

[MS-WOPI]:

Web Application Open Platform Interface Protocol

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1 Introduction

The Web Application Open Platform Interface Protocol (WOPI) defines a set of operations that enables a client to access and change files stored by a server. This allows the client to render files and provide file editing functionality for files stored by the server.

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

1.1 Glossary

This document uses the following terms:

ASCII: The American Standard Code for Information Interchange (ASCII) is an 8-bit character-encoding scheme based on the English alphabet. ASCII codes represent text in computers, communications equipment, and other devices that work with text. ASCII refers to a single 8-bit ASCII character or an array of 8-bit ASCII characters with the high bit of each character set to zero.

atomic transaction: A shared activity that provides mechanisms for achieving the atomicity, consistency, isolation, and durability (ACID) properties when state changes occur inside participating resource managers.

Augmented Backus-Naur Form (ABNF): A modified version of Backus-Naur Form (BNF), commonly used by Internet specifications. ABNF notation balances compactness and simplicity with reasonable representational power. ABNF differs from standard BNF in its definitions and uses of naming rules, repetition, alternatives, order-independence, and value ranges. For more information, see [\[RFC5234\]](#).

base64 encoding: A binary-to-text encoding scheme whereby an arbitrary sequence of bytes is converted to a sequence of printable **ASCII** characters, as described in [\[RFC4648\]](#).

Coordinated Universal Time (UTC): A high-precision atomic time standard that approximately tracks Universal Time (UT). It is the basis for legal, civil time all over the Earth. Time zones around the world are expressed as positive and negative offsets from UTC. In this role, it is also referred to as Zulu time (Z) and Greenwich Mean Time (GMT). In these specifications, all references to UTC refer to the time at UTC-0 (or GMT).

file extension: The sequence of characters in a file's name between the end of the file's name and the last "." character. Vendors of applications choose such sequences for the applications to uniquely identify files that were created by those applications. This allows file management software to determine which application are to be used to open a file.

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

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

Information Rights Management (IRM): A technology that provides persistent protection to digital data by using encryption, certificates, and authentication. Authorized recipients or users acquire a license to gain access to the protected files according to the rights or business rules that are set by the content owner.

Internet Assigned Numbers Authority (IANA): A central repository for the protocol name and number registries that are used in many Internet protocols.

JavaScript Object Notation (JSON): A text-based, data interchange format that is used to transmit structured data, typically in Asynchronous JavaScript + XML (AJAX) web applications, as described in [\[RFC7159\]](#). The JSON format is based on the structure of ECMAScript (Jscript, JavaScript) objects.

Representational State Transfer (REST): A software architecture implementation for distributed hypermedia systems, such as the World Wide Web.

Secure Sockets Layer (SSL): A security protocol that supports confidentiality and integrity of messages in client and server applications that communicate over open networks. SSL uses two keys to encrypt data—a public key known to everyone and a private or secret key known only to the recipient of the message. SSL supports server and, optionally, client authentication using X.509 certificates. For more information, see [\[X509\]](#). The SSL protocol is precursor to Transport Layer Security (TLS). The TLS version 1.0 specification is based on SSL version 3.0 [\[SSL3\]](#).

tenant: A protocol client or protocol server that accesses a partition in a shared service database.

Uniform Resource Identifier (URI): A string that identifies a resource. The URI is an addressing mechanism defined in Internet Engineering Task Force (IETF) Uniform Resource Identifier (URI): Generic Syntax [\[RFC3986\]](#).

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

1.2 References

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

1.2.1 Normative References

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

[FIPS180-2] National Institute of Standards and Technology, "Secure Hash Standard", FIPS PUB 180-2, August 2002, <http://csrc.nist.gov/publications/fips/fips180-2/fips180-2.pdf>

[MS-FSSHTTP] Microsoft Corporation, "[File Synchronization via SOAP over HTTP Protocol](#)".

[RFC1766] Alvestrand, H., "Tags for the Identification of Languages", RFC 1766, March 1995, <http://www.ietf.org/rfc/rfc1766.txt>

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

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

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

[RFC3023] Murata, M., St.Laurent, S., and Kohn, D., "XML Media Types", RFC 3023, January 2001, <http://www.rfc-editor.org/rfc/rfc3023.txt>

[RFC4627] Crockford, D., "The application/json Media Type for JavaScript Object Notation (JSON)", RFC 4627, July 2006, <http://www.rfc-editor.org/rfc/rfc4627.txt>

[RFC5323] Reschke, J., Ed., Reddy, S., Davis, J., and Babich, A., "Web Distributed Authoring and Versioning (WebDAV) SEARCH", RFC 5323, November 2008, <http://www.rfc-editor.org/rfc/rfc5323.txt>

[UNICODE] The Unicode Consortium, "The Unicode Consortium Home Page", <http://www.unicode.org/>

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

1.2.2 Informative References

[MS-OBPAS] Microsoft Corporation, "[Office Broadcast Participant Service](#)".

[MS-OBPRS] Microsoft Corporation, "[Office Broadcast Presentation Service](#)".

[MS-SSWPS] Microsoft Corporation, "[Secure Store Web Service Protocol](#)".

[MSDN-CAPI] Microsoft Corporation, "Cryptography", <http://msdn.microsoft.com/en-us/library/aa380255.aspx>

[RFC3447] Jonsson, J. and Kaliski, B., "Public-Key Cryptography Standards (PKCS) #1: RSA Cryptography Specifications Version 2.1", RFC 3447, February 2003, <http://www.ietf.org/rfc/rfc3447.txt>

[RFC4648] Josefsson, S., "The Base16, Base32, and Base64 Data Encodings", RFC 4648, October 2006, <http://www.rfc-editor.org/rfc/rfc4648.txt>

[W3C-HTML5WEBMSG] World Wide Web Consortium, "HTML5 Web Messaging", W3C Recommendation 19 May 2015, <http://www.w3.org/TR/2015/REC-webmessaging-20150519/>

[WOPIOfficeOnline] Microsoft, "Using the WOPI protocol to integrate with Office Online", <http://wopi.readthedocs.org>

1.3 Overview

WOPI defines a set of operations that enables a client to access and change files stored by a server. This allows the client to render files and provide file editing functionality for files stored by the server.

One example of how a client might use WOPI is by providing a browser-based viewer for a specific type of file. That client uses WOPI to get the contents of the file to present that content to the user as a web page in a browser. The following diagram shows an example of how that might work.

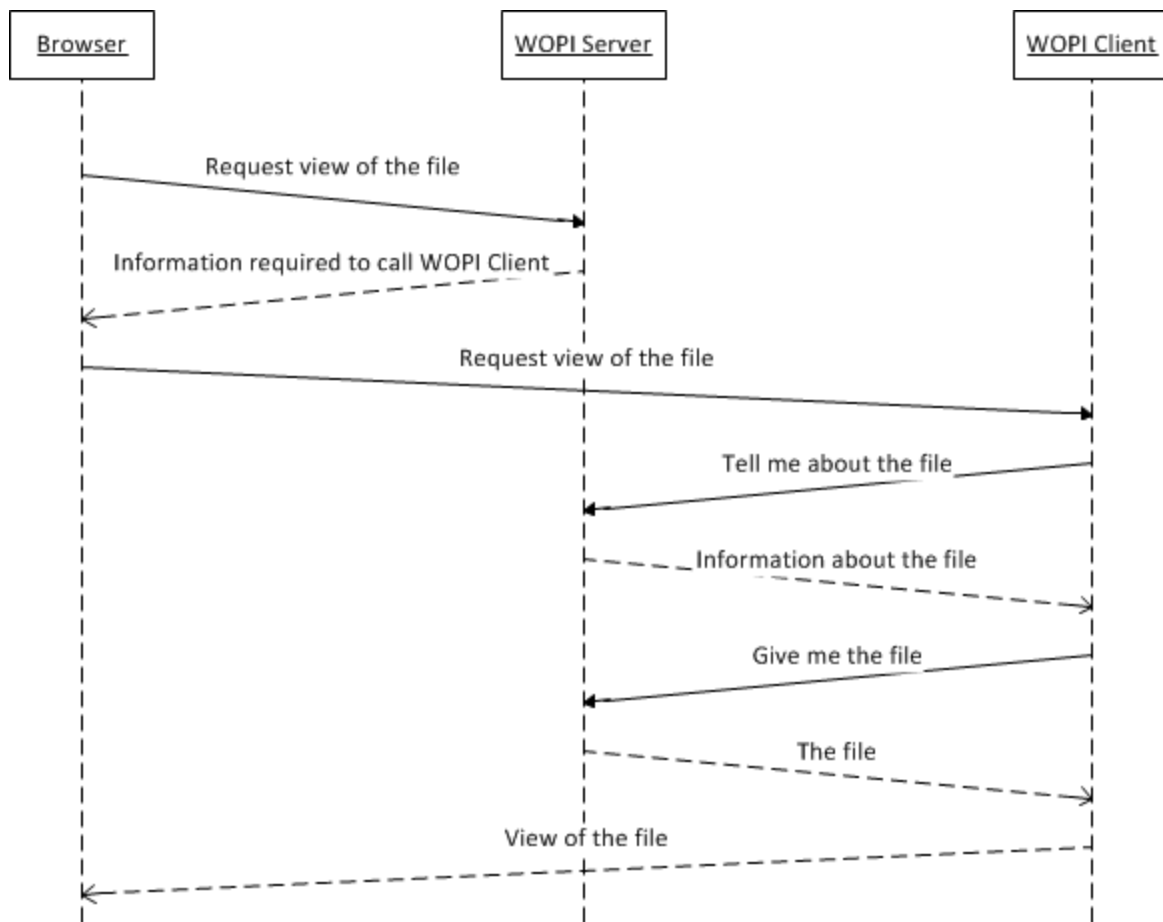


Figure 1: Using WOPI to provide a browser-based viewer for a specific type of file

A notable detail in the interaction in the preceding figure is that the WOPI server provides "information required to call the WOPI client". This information is learned by the WOPI server through an interaction called WOPI discovery. WOPI clients provide a mechanism through which a WOPI server discovers the abilities of the WOPI client, and methods for invoking those abilities. The following diagram depicts that interaction:

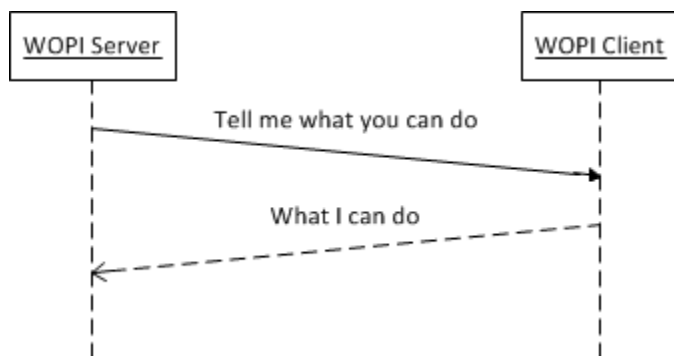


Figure 2: WOPI discovery

1.4 Relationship to Other Protocols

The WOPI Protocol uses **Hypertext Transfer Protocol (HTTP)** as specified in [\[RFC2616\]](#), and **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)** as specified in [\[RFC2818\]](#).

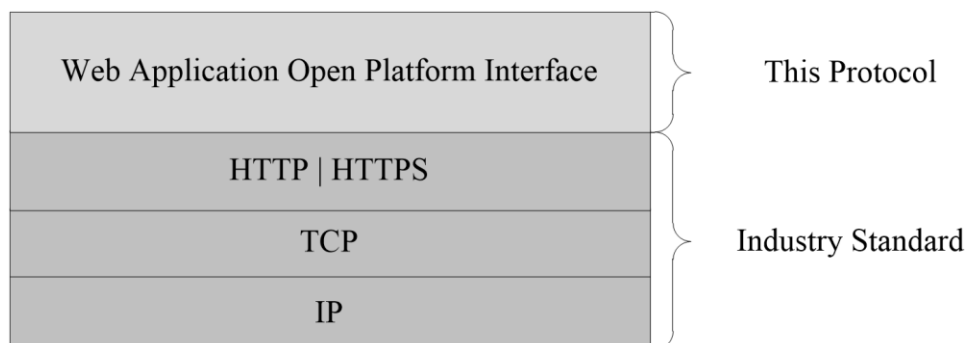


Figure 3: This protocol in relation to other protocols

1.5 Prerequisites/Preconditions

Some parts of the WOPI protocol require that the WOPI server and WOPI client have implemented the system described in "File Synchronization via SOAP over HTTP Protocol" ([\[MS-FSSHTTP\]](#)). This implementation is optional because WOPI servers and WOPI clients are not required to implement the complete WOPI protocol.

1.6 Applicability Statement

This document specifies a protocol for enabling the bidirectional transfer of file information using HTTP/HTTPS between systems designed to store and manage files and systems designed to render and manipulate files.

1.7 Versioning and Capability Negotiation

The WOPI client indicates its capabilities to the WOPI server via WOPI Discovery (section [3.1](#)).

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

This protocol uses standard **Internet Assigned Numbers Authority (IANA)** port assignments for **HTTP** and **Secure Sockets Layer (SSL)**. These standard port assignments use IANA-assigned ports, as listed in the following table.

Parameter	Value	Reference
IANA assigned port for HTTP	80	http://www.iana.org/assignments/part-number
IANA assigned port for SSL	443	http://www.iana.org/assignments/part-number

2 Messages

2.1 Transport

Messages MUST be transported using HTTP or HTTPS using the default ports for these protocols.

2.2 Message Syntax

This section contains common definitions used by this protocol.

2.2.1 Custom HTTP Headers

The following HTTP header MUST be included in all WOPI requests.

Header	Description
Authorization	Defined in RFC2616 . This header MUST have the value "Bearer " + <token> as specified in section 2.2.2 . Note that there MUST be a space between "Bearer" and <token> .

