

[MS-STSSYN]:

StsSync Data Structure

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation (“this documentation”) for protocols, file formats, data portability, computer languages, and standards support. Additionally, overview documents cover inter-protocol relationships and interactions.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you can make copies of it in order to develop implementations of the technologies that are described in this documentation and can distribute portions of it in your implementations that use these technologies or in your documentation as necessary to properly document the implementation. You can also distribute in your implementation, with or without modification, any schemas, IDLs, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications documentation.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that might cover your implementations of the technologies described in the Open Specifications documentation. Neither this notice nor Microsoft's delivery of this documentation grants any licenses under those patents or any other Microsoft patents. However, a given Open Specifications document might be covered by the Microsoft [Open Specifications Promise](#) or the [Microsoft Community Promise](#). If you would prefer a written license, or if the technologies described in this documentation are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **License Programs.** To see all of the protocols in scope under a specific license program and the associated patents, visit the [Patent Map](#).
- **Trademarks.** The names of companies and products contained in this documentation might be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights. For a list of Microsoft trademarks, visit www.microsoft.com/trademarks.
- **Fictitious Names.** The example companies, organizations, products, domain names, email addresses, logos, people, places, and events that are depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than as specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications documentation does not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments, you are free to take advantage of them. Certain Open Specifications documents are intended for use in conjunction with publicly available standards specifications and network programming art and, as such, assume that the reader either is familiar with the aforementioned material or has immediate access to it.

Support. For questions and support, please contact dochelp@microsoft.com.

Preliminary Documentation. This particular Open Specifications document provides documentation for past and current releases and/or for the pre-release version of this technology. This document provides final documentation for past and current releases and preliminary documentation, as applicable and specifically noted in this document, for the pre-release version. Microsoft will release final documentation in connection with the commercial release of the updated or new version of this technology. Because this documentation might change between the pre-release version and the final

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.

Preliminary

Revision Summary

Date	Revision History	Revision Class	Comments
4/4/2008	0.1	New	Initial Availability
6/27/2008	1.0	Major	Revised and edited the technical content
12/12/2008	1.01	Editorial	Revised and edited the technical content
7/13/2009	1.02	Major	Changes made for template compliance
8/28/2009	1.03	Editorial	Revised and edited the technical content
11/6/2009	1.04	Editorial	Revised and edited the technical content
2/19/2010	2.0	Editorial	Revised and edited the technical content
3/31/2010	2.01	Editorial	Revised and edited the technical content
4/30/2010	2.02	Editorial	Revised and edited the technical content
6/7/2010	2.03	Editorial	Revised and edited the technical content
6/29/2010	2.04	Minor	Clarified the meaning of the technical content.
7/23/2010	2.04	None	No changes to the meaning, language, or formatting of the technical content.
9/27/2010	2.04	None	No changes to the meaning, language, or formatting of the technical content.
11/15/2010	2.04	None	No changes to the meaning, language, or formatting of the technical content.
12/17/2010	2.04	None	No changes to the meaning, language, or formatting of the technical content.
3/18/2011	2.04	None	No changes to the meaning, language, or formatting of the technical content.
6/10/2011	2.04	None	No changes to the meaning, language, or formatting of the technical content.
1/20/2012	2.5	Minor	Clarified the meaning of the technical content.
4/11/2012	2.5	None	No changes to the meaning, language, or formatting of the technical content.
7/16/2012	2.5	None	No changes to the meaning, language, or formatting of the technical content.
9/12/2012	2.5	None	No changes to the meaning, language, or formatting of the technical content.
10/8/2012	2.5	None	No changes to the meaning, language, or formatting of the technical content.
2/11/2013	2.5	None	No changes to the meaning, language, or formatting of the technical content.
7/30/2013	2.6	Minor	Clarified the meaning of the technical content.
11/18/2013	2.6	None	No changes to the meaning, language, or formatting of the

Date	Revision History	Revision Class	Comments
			technical content.
2/10/2014	2.6	None	No changes to the meaning, language, or formatting of the technical content.
4/30/2014	2.6	None	No changes to the meaning, language, or formatting of the technical content.
7/31/2014	2.6	None	No changes to the meaning, language, or formatting of the technical content.
10/30/2014	2.6	None	No changes to the meaning, language, or formatting of the technical content.
3/16/2015	3.0	Major	Significantly changed the technical content.
9/4/2015	3.0	None	No changes to the meaning, language, or formatting of the technical content.
7/15/2016	3.0	None	No changes to the meaning, language, or formatting of the technical content.
9/14/2016	3.0	None	No changes to the meaning, language, or formatting of the technical content.
7/24/2018	4.0	Major	Significantly changed the technical content.

