[MS-FILESYNC]:

File Synchronization Protocol

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version of this technology, there are risks in relying on this preliminary documentation. To the extent that you incur additional development obligations or any other costs as a result of relying on this preliminary documentation, you do so at your own risk.

Revision Summary

Date	Revision History	Revision Class	Comments
7/24/2018	0.1	New	Released new document.
8/2/2018	0.1	None	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1 Introduction

The File Synchronization Protocol specifies the communication required between client to service to help replicate files stored on the service onto the local machine, and how to ensure the files are in sync with the service.

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

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.

[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

[RFC2822] Resnick, P., Ed., "Internet Message Format", RFC 2822, April 2001, http://www.ietf.org/rfc/rfc2822.txt

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

[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

None.

1.3 Overview

For a client to replicate files on a service to a local machine, the client must be able to perform a set of different actions.

Typical scenarios for using this protocol is to start the initial sync of a collection of files and folders onto a local machine, and to ensure any changes made locally or on the service and are replicated onto the other endpoint.

This protocol documentation will go into the details of how a client can:

- Authenticate against the service
- Discover and locate file store locations on the service
- Obtain specific settings from the service
- Register for notifications on changes to the files in the service
- Upload and download of files to and from the service

1.4 Relationship to Other Protocols

This protocol uses the XML message protocol for formatting request and response messages as described in [XMLSCHEMA1]. It transmits those messages by using HTTP, as described in [RFC2616] or Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS), as described in [RFC2818].

1.5 Prerequisites/Preconditions

This protocol operates against a Sharepoint server that is identified by a URL that is known by protocol clients.

TODO_URL_DETAILS

1.6 Applicability Statement

This protocol is designed to sync a user defined file system between local and cloud storage.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

Protocol servers MUST support XML over HTTP. Protocol servers SHOULD additionally support XML over HTTPS for securing communication with clients.

Protocol messages MUST be formatted as specified in [XMLSCHEMA1]. Protocol server faults MUST be returned either using HTTP Status Codes, as specified in [RFC2616] section 10.

2.2 Common Data Types

This protocol specifies the following types as XML attribute values:

Binary: A base64-encoded string representation of the binary data, as defined in [RFC4648].

Hex String: A hexadecimal string attribute MUST consist of characters in the ranges 0 through 9 and "A" through "F". Hexadecimal strings MUST be compared as hexadecimal numbers.

Int: An **Int** attribute MUST be a decimal string representation of an integer in the range 0 through 2,147,483,647.

Null: A **Null** attribute that MUST be an empty string.

String: A **Unicode** string.

2.2.1 Simple Types

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

Simple Type	Description
Folder	Defines a resource object. **MUST** be used as the root element of any XML.
ItemType	String value declares the type of item in this entry. Possible values include "Folder" and (Coming soon!)
ResourceID	Value is a GUID assigned to the defined resource.
ETag	Description not available.
DateCreated	Value defines the date that this resource object was created.
DateModified	Value defines the date that this resource object was last modified.
Path	Relative file path of resource object with respect to the root folder.
Items	Contains the subset of resource objects contained in the root folder.
RelationshipName	Contains the display name of the resource object
ParentResourceID	Contains the ResourceID of the parent containing this resource object.
TotalSubItemSize	Total size of the resource object.
QuotaState	Defines the quota state of the root folder. Values include "Unknown", "Normal", "Nearing", "Critical", "Full" and "OverLimit".
SpaceUsed	Defines the space used by the resource object in bytes.

Simple Type	Description
SpaceGranted	Description not available.

3 Protocol Details

3.1 Client Details

In the following sections, the schema definition might differ from the processing rules imposed by the protocol. The WSDL in this specification matches the WSDL that shipped with the product and provides a base description of the schema. The text that introduces the WSDL might specify differences that reflect actual Microsoft product behavior. For example, the schema definition might allow for an element to be **empty**, **null**, or **not present** but the behavior of the protocol as specified restricts the same elements to being **non-empty**, **not null**, and **present**.
This protocol is a client-based protocol that communicates with an On-Premises SharePoint Server to sync files between a local system and the cloud. The protocol does so through a series of HTTP GET and SET requests that contain XML payloads defining resource objects shared between the endpoints.

3.1.1 Abstract Data Model

Not available.

3.1.2 Timers

Not available.

3.1.3 Initialization

Client initialization contains a series of HTTP, GET, and POST communications known as the first run. During the first run the client syncs with the OnPremises SharePoint server, authenticates the user's credentials, downloads the **ClientPolicy** and the **DefaultDocumentLib** and downloads or uploads files as needed from the server. The list of HTTP requests can be found in the following table:

HTTP Request	Description
GET https://<serverurl>/	Authenticates a user against On-Premises SharePoint Server. There will be several back and forth requests and responses depending on the authorization scheme being used.
GET https://<serverurl>/_api/sp.userprofiles.peoplemanager/getmyproperties	Gets properties of a user logged into local client to determine my site URL. Gets a response as XML.
GET https://<serverurl>/personal/<useralias>/_api/web/DefaultDocumentLibrary/ID	Gets the relative path to a user's my site.
GET https://<serverurl>/personal/<useralias>/_api/Site/Id	Gets a user's my site ID.
GET https://<serverurl>/personal/<useralias>/_api/SPFileSync/sync/be100e28-dd1c-4f2f-8e83-acdb6fffff05/policy/	Gets a user's my site global client policy as an XML response.
GET https://<serverurl>/personal/<useralias>/_api/SPFileSync/sync/be100e28dd1c4f2f8e83acdb6fffff05/policy/	Gets the server specific client policy for a user's my site as an XML response.
GET https://<serverurl>/personal/<useralias>/_api/SPFileSync/sync/be100e28dd1c4f2f8e83acdb6fffff05/RootFolder	Gets a user's my site's root folder properties as an XML response.
GET https://<serverurl>/personal/<useralias>/_api/SPFileSync/sync/be100e28dd1c4f2f8e83acdb6fffff05/Items/eb99ad0e96e64d1fb3547dff4fddbfa0?View=SkyDriveSync&Depth=0&FoldersOnly=true&web3s.paging=0,100	These requests in tandem recursively retrieve all folder data on the server.

HTTP Request	Description
GET https://<serverurl>/personal/<useralias>/_api/SPFileSync/sync/be100e28dd1c4f2f8e83acdb6fffff05/RootFolder?web3s.expand=QuotaState	
POST https://<server url>/personal/<useralias>/_api/spfilesync/sync/be100e28dd1c4f2f8e83acdb6fffff05/Subscription	Subscribes to web push notifications from SharePoint Server for future changes.

3.1.4 Higher-Layer Triggered Events

Not available.

3.1.5 Message Processing Events and Sequencing Rules

Not available.

3.1.5.1 [Insert Resource Identifier here]

Not available.

3.1.5.1.1 [Insert HTTP Method Name here]

Not available.

3.1.5.1.1.1 Request Body

Not available.

3.1.5.1.1.2 Response Body

Not available.

3.1.5.1.1.3 Processing Details

Not available.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

Not available.

4 Protocol Examples

Not available.

5 Security

5.1 Security Considerations for Implementers

There are no security considerations that are specific to this protocol. General security considerations pertaining to [RFC2822] apply.

This protocol does not introduce any additional security considerations beyond those that apply to its underlying protocols.

5.2 Index of Security Parameters

None.

6 Appendix A: Full XML Schema

None.

7 Appendix B: Product Behavior

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

Microsoft SharePoint Server 2019 Preview

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.

8 Change Tracking

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

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