The following HTTP headers can be included with all WOPI requests.

Header	Description
X-WOPI-AppEndpoint	A string specifying the endpoint of the WOPI client sending the request. This string MUST NOT be used for anything other than logging.
X-WOPI-ClientVersion	A string specifying the version of the WOPI client. There is no standard for how this string is to be formatted. This string MUST NOT be used for anything other than logging.
X-WOPI-MachineName	A string indicating the name of the machine making the call, which MUST NOT be used for anything other than logging.
X-WOPI-PerfTraceRequested	A Boolean value that indicates that the WOPI client has requested the WOPI server to return a value for X-WOPI-PerfTrace.
X-WOPI-CorrelationId	A string that the WOPI server uses when logging server activity to correlate that activity with WOPI client activity.
X-WOPI-UsingRestrictedScenario	<p>A restricted scenario is a case where a user is able to operate on a file in a limited way. For example, a user might be allowed to change a file in the course of filling out a form while not having permission to freely edit the file. The value of this header varies depending on the scenario. The value of this header is determined through convention understood by the client and server implementer.</p> <p>The header MUST be present and the value MUST be correct in cases where the WOPI action (see section 3.1.5.1.1.2.2.4) represents a restricted scenario.</p>
X-WOPI-Proof	<p>A set of data signed using a SHA256 (A 256 bit SHA-2-encoded FIPS180-2) encryption algorithm. The value of X-WOPI-Proof is decrypted using the values provided in ct_proof-key (section 3.1.5.1.1.2.2.5) in Discovery (section 3.1.5.1.1) as the public key.</p> <p>The value of X-WOPI-Proof MUST match the following pattern:</p>

Header	Description
	<p>4 bytes in network byte order representing the length of the <token> (see section 2.2.2) as an integer + the <token> represented in UTF-8 [UNICODE] +</p> <p>4 bytes in network byte order representing the length of the URL of the WOPI request as an integer + the absolute URL of the WOPI request in uppercase +</p> <p>4 bytes in network byte order representing the length of X-WOPI-TimeStamp (see this section) + the value of X-WOPI-TimeStamp</p> <p>This data is then signed as described above.</p> <p>The intent of passing this header is to allow the WOPI server to validate that the WOPI request originated from the WOPI client that provided the public key in Discovery via ct_proof-key.</p>
X-WOPI-ProofOld	<p>A set of data signed using a SHA256 (A 256 bit SHA-2-encoded [FIPS180-2]) encryption algorithm. The value of X-WOPI-ProofOld is decrypted using the values provided in ct_proof-key (section 3.1.5.1.1.2.2.5) in Discovery (section 3.1.5.1.1) as the public key.</p> <p>The value of X-WOPI-ProofOld MUST match the following pattern:</p> <p>4 bytes in network byte order representing the length of the <token> (see section 2.2.2) as an integer + the <token> represented in UTF-8 [UNICODE] +</p> <p>4 bytes in network byte order representing the length of the URL of the WOPI request as an integer + the absolute URL of the WOPI request in uppercase +</p> <p>4 bytes in network byte order representing the length of X-WOPI-TimeStamp (see this section) + the value of X-WOPI-TimeStamp</p> <p>This data is then signed as described above.</p> <p>The intent of passing this header is to allow the WOPI server to validate that the WOPI request originated from the WOPI client that provided the public key in Discovery via ct_proof-key.</p>
X-WOPI-TimeStamp	<p>A 64-bit integer that represents the number of 100-nanosecond intervals that have elapsed between 12:00:00 midnight, January 1, 0001 and the time of the request. The WOPI client MUST include this HTTP header if it includes X-WOPI-Proof or X-WOPI-ProofOld.</p>

The following HTTP headers can be included with all WOPI responses.

Header	Description
X-WOPI-HostEndpoint	A string specifying the endpoint of the WOPI server handling the request. This string MUST NOT be used for anything other than logging.
X-WOPI-ServerVersion	A string specifying the version of the WOPI server and MUST be included with all WOPI responses. There is no standard for how this string is to be formatted. This string MUST NOT be used for anything other than logging.
X-WOPI-MachineName	A string specifying the name of the WOPI server and MUST be included with all WOPI responses, which MUST NOT be used for anything other than logging.

Header	Description
X-WOPI-PerfTrace	A string that the WOPI client uses to track performance data. It is included in a WOPI response if the header X-WOPI-PerfTraceRequested in the request is present and equal to "true".
X-WOPI-ServerError	A string indicating that an error occurred while processing the WOPI request, which is included in a WOPI response if the status code is 500. This string can include details about the error, and MUST NOT be used for anything other than logging.

2.2.2 Common URI Parameters

The following **URI** parameters MUST be included with all WOPI requests.

URI Parameter	Description
<token>	<p>A string used by the WOPI server to determine the identity and permissions of the issuer of the WOPI request. The token is generated by the WOPI server and learned by the WOPI client before the first WOPI request. The WOPI server passes the token to the WOPI client in the initiating request described in section 3.1.5.1.1.2.3.3.</p> <p>The WOPI client requires no understanding of the format or content of the token.</p> <p>The token SHOULD expire after a length of time deemed reasonable by the implementer of the WOPI server.</p> <p>The token SHOULD only provide access to resources associated with the WOPI request. That is, the token SHOULD be scoped to a specific user and set of resources.</p>
<id>	The id represents the file or folder being operated on by the WOPI client. A WOPI server MUST issue a unique id for any resource that a WOPI client operates on.

The <token> and <id> parameters are a core part of all WOPI requests. The URI syntax for using these parameters is described first in the **CheckFileInfo** operation (see section [3.3.5.1.1](#)). The WOPI server provides both <token> and <id> through the **urlsrc** parameter, as described in the **st_wopi-url-source** simple type (see section [3.1.5.1.1.2.3.3](#)).

The following URI parameters can be included with all WOPI requests.

URI Parameter	Description
<sc>	The sc is a string that the WOPI server MAY include with a WOPI request. The WOPI client MAY in turn return the value of sc as the value of the X-WOPI-SessionContext HTTP header when making the CheckFileInfo (section 3.3.5.1.1) and CheckFolderInfo (section 3.3.5.2.1) WOPI requests.

3 Protocol Details

3.1 WOPI Discovery Details

The WOPI client provides XML [\[RFC3023\]](#) that describes the supported abilities of the WOPI client and how to call these abilities through URIs. This XML is available through a predetermined URI that MUST be provided by a WOPI client.

3.1.1 Abstract Data Model

None.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

WOPI Discovery involves a single URI that takes no parameters.

Resource	Description
HTTP://server/hosting/discovery	Provides access to information about the capabilities of a WOPI client and the mechanisms for invoking those abilities through URIs.

3.1.5.1 HTTP://server/hosting/discovery

The data that describes the supported abilities of the WOPI client and how to call these abilities through URIs is provided through the following URI:

HTTP://server/hosting/discovery

Operation	Description
Discovery	Returns data that describes the supported abilities of the WOPI client and how to call these abilities through URIs.

3.1.5.1.1 Discovery

The operation that returns data that describes the supported abilities of the WOPI client and how to call these abilities through URIs.

3.1.5.1.1.1 Request Body

None.

3.1.5.1.1.2 Response Body

The WOPI Discovery response is XML [\[RFC3023\]](#) with the following characteristics.

3.1.5.1.1.2.1 Elements

This section describes the elements of the WOPI Discovery XML.

3.1.5.1.1.2.1.1 wopi-discovery

A **ct_wopi-discovery** element (section [3.1.5.1.1.2.2.1](#)) specifies the capabilities and URIs for accessing the capabilities of the WOPI client. This element is the root element of WOPI Discovery XML.

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

```
<xs:element name="wopi-discovery" minOccurs="1" maxOccurs="1" type="ct_wopi-discovery"/>
```

3.1.5.1.1.2.2 Complex Types

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

3.1.5.1.1.2.2.1 ct_wopi-discovery

This **ct_wopi-discovery** complex type specifies the capabilities and URIs for accessing the capabilities of the WOPI client.

```
<xs:complexType name="ct_wopi-discovery">
  <xs:sequence>
    <xs:element name="net-zone" minOccurs="1" maxOccurs="4" type="ct_net-zone"/>
    <xs:element name="proof-key" minOccurs="0" maxOccurs="1" type="ct_proof-key"/>
  </xs:sequence>
</xs:complexType>
```

3.1.5.1.1.2.2.2 ct_net-zone

This **ct_net-zone** complex type specifies the protocol and the intended network-type of the **ct_app-name** type elements (section [3.1.5.1.1.2.2.3](#)) it contains.

```
<xs:complexType name="ct_net-zone">
  <xs:sequence>
    <xs:element name="app" minOccurs="1" maxOccurs="unbounded"
      type="ct_app-name"/>
  </xs:sequence>
  <xs:attribute name="name" type="st_wopi-zone"/>
</xs:complexType>
```

3.1.5.1.1.2.2.3 ct_app-name

The **ct_app-name** complex type specifies the application name that a set of WOPI actions are grouped under. The application name is intended as a convenient way of grouping similar actions such as all those pertaining to spreadsheets. It is not required that all actions contained within an element

of this type have the same **file extension** or **progid** (a **string** that identifies a folder as being associated with a specific application).

Attributes:

name: A **string** attribute that specifies the name of the application.

favIconUrl: A **string** attribute that specifies the URL of an image resource that a WOPI server uses as the Favorites Icon for a page showing the output of a WOPI client.

checkLicense: A **Boolean** attribute that specifies that a WOPI server SHOULD enforce license restrictions for file types within the **ct_app-name** block.

```
<xs:complexType name="ct_app-name">
  <xs:sequence>
    <xs:element name="action" minOccurs="1" maxOccurs="unbounded"
      type="ct_wopi-action"/>
  </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required"/>
  <xs:attribute name="favIconUrl" type="xs:string" use="optional"/>
  <xs:attribute name="checkLicense" type="xs:boolean" use="optional"
    default="false"/>
</xs:complexType>
```

3.1.5.1.1.2.2.4 ct_wopi-action

The **ct_wopi-action** complex type specifies an action (such as viewing a file) that a WOPI client can perform.

Attributes:

name: A **st_wopi-action-values** attribute (section [3.1.5.1.1.2.3.1](#)) that specifies the name of the action.

default: A **Boolean** attribute that specifies whether the WOPI server is to use this action as the default action for this file type.

requires: A **st_wopi-action-requirements** attribute (section [3.1.5.1.1.2.3.2](#)) that specifies the required capabilities of the WOPI server to be able to use this action.

urlsrc: A **st_wopi-url-source** attribute (section [3.1.5.1.1.2.3.3](#)) that specifies the **URI** that the WOPI server can use to call the action.

ext: A **string** attribute that specifies the **file extension** supported by this action. Note that either **ext** or **progid** MUST be present, but that **ext** and **progid** MUST NOT be present in the same action.

progid: A **string** attribute that specifies the **progid** (a **string** that identifies a folder as being associated with a specific application) supported by this action. Note that either **ext** or **progid** MUST be present, but that **ext** and **progid** MUST NOT be present in the same action.

newprogid: A **string** attribute that specifies the **progid** that the **editnew** (see **st_wopi-action-values** in section 3.1.5.1.1.2.3.1) will use for the new file. Note that either **newext** or **newprogid** MUST be present when using **editnew** but that **newext** and **newprogid** MUST NOT be present in the same action.

newext: A **string** attribute that specifies the file extension that the **editnew** (see **st_wopi-action-values** in section 3.1.5.1.1.2.3.1) will use for the new file. Note that either **newext** or **newprogid** MUST be present when using **editnew**, but that **newext** and **newprogid** MUST NOT be present in the same action.

useParent: A **Boolean** attribute that specifies that the WOPI server MUST call the WOPI action on the parent folder of the file.

targettext: A **string** attribute that specifies the file extension of the target object. Used by actions that require both source and target host objects.

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

```
<xs:complexType name="ct_wopi-action">
  <xs:attribute name="name" use="required" type="st_wopi-action-values"/>
  <xs:attribute name="default" type="xs:boolean" default="false"/>
  <xs:attribute name="requires" type="st_wopi-action-requirements"/>
  <xs:attribute name="urlsrc" use="required" type="st_wopi-url-source"/>
  <xs:attribute name="ext" type="xs:string" use="optional"/>
  <xs:attribute name="progid" type="xs:string" use="optional"/>
  <xs:attribute name="newprogid" type="xs:string" use="optional"/>
  <xs:attribute name="newext" type="xs:string" use="optional"/>
  <xs:attribute name="useParent" type="xs:boolean" default="false"/>
  <xs:attribute name="targettext" type="xs:string" use="optional"/>
</xs:complexType>
```

3.1.5.1.1.2.2.5 ct_proof-key

The **ct_proof-key** complex type specifies two public keys that a WOPI server uses to decrypt the values passed in the **X-WOPI-Proof** and **X-WOPI-ProofOld** HTTP headers (section [2.2.1](#)). Note that the public keys passed in this complex type decrypt either of the HTTP header values.

The public keys are specified in two different formats.

If you include proof keys in discovery, you SHOULD include **X-WOPI-Proof** and **X-WOPI-ProofOld** HTTP headers (section [2.2.1](#)) in all WOPI requests.

Attributes:

oldvalue: A **base64-encoded** value representing public key information that is compatible with the unmanaged Microsoft Cryptographic API ([\[MSDN-CAPI\]](#)).

value: A base64-encoded value representing public key information that is compatible with the unmanaged Microsoft Cryptographic API ([\[MSDN-CAPI\]](#)).

modulus: A base64-encoded value representing the RSA modulus as described in [\[RFC3447\]](#) section A.1.1. This modulus value MUST only be used with the value of the **exponent** attribute to produce a complete public key.

oldmodulus: A base64-encoded value representing the RSA modulus as described in [\[RFC3447\]](#) section A.1.1. This modulus value MUST only be used with the value of the **oldexponent** attribute to produce a complete public key.

exponent: A base64-encoded ([\[RFC4648\]](#)) value representing the RSA publicExponent as described in [\[RFC3447\]](#) section A.1.1. This exponent value MUST only be used with the value of the **modulus** attribute to produce a complete public key.

oldexponent: A base64-encoded ([\[RFC4648\]](#)) value representing the RSA publicExponent as described in [\[RFC3447\]](#) section A.1.1. This exponent value MUST only be used with the value of the **oldmodulus** attribute to produce a complete public key.