Table of Contents

1	Introduction	6
1.1	Glossary	6
1.2	References	6
1.2.1	Normative References	6
1.2.2	Informative References	7
1.3	Overview	7
1.4	Relationship to Protocols and Other Structures	7
1.5	Applicability Statement	7
1.6	Versioning and Localization	7
1.7	Vendor-Extensible Fields	7
2	Structures	8
2.1	StsSync Data Structure	8
2.2	Special Character Escaping	8
3	Structure Examples	10
3.1	Personal Contacts List	10
3.2	Upcoming Events Calendar	10
3.3	Expenses Folder Contents	10
4	Security	11
4.1	Security Considerations for Implementers	11
4.2	Index of Security Parameters	11
5	Appendix A: Product Behavior	12
6	Change Tracking	13
7	Index	14

1 Introduction

The StsSync Data Structure is a compact string format used to encode parameters necessary to connect to a remote list.

Sections 1.7 and 2 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.

globally unique identifier (GUID): A term used interchangeably with universally unique identifier (UUID) in Microsoft protocol technical documents (TDs). Interchanging the usage of these terms does not imply or require a specific algorithm or mechanism to generate the value. Specifically, the use of this term does not imply or require that the algorithms described in [\[RFC4122\]](#) or [\[C706\]](#) must be used for generating the **GUID**. See also universally unique identifier (UUID).

item identifier: An integer that uniquely identifies an item in a SharePoint list.

Unicode: A character encoding standard developed by the Unicode Consortium that represents almost all of the written languages of the world. The **Unicode** standard [\[UNICODE5.0.0/2007\]](#) provides three forms (UTF-8, UTF-16, and UTF-32) and seven schemes (UTF-8, UTF-16, UTF-16 BE, UTF-16 LE, UTF-32, UTF-32 LE, and UTF-32 BE).

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 [\[RFC3986\]](#).

Uniform Resource Locator (URL): A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [\[RFC1738\]](#).

user identifier: An integer that uniquely identifies a security principal as distinct from all other security principals and site groups within the same site collection.

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

1.2 References

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

1.2.1 Normative References

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

[MS-LISTSWS] Microsoft Corporation, "[Lists Web Service Protocol](#)".

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

[RFC3986] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, January 2005, <http://www.rfc-editor.org/rfc/rfc3986.txt>

[RFC5234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, January 2008, <http://www.rfc-editor.org/rfc/rfc5234.txt>

1.2.2 Informative References

[MS-OSALER] Microsoft Corporation, "[Alerts Interoperability Protocol](#)".

[MS-OUTSPS] Microsoft Corporation, "[Lists Client Sync Protocol](#)".

1.3 Overview

The StsSync structure provides a syntax for the "stssync" scheme of **Uniform Resource Identifiers (URI)**. This structure encapsulates the parameters required to use the Lists Web Service Protocol, as described in [\[MS-LISTSWS\]](#) to access data from a remote list residing on a server. The server can produce an StsSync structure URI for a list and transmit this URI to clients. When a client processes the URI it has all the information required to communicate with the server via the Lists Web Service Protocol. This structure extends URI generic syntax, as described in [\[RFC3986\]](#).

1.4 Relationship to Protocols and Other Structures

This structure provides a means to encapsulate the parameters necessary to access a list using the Lists Web Service Protocol, as described in [\[MS-LISTSWS\]](#). This structure is also used to configure the relationship for the Lists Client Sync Protocol, as described in [\[MS-OUTSPS\]](#) and in an optional header in the Alerts Interoperability Protocol, as described in [\[MS-OSALER\]](#).

1.5 Applicability Statement

This structure is implemented by servers and clients that implement the Lists Web Service Protocol, as described in [\[MS-LISTSWS\]](#).

