextBox"/>
    <xsd:element name="List" type="CT_List"/>
    <xsd:element name="Footnote" type="CT_FootNote"/>
    <xsd:element name="Endnote" type="CT_EndNote"/>
    <xsd:element name="T" type="CT_TextLine"/>
    <xsd:element name="L" type="CT_Link"/>
  </xsd:choice>
  <xsd:attribute name="id" type="xsd:unsignedInt" use="required"/>
</xsd:complexType>
```

3.1.4.2.2.4.16 CT_Pages

Referenced by: [Pages](#)

This complex type specifies the set of pages in a document.

Child Elements:

Page: A [CT_Page](#) (section [3.1.4.2.2.4.15](#)) element that specifies a page in a document.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this complex type.

```
<xsd:complexType name="CT_Pages">
  <xsd:sequence>
    <xsd:element maxOccurs="unbounded" name="Page" type="CT_Page"/>
  </xsd:sequence>
</xsd:complexType>
```

3.1.4.2.2.5 Simple Types

The following XML Schema (1) simple definitions are specific to this operation.

3.1.4.2.2.5.1 ST_ImageType

Referenced by: [CT_Image](#)

This simple type specifies the type of an image, as specified by CT_Image (section [3.1.4.2.2.4.5](#)).

Value	Meaning
Figure	The image is a figure.
Chart	The image is a chart.
Diagram	The image is a diagram.
Unknown	The image is none of the previous.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_ImageType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Figure"/>
    <xsd:enumeration value="Chart"/>
    <xsd:enumeration value="Diagram"/>
    <xsd:enumeration value="Unknown"/>
  </xsd:restriction>
</xsd:simpleType>
```

3.1.4.2.2.5.2 ST_ParagraphType

Referenced by: [CT_Paragraph](#)

This simple type specifies the type of a paragraph, as specified by CT_Paragraph (section [3.1.4.2.2.4.4](#)).

Value	Meaning
Heading	The paragraph uses a heading style.
ListBody	The paragraph occurs in a list.
TOCI	The paragraph text occurs in a table of contents.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_ParagraphType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Heading"/>
    <xsd:enumeration value="ListBody"/>
    <xsd:enumeration value="TOCI"/>
  </xsd:restriction>
</xsd:simpleType>
```

```

    </xsd:restriction>
</xsd:simpleType>

```

3.1.4.2.2.5.3 ST_TextLineType

Referenced by: [CT_TextLine](#)

This simple type specifies the type of a text line, as specified by CT_TextLine (section [3.1.4.2.2.4.1](#)).

Value	Meaning
InlineShape	The text line contains an inline object.

The following W3C XML Schema ([\[XMLSCHEMA1\]](#) section 2.1) fragment specifies the contents of this simple type.

```

<xsd:simpleType name="ST_TextLineType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="InlineShape"/>
  </xsd:restriction>
</xsd:simpleType>

```

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	Success. The protocol server returns a thumbnail of the first page of the document.
503	Failure. The server also sets an HTTP header X-Error <code>xsd:unsignedInt</code> ([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.

Value	Description
404	Failure.

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://sptestamd/testdocs/Example%20Document.docx>.

4.1 Document Information

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

```
http://sptestamd/_layouts/MobileDocHandler.ashx?doc=http://sptestamd/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" dxpInch="294912" dypInch="294912">
    <pageset width="983040" height="1474560" count="4" />
  </document>
  <pageXml
    url="./MobilePageHandler.ashx?d=H%3Asptestamd%2F%2Ftestdocs%2FExample%20Document%2Edocx&v=00000000-0000-0000-0000-00000000010b" page="n"
    start="s" length="1" />
    <pageImage
      url="./MobilePageHandler.ashx?d=H%3Asptestamd%2F%2Ftestdocs%2FExample%20Document%2Edocx&v=00000000-0000-0000-0000-00000000010b" image="n"
      start="s" length="1" width="width" height="height" format="fmt" />
  </pageXml>
</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://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=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=00000000-0000-0000-0000-0000000010b&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>
    <Footer>
      <P storyId="3">
        <T id="7" l="0" t="467.8" w="43.1" h="13" b="1">Footer </T>
      </P>
    </Footer>
  </Page>
</Pages>
```

```

</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>
  </List>

```

```

<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>
      <TD>
        <P storyId="1">
          <T id="34" l="240.7" t="18.9" w="6" h="13" b="1"> </T>
        </P>
      </TD>
    </TR>
  </Table>

```

```

<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>
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</T>
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        <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>
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```

```
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</Pages>
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5 Security

5.1 Security Considerations for Implementers

Secure Socket 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:](#) Word Web App works only for 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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