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

```

<xs:complexType name="ct_proof-key">
  <xs:attribute name="exponent" type="xs:string" use="required"/>
  <xs:attribute name="modulus" type="xs:string" use="required"/>
  <xs:attribute name="oldexponent" type="xs:string" use="required"/>
  <xs:attribute name="oldmodulus" type="xs:string" use="required"/>
  <xs:attribute name="oldvalue" type="xs:string" use="required"/>
  <xs:attribute name="value" type="xs:string" use="required"/>
</xs:complexType>

```

3.1.5.1.1.2.3 Simple Types

The following XML schema simple type definitions are specific to this operation.

3.1.5.1.1.2.3.1 **st_wopi-action-values**

This simple type specifies all the well-known WOPI actions that a WOPI client and WOPI server support. It is important to note that while the following schema restricts this type, WOPI servers **MUST NOT** fail when they encounter additional values not included in this schema.

Enumeration Values:

view: An action that indicates that the WOPI client supports viewing the file type. All WOPI clients **MUST** support this action for all file types that they support.

edit: An action that indicates that the WOPI client supports editing the file type.

mobileView: An action that indicates that the WOPI client supports a view of the file type that is optimized for viewing on mobile devices such as cellular phones.

embedview: An action that indicates that the WOPI client supports a view of the file that can be embedded in a web page.

embededit: An action that indicates that the WOPI client supports an editable view of the file that can be embedded in a web page.

present: An action that indicates that the WOPI client supports a broadcast of the file. A broadcast is a special view that is driven by one or more presenters from a client for the purposes of being viewed by a set of attendees viewing in separate clients. The **present** action is associated with the URI used by presenters.

presentservice: An action that indicates the location of a broadcast endpoint for broadcast presenters. Interaction with the endpoint is described in [\[MS-OBPRS\]](#).

attendservice: An action that indicates the location of a broadcast endpoint for broadcast attendees. Interaction with the endpoint is described in [\[MS-OBPAS\]](#).

attend: An action that indicates that the WOPI client supports a broadcast of the file. A broadcast is a special view that is driven by one or more presenters from a client for the purposes of being viewed by a set of attendees viewing in separate clients. The **attend** action is associated with the URI used by attendees.

editnew: An action that indicates that the WOPI client supports the creation of a new file based on the file provided by the WOPI server. The **newext** and **newprogid** attributes defined by the **ct_wopi-action** complex type (see section [3.1.5.1.1.2.2.4](#)) indicate the type of file that will result from invoking the **editnew** action.

imagepreview: An action that indicates that the WOPI client supports providing an image preview of the file type.

interactivepreview: An action that indicates that the WOPI client supports providing an interactive preview of the file type. For example, a smaller version of a presentation that a user can still advance from slide to slide.

formsubmit: An action that indicates that the WOPI client supports accepting changes to the file type via a form-style interface. For example, a user might be able to use this action to change the content of a workbook even if they did not have permission to use the **edit** action.

formedit: An action that indicates that the WOPI client supports editing the file type in a mode better suited to working with files that have been used to collect form data via the **formsubmit** action.

rest: An action that indicates that the WOPI client supports interacting with the file type via additional URL parameters that are specific to the file type in question.

preloadview: An action that indicates that the WOPI client supports preloading static content prior to using the **view** action.

preloadeedit: An action that indicates that the WOPI client supports preloading static content prior to using the **edit** action.

rtc: An action that indicates the location of a real-time communication endpoint for the file type.

getinfo: An action that indicates that the WOPI client supports retrieving additional information about the WOPI client in relation to the file type.

convert: An action that indicates that the WOPI client supports converting a document in a binary format, such as doc, into a modern format, like docx.

syndicate: An action that indicates that the WOPI client supports a view of the file type in web part mode.

legacyweb service: An action that indicates that the WOPI client supports a view of the file type in legacy web service mode.

collab: An action that indicates that the WOPI client supports joining collaboration service.

formpreview: An action that indicates that the WOPI client supports previewing the file type via a form-style interface.

documentchat: An action that indicates that the WOPI client supports chatting with other coauthors in this document.

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

```
<xs:simpleType name="st_wopi-action-values">
  <xs:restriction base="xs:string">
    <xs:enumeration value="view" />
    <xs:enumeration value="edit" />
    <xs:enumeration value="mobileView" />
    <xs:enumeration value="embedview" />
    <xs:enumeration value="embededit" />
    <xs:enumeration value="mobileclient" />
    <xs:enumeration value="present" />
    <xs:enumeration value="presentservice" />
    <xs:enumeration value="attend" />
    <xs:enumeration value="attendservice" />
    <xs:enumeration value="editnew" />
    <xs:enumeration value="imagepreview" />
    <xs:enumeration value="interactivepreview" />
    <xs:enumeration value="formsubmit" />
    <xs:enumeration value="formedit" />
    <xs:enumeration value="rest" />
  </xs:restriction>
</xs:simpleType>
```

```

<xs:enumeration value="preloadview" />
<xs:enumeration value="preloadededit" />
<xs:enumeration value="rtc" />
<xs:enumeration value="getinfo" />
<xs:enumeration value="convert" />
<xs:enumeration value="syndicate" />
<xs:enumeration value="legacywebservice" />
<xs:enumeration value="collab" />
<xs:enumeration value="formpreview" />
<xs:enumeration value="documentchat" />
</xs:restriction>
</xs:simpleType>

```

3.1.5.1.1.2.3.2 st_wopi-action-requirements

The **st_wopi-action-requirements** simple type specifies the capabilities that a WOPI server **MUST** support to call the associated WOPI action. It is important to note that while the following schema restricts this type to well-known requirements, WOPI servers **MUST NOT** fail when they encounter additional values not included in this schema.

Values:

update: Indicates that the WOPI server **MUST** support changes to the file through **PutFile** (see section [3.3.5.3.2](#))

locks: Indicates that the WOPI server **MUST** support the ability to lock the file for editing through **Lock** (see section [3.3.5.1.8](#)), **Unlock** (see section [3.3.5.1.15](#)), **RefreshLock** (see section [3.3.5.1.12](#)), and **UnlockAndRelock** (see section [3.3.5.1.16](#)).

cobalt: Indicates that the WOPI server **MUST** support the system described in [\[MS-FSSHTTP\]](#) through **ExecuteCellStorageRequest** (see section [3.3.5.1.4](#)) and **ExecuteCellStorageRelativeRequest** (see section [3.3.5.1.3](#)).

containers: Indicates that the WOPI server supports accessing folders and folder hierarchy through **EnumerateChildren** (see section [3.3.5.4.1](#)), **CheckFolderInfo** (see section [3.3.5.2.1](#)), and **DeleteFile** (see section [3.3.5.1.2](#)).

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

```

<xs:simpleType name="st_wopi-action-requirements">
  <xs:restriction base="xs:string">
    <xs:pattern value="/^((update|locks|cobalt|containers)\s*(,\s*|$))*
      ((update|locks|cobalt|containers)\s*$)"/>
  </xs:restriction>
</xs:simpleType>

```

3.1.5.1.1.2.3.3 st_wopi-url-source

The **st_wopi-url-source** simple type specifies the URI that is used to call the associated WOPI action.

When a WOPI server receives a request from the browser that is required to use a WOPI action, an HTTP POST request **MUST** be sent from the WOPI server that navigates the browser along with a query string **WOPISrc** parameter and the **access_token** access token as the request body.

A WOPI server can also send an **access_token_TTL** as the request body.

access_token: A parameter that is the **<token>** (see section [2.2.2](#)).

The URI parameter **MUST** have the form "access_token=**<token>**".

Because the **token** represents user credentials it needs to be protected. To protect the **token** the WOPI client MUST accept the **token** as part of the body of an HTTP POST. The format of the POST body MUST be "access_token=<token>"

The WOPI client SHOULD NOT include the URI parameter **access_token** and the POST body content in the same request.

access_token_TTL: A 64-bit **integer** containing the number of milliseconds since January 1, 1970 **UTC** and representing the expiration date and time stamp of the **access_token**.

The WOPI client MUST accept the **access_token_TTL** as part of the body of an HTTP POST. The format of the POST body MUST be "access_token_TTL=[a 64-bit integer as described above]"

The WOPI client SHOULD NOT include the URI parameter **access_token_TTL** and the POST body content in the same request.

WOPISrc: A URI that conforms to the pattern **http://server/<...>/wopi*/files/<id>** (see section [3.3.5.1](#)). The URI MUST be encoded to a URL string.

There are a number of optional query string parameters that this simple type could contain. As described in the following, the WOPI servers MUST replace each optional parameter when using URI of this type, either by removing them, or processing them by providing the corresponding string in place of the placeholder value. Each optional parameter conforms to the pattern **<name=PLACEHOLDER_VALUE[&]>**. The WOPI server MAY omit the optional parameter, but MUST only process it if the placeholder value is understood and the corresponding replacement value can be determined. If the value is understood, the "<" and ">" MUST be removed, the **name** left intact, and the optional "&" MUST be preserved if present. As an example, "<ui=UI_LLCC&>" could be rewritten to "ui=en-us&".

Placeholder Values:

UI_LLCC: Indicates that the WOPI server includes the preferred UI language in the format described in [\[RFC1766\]](#).

DC_LLCC: Indicates that the WOPI server includes preferred data language in the format described in [\[RFC1766\]](#) for cases where language can affect data calculation.

EMBEDDED: Indicates that the WOPI server includes the value "true" to use the output of this action embedded in a web page.

DISABLE_ASYNC: Indicates that the WOPI server includes the value "true" to prevent the attendee from navigating a file. For example, when using the attendee action (see **st_wopi-action-values** in section [3.1.5.1.1.2.3.1](#)).

DISABLE_BROADCAST: Indicates that the WOPI server includes the value "true" to load a view of the document that does not create or join a broadcast session. This view looks and behaves like a regular broadcast frame.

FULLSCREEN: Indicates that the WOPI server includes the value "true" to load the file type in full-screen mode.

RECORDING: Indicates that the WOPI server includes the value "true" to load the file type with a minimal user interface.

THEME_ID: Indicates that the WOPI server includes a value to designate the theme used. Current values are "1" to indicate a light-colored theme and "2" to indicate a darker colored theme.

BUSINESS_USER: Indicates that the WOPI server includes the value "1" to indicate that the user is a business user.

DISABLE_CHAT: Indicates that the WOPI server includes the value "1" to load a view of the document that does not create or join a chat session.

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

```
<xs:simpleType name="st wopi-url-source">  
  <xs:restriction base="xs:string">  
    <xs:pattern value="/^([a-z0-9+.-~!$%()'*,;=:]|%[0-9A-F]{2})*@((?:(?:[a-z0-9-.~!$%()'*,;=:]|%[0-9A-F]{2})*)/?(?:[a-z0-9-.~!$%()'*,;=:@]|%[0-9A-F]{2})+(?:[a-z0-9-.~!$%()'*,;=:@]|%[0-9A-F]{2})*?)|(?:(?:[a-z0-9-.~!$%()'*,;=:@]|%[0-9A-F]{2})*?)\.(?:[a-z0-9-.~!$%()'*,;=:/@]|%[0-9A-F]{2})*)?(?:#((?:[a-z0-9-.~!$%()'*,;=:/@]|%[0-9A-F]{2})*))?$&i"/>  
  </xs:restriction>  
</xs:simpleType>
```

Additionally, WOPI servers MUST append to the **WOPIsrc** any query string parameters included with the WOPI server URL that begin with the characters: "wd". That is, if the WOPI server receives a request from a browser that indicates to the WOPI server that the browser wishes to call a WOPI client action, then all query string parameters included on the request to the WOPI server MUST be passed through on the **WOPIsrc**.

3.1.5.1.1.2.3.4 st_wopi-zone

The **st_wopi-zone** simple type indicates the supported protocols, and the preferred network environments of each set of WOPI actions.

Values:

internal-http: Indicates that the WOPI actions associated with this type are intended for use on internal networks (not internet or extranet networks) and use the HTTP protocol.

internal-https: Indicates that the WOPI actions associated with this type are intended for use on internal networks (not internet or extranet networks) and use the HTTPS protocol.

external-http: Indicates that the WOPI actions associated with this type are intended for use on internet or extranet networks and use the HTTP protocol.

external-https: Indicates that the WOPI actions associated with this type are intended for use on internet or extranet networks and use the HTTPS protocol.

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

```
<xs:simpleType name="st wopi-zone">
  <xs:restriction base="xs:string">
    <xs:enumeration value="internal-http" />
    <xs:enumeration value="internal-https" />
    <xs:enumeration value="external-http" />
    <xs:enumeration value="external-https" />
  </xs:restriction>
</xs:simpleType>
```

3.1.5.1.1.3 Processing Details

WOPI servers are expected to use the contents of WOPI Discovery XML to associate the functionality described in the XML with the file types in the XML. A WOPI server MAY choose to associate any set of the functionality described in WOPI Discovery XML but the WOPI server MUST only expose actions that are known to it and that have requirements that it understands and can meet.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

3.2 WOPI Protocol Client Details

The WOPI client issues requests to WOPI servers to:

- access information about files and folders.
- access the content of files and folders.
- change the content of files and folders.

For details about WOPI client requests, see WOPI Protocol Server Details (see section [3.3](#)).

3.2.1 Abstract Data Model

None.