1.6 Versioning and Localization

None.

1.7 Vendor-Extensible Fields

None.

2 Structures

2.1 StsSync Data Structure

This structure specifies the syntax for the "stssync" URI scheme. This structure MUST be able to be represented as an **ASCII** string.

The scheme specific-part is a series of field-value pairs as follows:

```
stssync://sts/?ver=version&type=folder-type&cmd=command-name&base-url=sts-url&guid=the-guid&site-name=site-friendly-name&list-name=list-friendly-name&list-url=list-url&user-id=uid&folder-url=relative-url&folder-id=id
```

The fields specify properties about a remote list accessible via the [\[MS-LISTSWS\]](#) protocol. Fields can appear in any order and have no specific length restrictions unless otherwise noted. Valid fields are as follows: [<1>](#)

ver: The version number of this structure in the format **x.y**. The values x and y MUST be numbers. x MUST NOT begin with zero, and y MUST be either zero or a sequence of digits that does not begin with zero. The **ver** field SHOULD [<2>](#) have a valid value, and x and y SHOULD NOT [<3>](#) be longer than two digits each.

type: A string that represents the content type of the remote list. MUST be "calendar", "contacts", "discussions", "documents", or "tasks". For definitions of these types of lists, see [\[MS-OUTSPS\]](#) section 3.2.1. This field is not case-sensitive.

cmd: The action the client takes in response to processing this URI. MUST be "add-folder", which means the client will add a folder.

base-url: The **URL** to the site that contains the remote list. SHOULD NOT end in a "/" character.

guid: The **GUID** which uniquely identifies the remote list. MUST be of the format "{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}", where X represents a hexadecimal character.

site-name: Display name of the site where the remote list is located.

list-name: Display name of the remote list.

list-url: A string that when concatenated with the **base-url** MUST produce the full URL to the list. SHOULD begin with a "/".

user-id (optional): The **user identifier** to be used to filter the items in the list. MUST be a number greater than zero and MUST be less than eight digits.

folder-url (optional): The relative path to a subfolder within the remote list. MUST begin with a "/" and MUST NOT end with a "/". [<4>](#)

folder-id (optional): The **item identifier** of a subfolder within the remote list. MUST be a positive decimal number of no more than eight digits. [<5>](#)

2.2 Special Character Escaping

Encoding of characters in this structure MUST be represented consistently with the URI specification ([\[RFC3986\]](#), Section 2).

Some characters MUST be specially escaped before the structure is percent-encoded as follows.

If any of the characters "&", "\", "[", "]", or "|" are part of the value of the **base-url**, **site-name**, **list-name**, **list-url**, or **folder-url** field, they MUST be preceded by a "|" character.

The **base-url**, **site-name**, **list-name**, **list-url**, and **folder-url** fields can contain **Unicode** characters. Unicode characters MUST be encoded as the 4-digit hexadecimal representation of the character in square brackets "[]". Groups of consecutive Unicode characters MUST concatenate the groups and use one set of brackets to enclose all the hexadecimal characters.

The syntax of the StsSync Data Structure, including character escaping, is defined by the following Augmented Backus-Naur form (ABNF) ([RFC5234](#)) rules:

```
stssyncuri = scheme ":" schemepart
scheme     = "stssync"
schemepart = "//sts/?" [ params ]
params    = param *("&" param)
param     = key "=" value
key       = *( ALPHA / "-" )
value     = *uchar
uchar     = escape / unreserved
unreserved = ALPHA / DIGIT / punctuation
punctuation = "(" / ")" / "_" / "/" / "[" / "]" / "|" / "." / "-"
escape     = "%" 2HEXDIG
```

Preliminary

3 Structure Examples

3.1 Personal Contacts List

This URI represents the "Personal" contacts list located at the "Example Lists" site at "http://contoso.com/lists/example/" with a list GUID of "{01f4e13-34e2-49e0-a05e-98e7b8cc3dc}".

```
stssync://sts/?ver=1.1&type=contacts&cmd=add-folder&base-url=http%3A%2F%2Fcontoso.com&list-url=%2Flists%2Fexample%2F&guid=%7B01f4e13e%2D34e2%2D49e0%2Da05e%2D98e7b8cc3dc4%7D&site-name=Example%20Lists&list-name=Personal
```