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Higher-Layer Triggered Events

None.

3.2.5 Message Processing Events and Sequencing Rules

None.

3.2.6 Timer Events

None.

3.2.7 Other Local Events

None.

3.3 WOPI Protocol Server Details

The WOPI server responds to WOPI requests from WOPI clients. It returns information about files and file content in its responses. The WOPI server never initiates communication with the WOPI client.

Except where specified, WOPI clients SHOULD interpret HTTP Status-Codes returned by the WOPI server as specified in [\[RFC2616\]](#) section 10, "Status Code Definitions."

3.3.1 Abstract Data Model

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

The WOPI server SHOULD manage the state of files such that it can respond to WOPI requests based on the current state of the file. This state management includes but is not limited to:

- User does not have permission to view or edit a file
- File is read-only
- File is locked for editing by another user
- File is checked out by another user

Additionally, the WOPI server SHOULD manage state in accordance with [\[MS-FSSHTTP\]](#) to enable some specific WOPI server operations as described in section [3.3.5.1.4](#) and section [3.3.5.1.3](#) of this document.

3.3.2 Timers

None.

3.3.3 Initialization

None.

3.3.4 Higher-Layer Triggered Events

None.

3.3.5 Message Processing Events and Sequencing Rules

Resource	Description
HTTP://server/<...>/wopi*/files/<id>	Provides access to information about a file and allows for file-level operations.
HTTP://server/<...>/wopi*/folders/<id>	Provides access to information about a folder and allows for folder level operations.
HTTP://server/<...>/wopi*/files/<id>/contents	Provides access to operations that get and update the contents of a file.
HTTP://server/<...>/wopi*/folders/<id>/children	Provides access to the files and folders in a folder.

3.3.5.1 HTTP://server/<...>/wopi*/files/<id>

The file being accessed by WOPI is identified by the following URI:

HTTP://server/<...>/wopi*/files/<id>

The syntax URI parameters are defined by the following **Augmented Backus-Naur Form (ABNF)**:

id = STRING

id: A **string** that specifies a unique identifier of a file managed by the WOPI server. This **string** MUST be URL safe.

The following operations are allowed to be performed on this resource.

Operation	Description
CheckFileInfo	Returns information about a file.
DeleteFile	Removes a file from the WOPI server.
ExecuteCellStorageRelativeRequest	Changes the contents of the file in accordance with [MS-FSSHTTP] .
ExecuteCellStorageRequest	Changes the contents of the file in accordance with [MS-FSSHTTP].
GetLock	Retrieves a lock for editing a file.
GetRestrictedLink	Gets a link to a file through which a user is able to operate on a file in a limited way.
GetShareUrl	Gets a URI to the file that is suitable for sharing with other users.
Lock	Takes a lock for editing a file.
PutRelativeFile	Creates a copy of a file on the WOPI server.
PutUserInfo	Stores user information on the WOPI server.
ReadSecureStore	Accesses the WOPI server's implementation of a secure store.
RefreshLock	Refreshes a lock for editing a file.
RenameFile	Renames a file.
RevokeRestrictedLink	Revokes all links to a file through which a number of users are able to operate on a file in a limited way.
Unlock	Releases a lock for editing a file.
UnlockAndRelock	Releases and then retakes a lock for editing a file.

3.3.5.1.1 CheckFileInfo

Return information about the file and permissions that the current user has relative to that file.

HTTP Verb: GET

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The following HTTP header can be included with this request.

Header	Description
X-WOPI-SessionContext	The value of the <sc> URI parameter (section 2.2.2).

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User Unauthorized
500	Server error

3.3.5.1.1.1 Request Body

None.

3.3.5.1.1.2 Response Body

The response body is **JavaScript Object Notation (JSON)** (as specified in [RFC4627](#)) with the following parameters:

JSON:

```
{
  "AllowAdditionalMicrosoftServices": {"type": "bool", "default": false, "optional": true},
  "AllowExternalMarketplace": {"type": "bool", "default": false, "optional": true},
  "BaseFileName": {"type": "string", "optional": false},
  "BreadcrumbBrandName": {"type": "string", "default": "", "optional": true},
  "BreadcrumbBrandUrl": {"type": "string", "default": "", "optional": true},
  "BreadcrumbDocName": {"type": "string", "default": "", "optional": true},
  "BreadcrumbDocUrl": {"type": "string", "default": "", "optional": true},
  "BreadcrumbFolderName": {"type": "string", "default": "", "optional": true},
  "BreadcrumbFolderUrl": {"type": "string", "default": "", "optional": true},
  "ClientUrl": {"type": "string", "default": "", "optional": true},
  "CloseButtonClosesWindow": {"type": "bool", "default": false, "optional": true},
  "ClosePostMessage": {"type": "bool", "default": false, "optional": true},
  "CloseUrl": {"type": "string", "default": "", "optional": true},
  "DisableBrowserCachingOfUserContent": {"type": "bool", "default": false, "optional": true},
  "DisablePrint": {"type": "bool", "default": false, "optional": true},
  "DisableTranslation": {"type": "bool", "default": false, "optional": true},
  "DownloadUrl": {"type": "string", "default": "", "optional": true},
  "EditAndReplyUrl": {"type": "string", "default": "", "optional": true},
  "EditModePostMessage": {"type": "bool", "default": false, "optional": true},
  "EditNotificationPostMessage": {"type": "bool", "default": false, "optional": true},
  "FileExtension": {"type": "string", "default": "", "optional": true},
  "FileNameMaxLength": {"type": "integer", "default": 250, "optional": true},
  "FileSharingPostMessage": {"type": "bool", "default": false, "optional": true},
  "FileSharingUrl": {"type": "string", "default": "", "optional": true},
  "FileUrl": {"type": "string", "default": "", "optional": true},
  "HostAuthenticationId": {"type": "string", "default": "", "optional": true},
  "HostEditUrl": {"type": "string", "default": "", "optional": true},
  "HostEmbeddedEditUrl": {"type": "string", "default": "", "optional": true},
  "HostEmbeddedViewUrl": {"type": "string", "default": "", "optional": true},
}
```

```

"HostName":{"type":"string","default":"","optional":true},
"HostNotes":{"type":"string","default":"","optional":true},
"HostRestUrl":{"type":"string","default":"","optional":true},
"HostViewUrl":{"type":"string","default":"","optional":true},
"IrmPolicyDescription":{"type":"string","default":"","optional":true},
"IrmPolicyTitle":{"type":"string","default":"","optional":true},
"LicenseCheckForEditIsEnabled":{"type":"bool","default":false,"optional":true},
"OwnerId":{"type":"string","optional":false},
"PostMessageOrigin":{"type":"string","default":"","optional":true},
"PresenceProvider":{"type":"string","default":"","optional":true},
"PresenceUserId":{"type":"string","default":"","optional":true},
"PrivacyUrl":{"type":"string","default":"","optional":true},
"ProtectInClient":{"type":"bool","default":false,"optional":true},
"ReadOnly":{"type":"bool","default":false,"optional":true},
"RestrictedWebViewOnly":{"type":"bool","default":false,"optional":true},
"SHA256":{"type":"string","optional":true},
"SignInUrl":{"type":"string","default":"","optional":true},
"SignoutUrl":{"type":"string","default":"","optional":true},
"Size":{"type":"int","optional":false},
"SupportedShareUrlTypes":{"type":"string[]","default":[],"optional":true},
"SupportsCoauth":{"type":"bool","default":false,"optional":true},
"SupportsCobalt":{"type":"bool","default":false,"optional":true},
"SupportsExtendedLockLength":{"type":"bool","default":false,"optional":true},
"SupportsFileCreation":{"type":"bool","default":false,"optional":true},
"SupportsFolders":{"type":"bool","default":false,"optional":true},
"SupportsGetLock":{"type":"bool","default":false,"optional":true},
"SupportsLocks":{"type":"bool","default":false,"optional":true},
"SupportsRename":{"type":"bool","default":false,"optional":true},
"SupportsScenarioLinks":{"type":"bool","default":false,"optional":true},
"SupportsSecureStore":{"type":"bool","default":false,"optional":true},
"SupportsUpdate":{"type":"bool","default":false,"optional":true},
"SupportsUserInfo":{"type":"bool","default":false,"optional":true},
"TenantId":{"type":"string","default":"","optional":true},
"TermsOfUseUrl":{"type":"string","default":"","optional":true},
"TimeZone":{"type":"string","default":"","optional":true},
"UniqueContentId":{"type":"string","default":"","optional":true},
"UserCanAttend":{"type":"bool","default":false,"optional":true},
"UserCanNotWriteRelative":{"type":"bool","default":false,"optional":true},
"UserCanPresent":{"type":"bool","default":false,"optional":true},
"UserCanRename":{"type":"bool","default":false,"optional":true},
"UserCanWrite":{"type":"bool","default":false,"optional":true},
"UserFriendlyName":{"type":"string","default":"","optional":true},
"UserId":{"type":"string","default":"","optional":true},
"UserInfo":{"type":"string","default":"","optional":true},
"Version":{"type":"string","optional":false},
"WebEditingDisabled":{"type":"bool","default":false,"optional":true},
"WorkflowType":{"type":"string[]","default":[],"optional":true},
"WorkflowUrl":{"type":"string","default":"","optional":true}
}

```

AllowAdditionalMicrosoftServices: A **Boolean** value that indicates the WOPI client allows connections to external Microsoft services to provide additional functionality. If this value is false, then the WOPI client **MUST NOT** allow such connections.

AllowExternalMarketplace: A **Boolean** value that indicates the WOPI client allows connections to external services referenced in the file (for example, a marketplace of embeddable JavaScript apps). If this value is false, then the WOPI client **MUST NOT** allow such connections.

BaseFileName: The name of the file without the path. Used for display in user interface (UI), and determining the extension of the file.

BreadcrumbBrandName: A **string** that the WOPI client displays to the user that indicates the brand name of the WOPI server.

BreadcrumbBrandUrl: A URI to a web page that the WOPI client navigates to when the user clicks on UI that displays **BreadcrumbBrandName**.

BreadcrumbDocName: A **string** that the WOPI client displays to the user that indicates the name of the file.

BreadcrumbDocUrl: A URI to a web page that the WOPI client navigates to when the user clicks on UI that displays **BreadcrumbDocName**.

BreadcrumbFolderName: A **string** that the WOPI client displays to the user that indicates the name of the folder that contains the file.

BreadcrumbFolderUrl: A URI to a web page that the WOPI client navigates to when the user clicks on UI that displays **BreadcrumbFolderName**.

ClientUrl: A user-accessible URI directly to the file intended for opening the file through a client. Can be a DAV URL ([\[RFC5323\]](#)), but MAY be any URL that can be handled by a client that can open a file of the given type.

CloseButtonClosesWindow: A **Boolean** value that indicates that the WOPI client SHOULD close the browser window containing the output of the WOPI client when the user calls the close UI.

ClosePostMessage: A **Boolean** value that indicates that the WOPI client SHOULD notify the WOPI server in the event that the user closes the rendering or editing client currently using this file. [<1>](#)

CloseURL: A URI to a web page that the implementer deems useful to a user in the event that the user closes the rendering or editing client currently using this file.

DisableBrowserCachingOfUserContent: A **Boolean** value that indicates that the WOPI client MUST disable caching of file contents in the browser cache.

DisablePrint: A **Boolean** value that indicates that the WOPI client MUST disable any print functionality under its control.

DisableTranslation: A **Boolean** value that indicates that the WOPI client MUST NOT permit the use of machine translation functionality that is exposed by the WOPI client.

DownloadUrl: A user-accessible URI to the file intended to allow the user to download a copy of the file.

EditAndReplyUrl: A URI to a web page that provides an editing experience for the file, utilizing the WOPI client.

EditModePostMessage: A **Boolean** value that indicates that the WOPI client SHOULD notify the WOPI server in the event that the user attempts to edit the file.

EditNotificationPostMessage: A **Boolean** value that indicates that the WOPI client SHOULD notify the WOPI server in the event that the user attempts to edit the file.

FileExtension: A **string** specifying the **file extension** of the file. This value MUST begin with a [".".<2>](#)

FileNameMaxLength: An **integer** indicating the maximum length for file names, including the file extension, supported by the WOPI server.

FileSharingUrl: A URI to a location that allows the user to share the file.

FileSharingPostMessage: A **Boolean** value that indicates that the WOPI client SHOULD notify the WOPI server in the event that the user attempts to share the file.

FileUrl: A URI to the file location that the WOPI client uses to get the file. If this is provided, a WOPI client MUST use this URI to get the file instead of

HTTP://server/<...>/wopi*/files/<id>/contents (see section [3.3.5.3](#)).

HostAuthenticationId: A **string** that is used by the WOPI server to uniquely identify the user.

HostEditUrl: A URI to a web page that provides an editing experience for the file, utilizing the WOPI client.

HostEmbeddedEditUrl: A URI to a web page that provides access to an editing experience for the file that can be embedded in another HTML page. For example, a page that provides an HTML snippet that can be inserted into the HTML of a blog.

HostEmbeddedViewUrl: A URI to a web page that provides access to a viewing experience for the file that can be embedded in another HTML page. For example, a page that provides an HTML snippet that can be inserted into the HTML of a blog.

HostName: A **string** that is the name provided by the WOPI server used to identify it for logging and other informational purposes.

HostNotes: A **string** that is used by the WOPI server to pass arbitrary information to the WOPI client. The WOPI client MAY ignore this string if it does not recognize the contents. A WOPI server MUST NOT require that a WOPI client understand the contents of this string to operate.

HostRestUrl: A URI that is the base URI for **REST** operations for the file.

HostViewUrl: A URI to a web page that provides a viewing experience for the file utilizing the WOPI client.

IrmPolicyDescription: A **string** that the WOPI client SHOULD display to the user indicating the **Information Rights Management (IRM)** policy for the file. This value SHOULD be combined with **IrmPolicyTitle**.

IrmPolicyTitle: A **string** that the WOPI client SHOULD display to the user indicating the IRM policy for the file. This value SHOULD be combined with **IrmPolicyDescription**.

LicenseCheckInEditIsEnabled: A **Boolean** value that indicates that the WOPI client SHOULD take measures to ensure the user is properly licensed prior to allowing editing of the file.

OwnerId: A **string** that SHOULD uniquely identify the owner of the file.

PostMessageOrigin: A **string** that the WOPI client MUST use as the *targetOrigin* parameter when sending messages as described in [\[W3C-HTML5WEBMSG\]](#).

PresenceProvider: A **string** that identifies the provider of information that a WOPI client uses to discover information about the user's online status (for example, whether a user is available via instant messenger). A WOPI client requires knowledge of specific presence providers to be able to take advantage of this value.

PresenceUserId: A **string** that identifies the user in the context of the **PresenceProvider**.

PrivacyUrl: A URI to a webpage that explains the privacy policy of the WOPI server.

ProtectInClient: A **Boolean** value that indicates that the WOPI client SHOULD take measures to prevent copying and printing of the file. This is intended to help enforce IRM in WOPI clients.

ReadOnly: Indicates that, for this user, the file cannot be changed.

RestrictedWebViewOnly: A **Boolean** value that indicates that the WOPI client MUST NOT allow the user to download the file or open the file in a separate application.

SHA256: If it is present and not empty, it is a 256 bit SHA-2-encoded [\[FIPS180-2\]](#) hash of the file contents.<3>

SignInUrl: A URI that will sign the current user into the WOPI server supported authentication system.

SignoutUrl: A URI that will sign the current user out of the WOPI server supported authentication system.

Size: The size of the file expressed in bytes.

SupportedShareUrlTypes: An **array of strings** indicating the share URL types supported by the WOPI server.

SupportsCoauth: A **Boolean** value that indicates that the WOPI server supports multiple users making changes to this file simultaneously.<4>

SupportsCobalt: A **Boolean** value that indicates that the WOPI server supports **ExecuteCellStorageRequest** (see section [3.3.5.1.4](#)) and **ExecuteCellStorageRelativeRequest** (see section [3.3.5.1.3](#)) operations for this file.

SupportsExtendedLockLength: A **Boolean** value that indicates that the WOPI server supports lock IDs up to 1024 **ASCII** characters in length.<5>

SupportsFileCreation: A **Boolean** value that indicates that the WOPI server supports creating new files using the WOPI client.<6>

SupportsFolders: A **Boolean** value that indicates that the WOPI server supports **EnumerateChildren** (see section [3.3.5.4.1](#)) and **DeleteFile** (see section [3.3.5.1.2](#)) operations for this file.

SupportsGetLock: A **Boolean** value that indicates that the WOPI server supports **GetLock** (see section [3.3.5.1.5](#)).<7>

SupportsLocks: A **Boolean** value that indicates that the WOPI server supports **Lock** (see section [3.3.5.1.8](#)), **Unlock** (see section [3.3.5.1.15](#)), **RefreshLock** (see section [3.3.5.1.12](#)), and **UnlockAndRelock** (see section [3.3.5.1.16](#)) operations for this file.

SupportsRename: A **Boolean** value that indicates that the WOPI server supports **RenameFile** (see section [3.3.5.1.13](#)).<8>

SupportsScenarioLinks: A **Boolean** value that indicates that the WOPI server supports scenarios where users can operate on files in limited ways via restricted URLs.

SupportsSecureStore: A **Boolean** value that indicates that the WOPI server supports calls to a secure data store utilizing credentials stored in the file.

SupportsUpdate: A **Boolean** value that indicates that the WOPI server supports **PutFile** (see section [3.3.5.3.2](#)) and **PutRelativeFile** (see section [3.3.5.1.9](#)) operations for this file.

SupportsUserInfo: A **Boolean** value that indicates that the WOPI server supports **PutUserInfo** (see section [3.3.5.1.10](#)).<9>

TenantId: A **string** that is used by the WOPI server to uniquely identify the **tenant** .

TermsOfUseUrl: A URI to a webpage that explains the terms of use policy of the WOPI server.

TimeZone: A **string** that is used to pass time zone information to a WOPI client in the format chosen by the WOPI server.

UniqueContentId: A **string** that uniquely represents the file contents. [<10>](#) This value MUST change when the file content changes. This value MUST also be equivalent for all files with equivalent contents.

UserCanAttend: A **Boolean** value that indicates that the user has permission to view a broadcast of this file. A broadcast is file activity that involves one or more presenters controlling the view of the file for a set of attendees. For example, a slideshow can be broadcast by a presenter to many attendees.

UserCanNotWriteRelative: A **Boolean** value that indicates the user does not have sufficient permissions to create new files on the WOPI server.

UserCanPresent: A **Boolean** value that indicates that the user has permission to broadcast this file to a set of users who have permission to broadcast or view a broadcast of this file. A broadcast is file activity that involves one or more presenters controlling the view of the file for a set of attendees. For example, a slideshow can be broadcast by a presenter to many attendees.

UserCanRename: A **Boolean** value that indicates the user has permissions to rename the file.

UserCanWrite: A **Boolean** value that indicates that the user has permissions to alter the file.

UserFriendlyName: A **string** that is the name of the user. If blank, the WOPI client MAY be configured to use a placeholder **string** in some scenarios, or to show no name at all.

UserId: A **string** that is used by the WOPI server to uniquely identify the user.

UserInfo: A **string** that the WOPI client SHOULD use to verify the user's licensing status. The WOPI client MAY ignore this string if it does not recognize the contents.

Version: A **string** representing the current version of the file based on the WOPI server's file versioning schema. This value MUST change when the file content changes, and version values MUST never repeat for a given file.

WebEditingDisabled: A **Boolean** value that indicates that the WOPI client MUST NOT allow the user to use the WOPI client's editing functionality to operate on the file. This does not mean that the user doesn't have rights to edit the file.

WorkflowPostMessage: A **Boolean** value that indicates that the WOPI client SHOULD notify the WOPI server in the event that the user attempts to trigger a workflow on the file.

WorkflowType: An **array of strings** representing the workflow types that are available for the file.

WorkflowUrl: A **string** representing the current version of the file based on the WOPI server's file versioning schema. This value MUST change when the file content changes, and version values MUST never repeat for a given file.

3.3.5.1.1.3 Processing Details

The **id** represents the file that the WOPI server is providing information about. The **token** represents the credentials that the WOPI server MUST use when determining the permissions the WOPI client has when interacting with the file.

3.3.5.1.2 DeleteFile

Delete a file.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying requested operation from the WOPI server. Required.	The string "DELETE".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.2.1 Request Body

None.

3.3.5.1.2.2 Response Body

None.

3.3.5.1.2.3 Processing Details

The WOPI server MUST delete the file if possible, given the permissions and state of the file.

3.3.5.1.3 ExecuteCellStorageRelativeRequest

Make a change or create a new file in a location relative to the current file or folder using the standards defined by [\[MS-FSSHTTP\]](#).

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "COBALT".
X-WOPI-Size	An integer specifying the size of the request body.	An integer .
X-WOPI-RelativeTarget	A string that is the name of the file being created or changed by this operation. The location of this file is relative to the current file or folder. That is, it MUST be a sibling of a file and a child of a folder.	A string .

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.3.1 Request Body

Content that conforms to the **Body** element specified in [\[MS-FSSHTTP\]](#) section 2.2.2.1.

3.3.5.1.3.2 Response Body

Content that conforms to the **Body** element specified in [\[MS-FSSHTTP\]](#) section 2.2.2.2.

3.3.5.1.3.3 Processing Details

Both the WOPI client and the WOPI server MUST follow the interaction model defined in [\[MS-FSSHTTP\]](#). Success indicates that the request executed correctly.

3.3.5.1.4 ExecuteCellStorageRequest

Make a change to a file using the standards defined by [\[MS-FSSHTTP\]](#).

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying requested operation from the WOPI server. Required.	The string "COBALT".
X-WOPI-Size	An integer specifying the size of the request body.	An integer .

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.4.1 Request Body

Content that conforms to the **Body** element specified in [\[MS-FSSHTTP\]](#) section 2.2.2.1.

3.3.5.1.4.2 Response Body

Content that conforms to the **Body** element specified in [\[MS-FSSHTTP\]](#) section 2.2.2.2.

3.3.5.1.4.3 Processing Details

Both the WOPI client and the WOPI server MUST follow the interaction model defined in [\[MS-FSSHTTP\]](#). Success indicates that the request executed correctly.

3.3.5.1.5 GetLock

Retrieve a lock for editing a file. [<11>](#)

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "GET_LOCK".

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server MUST use to identify the lock on the file. This header MUST be included when responding with the following status codes: 200 409	A string .
X-WOPI-LockFailureReason	A string indicating why the operation failed. There is no standard for how this string is to be formatted. This string MUST NOT be used for anything other than logging. This header MAY only be included when responding with the 409 status code.	A string .
X-WOPI-LockedByOtherInterface	A string indicating that the file is currently locked by another client. This header SHOULD only be included when responding with the 409 status code.	The string "true".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
409	Lock mismatch/locked by another interface; an X-WOPI-Lock response header containing the value of the current lock on the file MUST be included when using this response code

Status code	Description
500	Server error
501	Unsupported

3.3.5.1.5.1 Request Body

None.

3.3.5.1.5.2 Response Body

None.

3.3.5.1.5.3 Processing Details

Retrieves an existing lock on a file.

3.3.5.1.6 GetRestrictedLink

Gets a link to a file through which a user is able to operate on a file in a limited way. For example, a user might be allowed to change a file in the course of filling out a form while not having permission to freely edit the file.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying requested operation from the WOPI server. Required.	The string "GET_RESTRICTED_LINK".
X-WOPI-RestrictedLink	A string specifying the type of restricted link being requested by the WOPI client. The valid values of this string are determined through convention. The only valid value currently is "FORMS". Required.	A string that is a valid value for a restricted link type. For example, "FORMS".

The response message for this operation contains the following HTTP headers.

Response header	Usage	Value
X-WOPI-RestrictedUseLink	A string specifying the URL that the WOPI client requested. For example, the URL that allows the user to fill out a form. Required.	A string that is a valid URL.

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
404	File unknown/User unauthorized

Status code	Description
500	Server error
501	Unsupported

3.3.5.1.6.1 Request Body

None.

3.3.5.1.6.2 Response Body

None.

3.3.5.1.6.3 Processing Details

This operation is directly related to the use of the **X-WOPI-UsingRestrictedScenario** HTTP header (section [2.2.1](#)).

3.3.5.1.7 GetShareUrl

Gets a URI to the file that is suitable for sharing with other users.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "GET_SHARE_URL".
X-WOPI-UrlType	A string indicating what share URL type to return. Required.	A string .

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.7.1 Request Body

None.

3.3.5.1.7.2 Response Body

The response body is **JavaScript Object Notation (JSON)** (as specified in [RFC4627](#)) with the following parameters:

JSON:

```
{
  "ShareUrl":{"type":"string","default":"","optional":true}
}
```

ShareUrl: A URI to a location that allows authorized users to view the file.

3.3.5.1.7.3 Processing Details

If the X-WOPI-UrlType header is not present, or the WOPI server does not recognize the value, then the WOPI server MUST respond with a 501 status code.

3.3.5.1.8 Lock

Take a lock for editing a file.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "LOCK".
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server MUST use to identify the lock on the file. Required.	A string .

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server MUST use to identify the lock on the file. This header SHOULD be included when responding with the 409 status code if a different shared lock exists on the file. This header SHOULD NOT be included when responding with the 200 status code.	A string .
X-WOPI-LockFailureReason	A string indicating why the operation failed. There is no standard for how this string is to be formatted. This string MUST NOT be used for anything other than logging. This header SHOULD only be included when responding with the 409 status code.	A string .
X-WOPI-LockedByOtherInterface	A string indicating that the file is currently locked by another client. This header SHOULD only be included when responding with the 409 status code.	The string "true".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
409	Lock mismatch/locked by another interface;
500	Server error
501	Unsupported

3.3.5.1.8.1 Request Body

None.

3.3.5.1.8.2 Response Body

None.

3.3.5.1.8.3 Processing Details

The WOPI server MUST use the **string** provided in the X-WOPI-Lock header to create a lock on a file. When a WOPI client has a lock on a file the WOPI client is able to safely make changes to the file. The lock MUST last for 30 minutes, unless modified by a subsequent WOPI client operation.

3.3.5.1.9 PutRelativeFile

Create a new file on the WOPI server based on the current file.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "PUT_RELATIVE".
X-WOPI-SuggestedTarget	A UTF-7 string specifying either a file extension or a full file name. If only the extension is provided, the name of the initial file without extension SHOULD be combined with the extension to create the proposed name. The WOPI server MUST modify the proposed name as needed to create a new file that is both legally named and does not overwrite any existing file, while preserving the file extension. This header MUST be present if X-WOPI-RelativeTarget is not present.	A string that is a file extension or a full file name.
X-WOPI-RelativeTarget	A UTF-7 string that specifies a full file name. The WOPI server MUST NOT modify the name to fulfill the request. When a file with the specified name already exists, if the	A string that is a full file name.

Request header	Usage	Value
	X-WOPI-OverwriteRelativeTarget request header is set to false, or if the X-WOPI-OverwriteRelativeTarget request header is set to true and the file is locked, the host MUST respond with a 409 status code.	
X-WOPI-OverwriteRelativeTarget	A Boolean value that specifies whether the host MUST overwrite the file name if it exists.	A Boolean value.
X-WOPI-Size	An integer that specifies the size of the file in bytes.	An integer .