3.2 Upcoming Events Calendar

This URI represents the "Upcoming events" calendar for the person with user-id "34" located at the "Woodgrove Portal" site at "http://woodgrove/lists/pcoming%20evts/" with a list GUID of "{0C600187-1CC6-4AA0-A80E-5AD683397570}".

```
stssync://sts/?ver=1.0&type=calendar&cmd=add-folder&base-url=http%3A%2F%2Fwoodgrove&guid=%7B0C600187%2D1CC6%2D4AA0%2DA80E%2D5AD683397570%7D&site-name=Woodgrove%20Portal&list-name=[00DC]pcoming%20ev[00E900F1]ts&list-url=%2Flists%2Fpcoming%20evts%2F&user-id=34
```

3.3 Expenses Folder Contents

This URI represents the "Expenses" folder contained within the "Finance" folder of the "Johnson Project" documents list on the "http://projects/johnson%20project/" site with a list GUID of "{1D711298-2DD7-5BB1-B91F-6BE684408681}".

```
stssync://sts/?ver=1.1&type=documents&cmd=add-folder&base-url=http%3A%2F%2Fprojects&guid=%7B1D711298%2D2DD7%2D5BB1%2DB91F%2D6BE684408681%7D&site-name=Projects&list-name=Johnson%20Project&list-url=%2Fjohnson%20project%2F&folder-url=%2FFinance%2FExpenses&folder-id=4
```

4 Security

4.1 Security Considerations for Implementers

Protocol URIs can be contained in mediums that are not trusted, for example, in the body of an e-mail message or on a Web page. Clients invoked when the user activates a protocol URI could be presented with malicious data intended to initiate unwanted actions when the client processes the URI.

4.2 Index of Security Parameters

None.

Preliminary

5 Appendix A: 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 Office Outlook 2007
- Microsoft Outlook 2010
- Microsoft Outlook 2013
- Windows SharePoint Services 3.0
- Microsoft SharePoint Foundation 2010
- Microsoft SharePoint Foundation 2013
- Microsoft Outlook 2016
- Microsoft Outlook 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.

[<1> Section 2.1](#): Office Outlook 2007 and Outlook 2010 ignore any unrecognized field-value pairs.

[<2> Section 2.1](#): Office Outlook 2007 and Outlook 2010 consider URLs constructed without a **ver** field value to be malformed.

[<3> Section 2.1](#): Office Outlook 2007 and Outlook 2010 consider URLs constructed with more than two digits in either x or y to be malformed.

[<4> Section 2.1](#): Windows SharePoint Services 3.0 and SharePoint Foundation 2010 do not support this field.

[<5> Section 2.1](#): Windows SharePoint Services 3.0 and SharePoint Foundation 2010 do not support this field.

6 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
5 Appendix A: Product Behavior	Updated list of supported products.	major
5 Appendix A: Product Behavior	Updated list of supported products.	Major

7 Index

A

[Applicability](#) 7

C

[Change tracking](#) 13

E

Escaping

[special characters](#) 8

Examples

[Expenses Folder Contents](#) 10

[Personal Contacts List](#) 10

[Upcoming Events Calendar](#) 10

[Expenses Folder Contents example](#) 10

F

[Fields - vendor-extensible](#) 7

G

[Glossary](#) 6

I

[Implementer - security considerations](#) 11

[Index of security parameters](#) 11

[Informative references](#) 7

[Introduction](#) 6

L

[Localization](#) 7

N

[Normative references](#) 6

O

[Overview \(synopsis\)](#) 7

P

[Parameters - security index](#) 11

[Personal Contacts List example](#) 10

[Product behavior](#) 12

R

[References](#) 6

[informative](#) 7

[normative](#) 6

[Relationship to protocols and other structures](#) 7

S

Security

[implementer considerations](#) 11

[parameter index](#) 11

[Special character escaping](#) 8

Structures

[StsSync](#) 8

[StsSync data structure](#) 8

T

[Tracking changes](#) 13

U

[Upcoming Events Calendar example](#) 10

V

[Vendor-extensible fields](#) 7

[Versioning](#) 7