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-ValidRelativeTarget	A UTF-7 string provided by the WOPI server that the WOPI client can use as the value of X-WOPI-RelativeTarget in a future PutRelativeFile operation. This header SHOULD only be included when responding with the 409 status code if a file with the specified name already exists.	A string .

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
400	Specified name is illegal
401	Token is invalid
404	File unknown/User unauthorized
409	Target file already exists or the file is locked;
413	File is too large. The maximum size is implementation-specific.
500	Server error
501	Unsupported

3.3.5.1.9.1 Request Body

The binary contents of the file.

3.3.5.1.9.2 Response Body

The response body is JSON (as specified in [\[RFC4627\]](#)) with the following parameters:

JSON:


```
{
  "Name":{"type":"string","optional":false},
  "Url":{"type":"string","default":"","optional":false},
  "HostViewUrl":{"type":"string","default":"","optional":true},
  "HostEditUrl":{"type":"string","default":"","optional":true},
}
```

Name: The name of the file without the path.

URL: A URI that is the WOPI server URI of the newly created file in the form:

HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

Where **id** is the WOPI server's **id** for the new file, and **token** is the WOPI server's credentials token for accessing the new file.

HostViewUrl: A URI to a web page that provides a viewing experience for the new file utilizing the WOPI client.

HostEditUrl: A URI to a web page that provides an editing experience for the new file utilizing the WOPI client.

3.3.5.1.9.3 Processing Details

The WOPI server MUST use the content in the POST body to create a new file. The rules for naming the new file and handling errors are described in the introductory section of this operation.

3.3.5.1.10 PutUserInfo

Stores user information on the WOPI server. [<12>](#)

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "PUT_USER_INFO".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.10.1 Request Body

A **string** that the WOPI server MUST store. If stored, the WOPI server MUST associate it with the current user. The WOPI server SHOULD include this **string** in the UserInfo property

3.3.5.1.10.2 Response Body

None.

3.3.5.1.10.3 Processing Details

The WOPI server MUST store the string passed in the request body and MUST associate it with the current user. The WOPI server MUST include this **string** in the **UserInfo** property when responding to **CheckFileInfo** (see section [3.3.5.1.1](#)) requests for this user.

3.3.5.1.11 ReadSecureStore

Access the WOPI server's implementation of a secure store as specified in [\[MS-SSWPS\]<13>](#). Note that the WOPI client is not required to implement [MS-SSWPS]. However, an understanding of the protocol and the acquisition of information that is part of the protocol is required to use ReadSecureStore.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying requested operation from the WOPI server. Required.	The string "READ_SECURE_STORE".
X-WOPI-ApplicationId	[MS-SSWPS] section 3.1.4.2 describes how a WOPI client obtains the application ID required to access a specific secure store. This value is equal to the appId element of the application element nested under the CreateApplication element. This value is required.	The value of the Application ID.

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.11.1 Request Body

None.

3.3.5.1.11.2 Response Body

The response body is JSON (as specified in [RFC4627](#)) with the following parameters:

JSON:

```
{
  "UserName":{"type":"string","optional":false},
  "Password":{"type":"string","default":"","optional":false},
  "IsWindowsCredentials":{"type":"bool","default":"false","optional":true},
  "IsGroup":{"type":"bool","default":"false","optional":true},
}
```

UserName: The **UserName** (see [\[MS-SSWPS\]](#) section 2.2.5.4).

Password: The **Password** (see [\[MS-SSWPS\]](#) section 2.2.5.4).

IsWindowsCredentials: A **Boolean** value that specifies that **UserName** corresponds to **WindowsUserName** and **Password** corresponds to **WindowsPassword** (see [\[MS-SSWPS\]](#) section 2.2.5.4).

IsGroup: A **Boolean** value that specifies that the secure store application is a **Group** (see [\[MS-SSWPS\]](#) section 2.2.5.5).

3.3.5.1.11.3 Processing Details

The WOPI client MAY use the credentials returned by the WOPI server to access other server types on behalf of the user.

3.3.5.1.12 RefreshLock

Refresh an existing lock for modifying a file.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "REFRESH_LOCK".
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server MUST use to identify the lock on the file. Required.	The string provided by the WOPI client through Lock (see section 3.3.5.1.8).

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server uses to identify the lock on the file. This header MUST be included when responding with the 409 status code if no lock or a different shared lock exists on the file. This header SHOULD NOT be included when responding with the 200 status code.	A string .
X-WOPI-LockedByOtherInterface	A string indicating that the file is currently locked by another client. This header SHOULD be included when responding with the 409 status code if the file is locked	The string "true".

Response header	Usage	Value
	by another client.	

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
409	Lock mismatch/locked by another interface;
500	Server error
501	Unsupported

3.3.5.1.12.1 Request Body

None.

3.3.5.1.12.2 Response Body

None.

3.3.5.1.12.3 Processing Details

Renews an existing lock on a file. The lock **MUST** expire 30 minutes after this operation unless the lock is modified by a subsequent WOPI client operation.

3.3.5.1.13 RenameFile

Renames a file.<14>

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "RENAME_FILE".
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server uses to identify the lock on the file. Required.	The string provided by the WOPI client through Lock (see section 3.3.5.1.8).
X-WOPI-RequestedName	A UTF-7 string that is a full file name. Required.	A string .

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-InvalidFileNameError	A string indicating why the operation failed. There is no standard for how this string is to be formatted. This string MUST NOT be used for anything other than logging. This header SHOULD only be included when responding with the 400 status code.	A string .

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
400	Specified name is illegal
403	User unauthorized
404	File unknown
500	Server error
501	Unsupported file type

3.3.5.1.13.1 Request Body

None.

3.3.5.1.13.2 Response Body

The response body is JSON (as specified in [RFC4627](#)) with the following parameters:

JSON:

```
{
  "Name": {"type": "string", "optional": false}
}
```

Name: The name of the renamed file without the path or **file extension**.

3.3.5.1.13.3 Processing Details

None.

3.3.5.1.14 RevokeRestrictedLink

Revokes all links to a file through which a number of users are able to operate on a file in a limited way. For example, users might be allowed to change a file in the course of filling out a form while not having permission to freely edit the file. This operation will render all links of that type invalid.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying requested operation from the WOPI server. Required.	The string "REVOKE_RESTRICTED_LINK".
X-WOPI-RestrictedLink	A string specifying the type of restricted link being revoked by the WOPI client. The valid values of this string are determined through convention. The only valid value currently is "FORMS".	A string that is a valid value for a restricted link type. For example, "FORMS".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
404	File unknown/User unauthorized
500	Server error
501	Unsupported

3.3.5.1.14.1 Request Body

None.

3.3.5.1.14.2 Response Body

None.

3.3.5.1.14.3 Processing Details

This operation is directly related to the use of the **X-WOPI-UsingRestrictedScenario** HTTP header (section [2.2.1](#)).

3.3.5.1.15 Unlock

Release a lock for editing a file.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "UNLOCK".
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server MUST use to identify the lock on the file. Required.	The string provided by the WOPI client through Lock (see section 3.3.5.1.8).

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server uses to identify the lock on the file. This header SHOULD be included when responding with the 409 status code if no lock or a different shared lock exists on the file. This header SHOULD NOT be included when responding with the 200 status code.	A string .
X-WOPI-LockedByOtherInterface	A string indicating that the file is currently locked by another client. This header SHOULD be included when responding with the 409 status code if the file is locked by another client.	The string "true".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
409	Lock mismatch/locked by another interface;
500	Server error
501	Unsupported

3.3.5.1.15.1 Request Body

None.

3.3.5.1.15.2 Response Body

None.

3.3.5.1.15.3 Processing Details

By releasing a lock, the WOPI client is indicating that it is not making further changes to a file.

3.3.5.1.16 UnlockAndRelock

Release and retake a lock for editing a file. This MUST be an **atomic** operation.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "LOCK".
X-WOPI-Lock	A string provided by the WOPI client that the	A string .

Request header	Usage	Value
	WOPI server MUST use to identify the lock on the file. Required.	
X-WOPI-OldLock	A string previously provided by the WOPI client that the WOPI server MUST have used to identify the lock on the file. Required.	The string provided by the WOPI client through Lock (see section 3.3.5.1.8).

The response message for this operation can contain the following HTTP headers.

Response header	Usage	Value
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server MUST use to identify the lock on the file. This header SHOULD be included when responding with the 409 status code if no lock or a different shared lock exists on the file. This header SHOULD NOT be included when responding with the 200 status code.	A string .
X-WOPI-LockFailureReason	A string indicating why the operation failed. There is no standard for how this string is to be formatted. This string MUST NOT be used for anything other than logging. This header SHOULD only be included when responding with the 409 status code.	A string .
X-WOPI-LockedByOtherInterface	A string indicating that the file is currently locked by another client. This header SHOULD only be included when responding with the 409 status code.	The string "true".

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
409	Lock mismatch/locked by another interface;
500	Server error
501	Unsupported

3.3.5.1.16.1 Request Body

None.

3.3.5.1.16.2 Response Body

None.

3.3.5.1.16.3 Processing Details

The WOPI server uses the X-WOPI-OldLock to identify which lock to release, and the X-WOPI-Lock as the **id** of the new lock. The new lock MUST expire 30 minutes after this operation, unless modified by a subsequent WOPI client action.

3.3.5.2 HTTP://server/<...>/wopi*/folders/<id>

The folder being accessed by WOPI is identified by the following URI:

HTTP://server/<...>/wopi*/folders/<id>

The syntax URI parameters are defined by the following ABNF:

```
id = STRING
```

id: A unique identifier of a folder managed by the WOPI server.

The following operation is allowed to be performed on this resource.

Operation	Description
CheckFolderInfo	Returns information about a folder.

3.3.5.2.1 CheckFolderInfo

Return information about the folder and permissions that the current user has relative to that file.

HTTP Verb: GET

URI: HTTP://server/<...>/wopi*/folders/<id>?access_token=<token>

The following HTTP header can be included with this request.

Header	Description
X-WOPI-SessionContext	The value of the <sc> URI parameter (section 2.2.2).

3.3.5.2.1.1 Request Body

None.

3.3.5.2.1.2 Response Body

The response body is JSON (as specified in [RFC4627](#)) with the following parameters:

JSON:

```
{
  "FolderName":{"type":"string","optional":false},
  "BreadcrumbBrandIconUrl":{"type":"string","default":"","optional":true},
  "BreadcrumbBrandName":{"type":"string","default":"","optional":true},
  "BreadcrumbBrandUrl":{"type":"string","default":"","optional":true},
  "BreadcrumbDocName":{"type":"string","default":"","optional":true},
  "BreadcrumbDocUrl":{"type":"string","default":"","optional":true},
  "BreadcrumbFolderName":{"type":"string","default":"","optional":true},
  "BreadcrumbFolderUrl":{"type":"string","default":"","optional":true},

  "ClientUrl":{"type":"string","default":"","optional":true},
  "CloseButtonClosesWindow":{"type":"bool","default":false,"optional":true},
  "CloseUrl":{"type":"string","default":"","optional":true},
  "FileSharingUrl":{"type":"string","default":"","optional":true},
```

```

"HostAuthenticationId":{"type":"string","default":"","optional":true},
"HostEditUrl":{"type":"string","default":"","optional":true},
"HostEmbeddedEditUrl":{"type":"string","default":"","optional":true},
"HostEmbeddedViewUrl":{"type":"string","default":"","optional":true},
"HostName":{"type":"string","default":"","optional":true},
"HostViewUrl":{"type":"string","default":"","optional":true},
"OwnerId":{"type":"string","optional":false},
"PresenceProvider":{"type":"string","default":"","optional":true},
"PresenceUserId":{"type":"string","default":"","optional":true},
"PrivacyUrl":{"type":"string","default":"","optional":true},
"SignoutUrl":{"type":"string","default":"","optional":true},
"SupportsSecureStore":{"type":"bool","default":false,"optional":true},
"TenantId":{"type":"string","default":"","optional":true},
"TermsOfUseUrl":{"type":"string","default":"","optional":true},
"UserCanWrite":{"type":"bool","default":false,"optional":true},
"UserFriendlyName":{"type":"string","default":"","optional":true},
"UserId":{"type":"string","default":"","optional":true},
"WebEditingDisabled":{"type":"bool","default":false,"optional":true},
}

```

FolderName: The name of the folder without the path. Used for display in the UI.

BreadcrumbBrandIconUrl: A URI to an image that the WOPI client displays to the user as the branding image of the WOPI server.

BreadcrumbBrandName: A **string** that the WOPI client displays to the user that indicates the brand name of the WOPI server.

BreadcrumbBrandUrl: A URI to a web page that the WOPI client navigates to when the user clicks on the UI that displays **BreadcrumbBrandName**.

BreadcrumbDocName: A **string** that the WOPI client displays to the user that indicates the name of the file.

BreadcrumbDocUrl: A URI to a web page that the WOPI client navigates to when the user clicks on the UI that displays **BreadcrumbDocName**.

BreadcrumbFolderName: A **string** that the WOPI client displays to the user that indicates the name of the folder that contains the file.

BreadcrumbFolderUrl: A URI to a web page that the WOPI client navigates to when the user clicks on the UI that displays **BreadcrumbFolderName**.

ClientUrl: A user-accessible URI directly to the folder intended for opening the file through a client. Can be a DAV URL ([RFC5323](#)), but MAY be any URL that can be handled by a client that can open a file of the given type.

CloseButtonClosesWindow: A **Boolean** value that indicates that the WOPI client SHOULD close the browser window containing the output of the WOPI client when the user calls the close UI.

CloseURL: A URI to a web page that the implementer deems useful to a user in the event that the user closes the rendering or editing client currently using this folder.

FileSharingURL: A URI to a location that allows the user to share the file.

HostAuthenticationId: A **string** that is used by the WOPI server to uniquely identify the user.

HostEditUrl: A URI to a web page that provides an editing experience for the folder utilizing the WOPI client.

HostEmbeddedEditUrl: A URI to a web page that provides access to an editing experience for the folder that can be embedded in another HTML page. For example, a page that provides an HTML snippet that can be inserted into the HTML of a blog.

HostEmbeddedViewUrl: A URI to a web page that provides access to a viewing experience for the folder that can be embedded in another HTML page. For example, a page that provides an HTML snippet that can be inserted into the HTML of a blog.

HostName: A **string** that is the name provided by the WOPI server used to identify it for logging and other informational purposes.

HostViewUrl: A URI to a web page that provides a viewing experience for the folder utilizing the WOPI client.

OwnerId: A **string** that SHOULD uniquely identify the owner of the file.

PresenceProvider: A **string** that identifies the provider of information that a WOPI client uses to discover information about the user's online status (for example, whether a user is available via instant messenger). A WOPI client requires knowledge of specific presence providers to be able to take advantage of this value.

PresenceUserId: A **string** that identifies the user in the context of the **PresenceProvider**.

PrivacyUrl: A URI to a webpage that explains the privacy policy of the WOPI server.

SignoutUrl: A URI that will sign the current user out of the WOPI server supported authentication system.

SupportsSecureStore: A **Boolean** value that indicates that the WOPI server supports calls to a secure data store utilizing credentials stored in the file.

TenantId: A **string** that is used by the WOPI server to uniquely identify the **tenant**.

TermsOfUseUrl: A URI to a webpage that explains the terms of use policy of the WOPI server.

UserCanWrite: Indicates that the user has permissions to alter the folder.

UserFriendlyName: A **string** that is the name of the user. If blank, the WOPI client MAY be configured to use a placeholder **string** in some scenarios, or to show no name at all.

UserId: A **string** that is used by the WOPI server to uniquely identify the user.

WebEditingDisabled: A **Boolean** value that indicates that the WOPI client MUST NOT allow the user to use the WOPI client's editing functionality to operate on the file. This does not mean that the user doesn't have rights to edit the file.

3.3.5.2.1.3 Processing Details

The **id** represents the folder that the WOPI server is providing information about. The **token** represents the credentials that the WOPI server MUST use when determining the permissions the WOPI client has when interacting with the folder.

3.3.5.3 HTTP://server/<...>/wopi*/files/<id>/contents

The content of a file being accessed by WOPI is identified by the following URI:

HTTP://server/<...>/wopi*/files/<id>/contents

The syntax URI parameters are defined by the following ABNF:

id = STRING

id: A unique identifier of a file managed by the WOPI server.

The following operations are allowed to be performed on this resource.

Operation	Description
GetFile	Request message to retrieve a file for the HTTP://server/<...>/wopi*/files/<id>/contents operation.
PutFile	Request message to update a file for the HTTP://server/<...>/wopi*/files/<id>/contents operation.

3.3.5.3.1 GetFile

Get a file.

HTTP Verb: GET

URI: HTTP://server/<...>/wopi*/files/<id>/contents?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-MaxExpectedSize	An integer specifying the upper bound of the expected size of the file being requested. Optional. The WOPI server will use the maximum value of a 4-byte integer if this value is not set in the request.	An integer .

The response message for this operation can result in the following status codes.

Status code	Description
200	Success.
401	Token is invalid
404	File unknown/User unauthorized.
500	Server error.

3.3.5.3.1.1 Request Body

None.

3.3.5.3.1.2 Response Body

The binary contents of the file.

3.3.5.3.1.3 Processing Details

The WOPI server MUST return the complete binary of the file identified by <id> in the response body, if the response indicates Success.

3.3.5.3.2 PutFile

Update a file on the WOPI server.

HTTP Verb: POST

URI: HTTP://server/<...>/wopi*/files/<id>/contents?access_token=<token>

The request message for this operation contains the following HTTP headers.

Request header	Usage	Value
X-WOPI-Override	A string specifying the requested operation from the WOPI server. Required.	The string "PUT".
X-WOPI-Lock	A string provided by the WOPI client that the WOPI server used to identify the lock on the file. Required.	The string provided by the WOPI client through Lock (see section 3.3.5.1.8).

The response message for this operation can result in the following status codes.

Status code	Description
200	Success
401	Token is invalid
404	File unknown/User unauthorized
409	Lock mismatch/locked by another interface;
413	File is too large. The maximum file size is implementation-specific.
500	Server error
501	Unsupported

3.3.5.3.2.1 Request Body

The binary contents of the file.

3.3.5.3.2.2 Response Body

None.

3.3.5.3.2.3 Processing Details

The WOPI server MUST update the binary of the file identified by <id> to match the binary contents in the request body, if the response indicates Success. If the file is currently associated with a lock established by the **Lock** operation (see section [3.3.5.1.8](#)) or the **UnlockAndRelock** operation (see section [3.3.5.1.16](#)) the WOPI server MUST provide the matching lock value in order for this operation to succeed.

3.3.5.4 HTTP://server/<...>/wopi*/folders/<id>/children

The contents of a folder being accessed by WOPI are identified by the following URI:

HTTP://server/<...>/wopi*/folders/<id>/children

The syntax URI parameters are defined by the following ABNF:

```
id = STRING
```

id: A unique identifier of a folder managed by the WOPI server.

The following operation is allowed to be performed on this resource.

Operation	Description
EnumerateChildren	Returns a set of URIs that provides access to resources in the folder.

3.3.5.4.1 EnumerateChildren

The **EnumerateChildren** method returns the contents of a folder on the WOPI server.

HTTP Verb: GET

URI: HTTP://server/<...>/wopi*/folders/<id>/children?access_token=<token>

The request message for this operation MAY contain the following HTTP headers.

Request header	Usage	Value
X-WOPI-RelativeTarget	A UTF-7 string that specifies the full file path and file name from the root folder. The WOPI server MUST NOT modify the name to fulfill the request.	A string that is a full file path and file name.

The response message for this operation can result in the following status codes.

Status code	Description
200	Success.
404	Folder unknown/User unauthorized.
500	Server error.
501	Unsupported.

3.3.5.4.1.1 Request Body

None.

3.3.5.4.1.2 Response Body

The response body is JSON (as specified in [\[RFC4627\]](#)) with the following parameters:

JSON:

```

{
  "Children":
  [
    {
      "Name": "<name>",
      "Url": "<url>",
      "Version": "<version>"
    },
    ...
  ]
}

```

Name: The name of the child resource.

Url: The URI of the child resource of the form `http://server/<...>/wopi*/files/<id>?access_token=<token>` where **id** is the WOPI server's unique id of the resource and **token** is the token that provides access to the resource.

Version: The current version of the resource based on the server's file versioning schema. This value MUST change when the file changes and MUST match the value that would be provided by the "Version" field in the response to **CheckFileInfo** (see section [3.3.5.1.1](#)).

3.3.5.4.1.3 Processing Details

The WOPI server returns URLs in the response body JSON that the WOPI client MAY then use to initiate further WOPI operations on the items in the folder.

When the X-WOPI-RelativeTarget header is supplied, only the target name will be returned by this endpoint. If omitted, all children for the root folder will be returned.

3.3.6 Timer Events

None.

3.3.7 Other Local Events

None.

4 Protocol Examples

The following two scenarios show how a WOPI server discovers a WOPI client and how a user can view a document on that WOPI server.

4.1 Additional WOPI Server Documentation

Additional documentation describing how to implement a WOPI server can be found at [\[WOPIOfficeOnline\]](#).

4.2 Accessing Discovery XML

In this scenario, the WOPI server discovers a WOPI client through WOPI Discovery.

A WOPI server administrator uses the administrator console to instruct the WOPI server to request Discovery XML from a WOPI client. Typically, the administrator need only provide the host name of the WOPI client as the specific URI will always be `http://server/hosting/discovery`.

The WOPI server makes the request to `http://server/hosting/discovery` and receives the Discovery XML. Based on the content of the Discovery XML, the WOPI server is now able to offer viewing of .docx files through the WOPI client.

The WOPI server updates its UI to reflect this new functionality.

Request from WOPI server:

```
GET http://WOPIClient/hosting/discovery HTTP/1.1
```

Response from WOPI client:

```
<?xml version="1.0" encoding="utf-8"?>
<wopi-discovery>
<net-zone name="internal-http">
  <app name="Word" faviconUrl="http://WOPIClient/wv/resources/1033/FavIcon Word.ico"
  checkLicense="true">
    .....
    <action name="view" ext="docx" default="true"
    urlsrc="http://WOPIClient/wv/wordviewerframe.aspx?&lt;ui=UI_LLCC&amp;&gt;&lt;rs=DC_LLCC&amp;&
    gt;&lt;showpagestats=PERFSTATS&amp;&gt;" />
    .....
    <action name="edit" ext="docx" requires="locks,cobalt,update"
    urlsrc="http://WOPIClient/we/wordeditorframe.aspx?&lt;ui=UI_LLCC&amp;&gt;&lt;rs=DC_LLCC&amp;&
    gt;&lt;showpagestats=PERFSTATS&amp;&gt;" />
    .....
    <action name="editnew" ext="docx" requires="locks,cobalt,update"
    urlsrc="http://WOPIClient/we/wordeditorframe.aspx?new=1&amp;&lt;ui=UI_LLCC&amp;&gt;&lt;rs=DC
    LLCC&amp;&gt;&lt;showpagestats=PERFSTATS&amp;&gt;" />
    .....
    <action name="imagepreview" ext="docx"
    urlsrc="http://WOPIClient/wv/WordPreviewHandler.ashx?&lt;ui=UI_LLCC&amp;&gt;&lt;rs=DC_LLCC&am
    p;&gt;&lt;showpagestats=PERFSTATS&amp;&gt;" />
    .....
    <action name="interactivepreview" ext="docx"
    urlsrc="http://WOPIClient/wv/wordviewerframe.aspx?embed=1&amp;&lt;ui=UI_LLCC&amp;&gt;&lt;rs=D
    C_LLCC&amp;&gt;&lt;showpagestats=PERFSTATS&amp;&gt;" />
    .....
    <action name="mobileView" ext="docx"
    urlsrc="http://WOPIClient/wv/wordviewerframe.aspx?&lt;ui=UI_LLCC&amp;&gt;&lt;rs=DC_LLCC&amp;&
    gt;&lt;showpagestats=PERFSTATS&amp;&gt;" />
    .....
```


GetFile response from WOPI server:

```
<?xml version="1.0"?>
<Pages>
  <Page id="1">
    <Header>
      <P storyId="2" id="6C2D515C">
        <CN/>
        <T id="0" l="96.1" t="49.4" w="9" h="15" b="1" cw=",7;"> </T>
      </P>
    </Header>
    <Footer>
      <P storyId="3" id="4F36214B">
        <CN/>
        <T id="1" l="96.1" t="992.2" w="9" h="15" b="1" cw=",7;"> </T>
      </P>
    </Footer>
    <P storyId="1" id="4F75DE7D">
      <T id="2" l="96.1" t="97.4" w="33" h="15" b="1" cw="410,4;286,6;400,5;410,3;,7;">test
    </T>
  </P>
</Page>
</Pages>
```

5 Security

5.1 Security Considerations for Implementers

The WOPI protocol uses a token to pass credentials from between the WOPI server, the WOPI client, and the user client (for example, a browser). This token is a **string** and, if compromised, allows anyone with the token and information about the file to act as the original user in the context of that single file. To protect this token, use HTTPS for all WOPI network traffic.

5.2 Index of Security Parameters

None.

6 Appendix A: Full XML Schema

For ease of implementation, the following is the full XML schema for this protocol.

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema id="Discovery"
  targetNamespace="http://tempuri.org/Discovery.xsd"
  elementFormDefault="qualified"
  xmlns="http://tempuri.org/Discovery.xsd"
  xmlns:mstns="http://tempuri.org/Discovery.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
>
  <xs:simpleType name="st_wopi-action-values">
    <xs:restriction base="xs:string">
      <xs:enumeration value="view" />
      <xs:enumeration value="edit" />
      <xs:enumeration value="mobileView" />
      <xs:enumeration value="embedview" />
      <xs:enumeration value="embededit" />
      <xs:enumeration value="mobileclient" />
      <xs:enumeration value="present" />
      <xs:enumeration value="presentservice" />
      <xs:enumeration value="attend" />
      <xs:enumeration value="attendservice" />
      <xs:enumeration value="editnew" />
      <xs:enumeration value="imagepreview" />
      <xs:enumeration value="interactivepreview" />
      <xs:enumeration value="formsubmit" />
      <xs:enumeration value="formedit" />
      <xs:enumeration value="rest" />
      <xs:enumeration value="preloadview" />
      <xs:enumeration value="preloadedit" />
      <xs:enumeration value="rtc" />
      <xs:enumeration value="getinfo" />
      <xs:enumeration value="convert" />
      <xs:enumeration value="syndicate" />
      <xs:enumeration value="legacywebservice" />
      <xs:enumeration value="collab" />
      <xs:enumeration value="formpreview" />
      <xs:enumeration value="documentchat" />
    </xs:restriction>
  </xs:simpleType>

  <xs:simpleType name="st_wopi-action-requirements">
    <xs:restriction base="xs:string">
      <xs:pattern
value="/^((update|locks|cobalt|containers)\s*(,\s*|$))*((update|locks|cobalt|containers)\s*$)
/" />
    </xs:restriction>
  </xs:simpleType>

  <xs:simpleType name="st_wopi-url-source">
    <xs:restriction base="xs:string">
      <xs:pattern value="REGEX FOR URI" />
    </xs:restriction>
  </xs:simpleType>

  <xs:complexType name="ct_wopi-action">
    <xs:attribute name="name" use="required" type="st_wopi-action-values"/>
    <xs:attribute name="default" type="xs:boolean" default="false"/>
    <xs:attribute name="requires" type="st_wopi-action-requirements"/>
    <xs:attribute name="urlsrc" use="required" type="st_wopi-url-source"/>
    <xs:attribute name="ext" type="xs:string" use="optional"/>
    <xs:attribute name="progid" type="xs:string" use="optional"/>
    <xs:attribute name="newprogid" type="xs:string" use="optional"/>
    <xs:attribute name="newext" type="xs:string" use="optional"/>
    <xs:attribute name="useParent" type="xs:boolean" default="false"/>
  </xs:complexType>

```

```

    <xs:attribute name="targettext" type="xs:string" use="optional"/>
</xs:complexType>

<xs:simpleType name="st_wopi-zone">
  <xs:restriction base="xs:string">
    <xs:enumeration value="internal-http" />
    <xs:enumeration value="internal-https" />
    <xs:enumeration value="external-http" />
    <xs:enumeration value="external-https" />
  </xs:restriction>
</xs:simpleType>

<xs:complexType name="ct_net-zone">
  <xs:sequence>
    <xs:element name="app" minOccurs="1" maxOccurs="unbounded" type="ct_app-name"/>
  </xs:sequence>
  <xs:attribute name="name" type="mstns:st_wopi-zone"/>
</xs:complexType>

<xs:complexType name="ct_wopi-discovery">
  <xs:sequence>
    <xs:element name="net-zone" minOccurs="1" maxOccurs="4" type="ct_net-zone"/>
    <xs:element name="proof-key" minOccurs="0" maxOccurs="1" type="ct_proof-key"/>
  </xs:sequence>
</xs:complexType>

<xs:element name="wopi-discovery" minOccurs="1" maxOccurs="1" type="ct_wopi-discovery"/>

<xs:complexType name="ct_app-name">
  <xs:sequence>
    <xs:element name="action" minOccurs="1" maxOccurs="unbounded"
      type="ct_wopi-action"/>
  </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required"/>
  <xs:attribute name="favIconUrl" type="xs:string" use="optional"/>
  <xs:attribute name="checkLicense" type="xs:boolean" use="optional"
    default="false"/>
</xs:complexType>

<xs:complexType name="ct_proof-key">
  <xs:attribute name="exponent" type="xs:string" use="required"/>
  <xs:attribute name="modulus" type="xs:string" use="required"/>
  <xs:attribute name="oldexponent" type="xs:string" use="required"/>
  <xs:attribute name="oldmodulus" type="xs:string" use="required"/>
  <xs:attribute name="oldvalue" type="xs:string" use="required"/>
  <xs:attribute name="value" type="xs:string" use="required"/>
</xs:complexType>

</xs:schema>

```

7 Appendix B: Full JSON Schema

For ease of implementation, the following sections provide the full JSON schema for this protocol.

Schema name	Section
CheckFileInfo JSON	7.1
CheckFolderInfo JSON	7.2
EnumerateChildren JSON	7.3
PutRelativeFile JSON	7.4

7.1 CheckFileInfo JSON

```
{
  "AllowExternalMarketplace": {"type": "bool", "default": false, "optional": true},
  "BaseFileName": {"type": "string", "optional": false},
  "BreadcrumbBrandName": {"type": "string", "default": "", "optional": true},
  "BreadcrumbBrandUrl": {"type": "string", "default": "", "optional": true},
  "BreadcrumbDocName": {"type": "string", "default": "", "optional": true},
  "BreadcrumbDocUrl": {"type": "string", "default": "", "optional": true},
  "BreadcrumbFolderName": {"type": "string", "default": "", "optional": true},
  "BreadcrumbFolderUrl": {"type": "string", "default": "", "optional": true},
  "ClientUrl": {"type": "string", "default": "", "optional": true},
  "CloseButtonClosesWindow": {"type": "bool", "default": false, "optional": true},
  "ClosePostMessage": {"type": "bool", "default": false, "optional": true},
  "CloseUrl": {"type": "string", "default": "", "optional": true},
  "DisableBrowserCachingOfUserContent": {"type": "bool", "default": false, "optional": true},
  "DisablePrint": {"type": "bool", "default": false, "optional": true},
  "DisableTranslation": {"type": "bool", "default": false, "optional": true},
  "DownloadUrl": {"type": "string", "default": "", "optional": true},
  "EditAndReplyUrl": {"type": "string", "default": "", "optional": true},
  "EditModePostMessage": {"type": "bool", "default": false, "optional": true},
  "EditNotificationPostMessage": {"type": "bool", "default": false, "optional": true},
  "FileExtension": {"type": "string", "default": "", "optional": true},
  "FileNameMaxLength": {"type": "integer", "default": 250, "optional": true},
  "FileSharingPostMessage": {"type": "bool", "default": false, "optional": true},
  "FileSharingUrl": {"type": "string", "default": "", "optional": true},
  "FileUrl": {"type": "string", "default": "", "optional": true},
  "HostAuthenticationId": {"type": "string", "default": "", "optional": true},
  "HostEditUrl": {"type": "string", "default": "", "optional": true},
  "HostEmbeddedEditUrl": {"type": "string", "default": "", "optional": true},
  "HostEmbeddedViewUrl": {"type": "string", "default": "", "optional": true},
  "HostName": {"type": "string", "default": "", "optional": true},
  "HostNotes": {"type": "string", "default": "", "optional": true},
  "HostRestUrl": {"type": "string", "default": "", "optional": true},
  "HostViewUrl": {"type": "string", "default": "", "optional": true},
  "IrmPolicyDescription": {"type": "string", "default": "", "optional": true},
  "IrmPolicyTitle": {"type": "string", "default": "", "optional": true},
  "LicenseCheckForEditIsEnabled": {"type": "bool", "default": false, "optional": true},
  "OwnerId": {"type": "string", "optional": false},
  "PostMessageOrigin": {"type": "string", "default": "", "optional": true},
  "PresenceProvider": {"type": "string", "default": "", "optional": true},
  "PresenceUserId": {"type": "string", "default": "", "optional": true},
  "PrivacyUrl": {"type": "string", "default": "", "optional": true},
  "ProtectInClient": {"type": "bool", "default": false, "optional": true},
  "ReadOnly": {"type": "bool", "default": false, "optional": true},
  "RestrictedWebViewOnly": {"type": "bool", "default": false, "optional": true},
  "SHA256": {"type": "string", "optional": true},
  "SignInUrl": {"type": "string", "default": "", "optional": true},
  "SignoutUrl": {"type": "string", "default": "", "optional": true},
  "Size": {"type": "int", "optional": false},
}
```

```

"SupportsCoauth":{"type":"bool","default":false,"optional":true},
"SupportsCobalt":{"type":"bool","default":false,"optional":true},
"SupportsExtendedLockLength":{"type":"bool","default":false,"optional":true},
"SupportsFileCreation":{"type":"bool","default":false,"optional":true},
"SupportsFolders":{"type":"bool","default":false,"optional":true},
"SupportsGetLock":{"type":"bool","default":false,"optional":true},
"SupportsLocks":{"type":"bool","default":false,"optional":true},
"SupportsRename":{"type":"bool","default":false,"optional":true},
"SupportsScenarioLinks":{"type":"bool","default":false,"optional":true},
"SupportsSecureStore":{"type":"bool","default":false,"optional":true},
"SupportsUpdate":{"type":"bool","default":false,"optional":true},
"SupportsUserInfo":{"type":"bool","default":false,"optional":true},
"TenantId":{"type":"string","default":"","optional":true},
"TermsOfUseUrl":{"type":"string","default":"","optional":true},
"TimeZone":{"type":"string","default":"","optional":true},
"UniqueContentId":{"type":"string","default":"","optional":true},
"UserCanAttend":{"type":"bool","default":false,"optional":true},
"UserCanNotWriteRelative":{"type":"bool","default":false,"optional":true},
"UserCanPresent":{"type":"bool","default":false,"optional":true},
"UserCanRename":{"type":"bool","default":false,"optional":true},
"UserCanWrite":{"type":"bool","default":false,"optional":true},
"UserFriendlyName":{"type":"string","default":"","optional":true},
"UserId":{"type":"string","default":"","optional":true},
"UserInfo":{"type":"string","default":"","optional":true},
"Version":{"type":"string","optional":false},
"WebEditingDisabled":{"type":"bool","default":false,"optional":true}
}

```

7.2 CheckFolderInfo JSON

```

{
  "FolderName":{"type":"string","optional":false},
  "BreadcrumbBrandIconUrl":{"type":"string","default":"","optional":true},
  "BreadcrumbBrandName":{"type":"string","default":"","optional":true},
  "BreadcrumbBrandUrl":{"type":"string","default":"","optional":true},
  "BreadcrumbDocName":{"type":"string","default":"","optional":true},
  "BreadcrumbDocUrl":{"type":"string","default":"","optional":true},
  "BreadcrumbFolderName":{"type":"string","default":"","optional":true},
  "BreadcrumbFolderUrl":{"type":"string","default":"","optional":true},
  "ClientUrl":{"type":"string","default":"","optional":true},
  "CloseButtonClosesWindow":{"type":"bool","default":false,"optional":true},
  "CloseUrl":{"type":"string","default":"","optional":true},
  "HostAuthenticationId":{"type":"string","default":"","optional":true},
  "HostEditUrl":{"type":"string","default":"","optional":true},
  "HostEmbeddedEditUrl":{"type":"string","default":"","optional":true},
  "HostEmbeddedViewUrl":{"type":"string","default":"","optional":true},
  "HostName":{"type":"string","default":"","optional":true},
  "HostViewUrl":{"type":"string","default":"","optional":true},
  "OwnerId":{"type":"string","optional":false},
  "PresenceProvider":{"type":"string","default":"","optional":true},
  "PresenceUserId":{"type":"string","default":"","optional":true},
  "PrivacyUrl":{"type":"string","default":"","optional":true},
  "SignoutUrl":{"type":"string","default":"","optional":true},
  "SupportsSecureStore":{"type":"bool","default":false,"optional":true},
  "TenantId":{"type":"string","default":"","optional":true},
  "TermsOfUseUrl":{"type":"string","default":"","optional":true},
  "UserCanWrite":{"type":"bool","default":false,"optional":true},
  "UserFriendlyName":{"type":"string","default":"","optional":true},
  "UserId":{"type":"string","default":"","optional":true},
  "WebEditingDisabled":{"type":"bool","default":false,"optional":true},
}

```

7.3 EnumerateChildren JSON

```
{
  "Children":
  [{
    "Name": "<name>",
    "Url": "<url>",
    "Version": "<version>"
  },
]
```

7.4 PutRelativeFile JSON

```
{
  "Name": {"type": "string", "optional": false},
  "Url": {"type": "string", "default": "", "optional": false},
  "HostViewUrl": {"type": "string", "default": "", "optional": true},
  "HostEditUrl": {"type": "string", "default": "", "optional": true},
}
```


8 Appendix C: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Microsoft Lync Server 2013
- Microsoft Exchange Server 2013
- Microsoft Office Web Apps Server
- Microsoft SharePoint Server 2013
- Microsoft SharePoint Foundation 2013
- Office Online Server
- Microsoft Skype for Business Server 2015
- Microsoft SharePoint Server 2016

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

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

[<1> Section 3.3.5.1.1.2](#): SharePoint Server 2013 does not support the **ClosePostMessage** field.

[<2> Section 3.3.5.1.1.2](#): SharePoint Server 2013 and SharePoint Server 2016 do not support the **FileExtension** field.

[<3> Section 3.3.5.1.1.2](#): SharePoint Server 2013 and SharePoint Server 2016 do not provide the **SHA256** field and set this field to empty.

[<4> Section 3.3.5.1.1.2](#): SharePoint Server 2013 returns the value false for the **SupportsCoauth** field.

[<5> Section 3.3.5.1.1.2](#): SharePoint Server 2013 and SharePoint Server 2016 do not support the **SupportsExtendedLockLength** field.

[<6> Section 3.3.5.1.1.2](#): SharePoint Server 2013 does not support the **SupportsFileCreation** field.

[<7> Section 3.3.5.1.1.2](#): SharePoint Server 2013 and SharePoint Server 2016 do not support the **SupportsGetLock** field.

[<8> Section 3.3.5.1.1.2](#): SharePoint Server 2013 does not support the **SupportsRename** field.

[<9> Section 3.3.5.1.1.2](#): SharePoint Server 2013 and SharePoint Server 2016 do not support the **SupportsUserInfo** field.

[<10> Section 3.3.5.1.1.2](#): SharePoint Server 2013 and SharePoint Server 2016 do not provide the **UniqueContentId** field and set this field to empty.

[<11> Section 3.3.5.1.5](#): SharePoint Server 2013 and SharePoint Server 2016 do not support the **GetLock** operation.

[<12> Section 3.3.5.1.10](#): SharePoint Server 2013 and SharePoint Server 2016 do not support the **PutUserInfo** operation.

[<13> Section 3.3.5.1.11](#): SharePoint Foundation 2013 does not support the **ReadSecureStore** operation.

[<14> Section 3.3.5.1.13](#): SharePoint Server 2013 does not support the **RenameFile** operation.

9 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

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

- A document revision that incorporates changes to interoperability requirements.
- A document revision that captures changes to protocol functionality.

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

The revision class **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

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

Section	Description	Revision class
3.1.5.1.1.2.2.4 ct_wopi-action	Updated the ct_wopi-action type to include a targettext attribute.	Major
3.1.5.1.1.2.3.1 st_wopi-action-values	Updated the st_wopi-action-values type to include actions convert, syndicate, legacywebservice, collab, formpreview, and documentchat.	Major
6 Appendix A: Full XML Schema	Updated the ct_wopi-action type to include a targettext attribute.	Major
6 Appendix A: Full XML Schema	Updated the st_wopi-action-values type to include actions convert, syndicate, legacywebservice, collab, formpreview and documentchat.	Major
8 Appendix C: Product Behavior	Updated the applicable products to include Office Web Apps Server and Office Online Server.	Major

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