

[MS-WEBDAVE]: Web Distributed Authoring and Versioning Error Extensions Protocol Specification

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **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 may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events 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 specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications do 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 are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

Preliminary Documentation. This Open Specification provides documentation for past and current releases and/or for the pre-release (beta) version of this technology. This Open Specification is final documentation for past or current releases as specifically noted in the document, as applicable; it is preliminary documentation for the pre-release (beta) versions. Microsoft will release final documentation in connection with the commercial release of the updated or new version of this technology. As the documentation may change between this preliminary version and the final version of this technology, there are risks in relying on 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 |
|------------|------------------|----------------|--|
| 04/04/2008 | 0.1 | | Initial Availability |
| 06/27/2008 | 1.0 | Major | Revised and edited the technical content |
| 12/12/2008 | 1.01 | Editorial | Revised and edited the technical content |
| 07/13/2009 | 1.02 | Major | Changes made for template compliance |
| 08/28/2009 | 1.03 | Editorial | Revised and edited the technical content |
| 11/06/2009 | 1.04 | Editorial | Revised and edited the technical content |
| 02/19/2010 | 2.0 | Editorial | Revised and edited the technical content |
| 03/31/2010 | 2.01 | Editorial | Revised and edited the technical content |
| 04/30/2010 | 2.02 | Editorial | Revised and edited the technical content |
| 06/07/2010 | 2.03 | Editorial | Revised and edited the technical content |
| 06/29/2010 | 2.04 | Editorial | Changed language and formatting in the technical content. |
| 07/23/2010 | 2.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 09/27/2010 | 2.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 11/15/2010 | 2.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 12/17/2010 | 2.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 03/18/2011 | 2.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 06/10/2011 | 2.04 | No change | No changes to the meaning, language, or formatting of the technical content. |

| Date | Revision History | Revision Class | Comments |
|-------------|-------------------------|-----------------------|--|
| 01/20/2012 | 2.5 | Minor | Clarified the meaning of the technical content. |
| 04/11/2012 | 2.5 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 07/16/2012 | 2.6 | Minor | Clarified the meaning of the technical content. |

Preliminary

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 Other Protocols | 7 |
| 1.5 Prerequisites/Preconditions | 7 |
| 1.6 Applicability Statement | 7 |
| 1.7 Versioning and Capability Negotiation | 8 |
| 1.8 Vendor-Extensible Fields | 8 |
| 1.9 Standards Assignments | 8 |
| 2 Messages | 9 |
| 2.1 Transport | 9 |
| 2.2 Message Syntax | 9 |
| 2.2.1 WebDAV Extension Header | 9 |
| 2.2.2 Extended Error Handling | 9 |
| 2.2.3 Currently Defined WebDAV Extended Errors | 9 |
| 2.2.3.1 Error Codes | 10 |
| 2.2.3.1.1 File Errors | 10 |
| 2.2.3.1.2 Configuration Errors | 12 |
| 2.2.3.1.3 Server Parsing Errors | 13 |
| 2.2.3.1.4 Server Errors | 13 |
| 2.2.3.1.5 HTML Errors | 13 |
| 2.2.3.1.6 System Errors | 13 |
| 2.2.3.1.7 Service Errors | 14 |
| 2.2.3.1.8 HTTP Errors | 16 |
| 2.2.3.1.9 Authentication Errors | 17 |
| 2.2.3.1.10 Document-Related Errors | 17 |
| 2.2.3.1.11 Disk-Based Website Errors | 17 |
| 2.2.3.1.12 Socket Errors | 17 |
| 2.2.3.1.13 DNS Errors | 18 |
| 2.2.3.1.14 Internet Errors | 18 |
| 2.2.3.1.15 Hosting Errors | 20 |
| 2.2.3.1.16 Web Services Errors | 20 |
| 2.2.3.1.17 Server Network Errors | 21 |
| 2.2.3.1.18 Web Extender Client Errors | 21 |
| 2.2.3.1.19 Virus Scan Errors | 22 |
| 2.2.3.1.20 IRM Errors | 22 |
| 3 Protocol Details | 23 |
| 3.1 WebDAV Client Details | 23 |
| 3.1.1 Abstract Data Model | 23 |
| 3.1.2 Timers | 23 |
| 3.1.3 Initialization | 23 |
| 3.1.4 Higher-Layer Triggered Events | 23 |
| 3.1.5 Message Processing Events and Sequencing Rules | 23 |
| 3.1.6 Timer Events | 23 |
| 3.1.7 Other Local Events | 23 |

| | | |
|----------|--|-----------|
| 3.2 | WebDAV Server Details | 23 |
| 3.2.1 | Abstract Data Model | 23 |
| 3.2.2 | Timers | 24 |
| 3.2.3 | Initialization | 24 |
| 3.2.4 | Higher-Layer Triggered Events..... | 24 |
| 3.2.5 | Message Processing Events and Sequencing Rules..... | 24 |
| 3.2.6 | Timer Events | 24 |
| 3.2.7 | Other Local Events | 24 |
| 4 | Protocol Examples..... | 25 |
| 4.1 | Client Attempts to Open a Checked-Out File..... | 25 |
| 4.2 | Client Attempts to Exceed the Storage Quota Limit for a Location | 25 |
| 5 | Security..... | 26 |
| 5.1 | Security Considerations for Implementers..... | 26 |
| 5.2 | Index of Security Parameters | 26 |
| 6 | Appendix A: Product Behavior | 27 |
| 7 | Change Tracking..... | 28 |
| 8 | Index | 30 |

1 Introduction

The **Web Distributed Authoring and Versioning Protocol (WebDAV)**, as described in [\[RFC2518\]](#), extends the standard **Hypertext Transfer Protocol (HTTP)** mechanisms, as described in [\[RFC2616\]](#), to provide file access and content management over the Internet. WebDAV enables an Internet-based file system; however, it does not include the communication of detailed errors from server to client while performing file operations.

The Web Distributed Authoring and Versioning Error Extensions Protocol extends WebDAV with extended error codes and uses an extended error handling mechanism, as described in [\[MS-WDV\]](#) section 2.2.3, to enable compliant protocol servers to report error condition details about a protocol server response.

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

1.1 Glossary

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

Domain Name System (DNS)
Hypertext Transfer Protocol (HTTP)

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

Hypertext Transfer Protocol 1.1 (HTTP/1.1)
Information Rights Management (IRM)
Web Distributed Authoring and Versioning Protocol (WebDAV)
Web server
WebDAV client
WebDAV server

The following terms are specific to this document:

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

1.2 References

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

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-WDV] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Protocol: Client Extensions](#)".

[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>

[RFC2518] Goland, Y., Whitehead, E., Faizi, A., et al., "HTTP Extensions for Distributed Authoring - WebDAV", RFC 2518, February 1999, <http://www.ietf.org/rfc/rfc2518.txt>

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

1.2.2 Informative References

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

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

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

1.3 Overview

This protocol specifies the error ranges that are used when the protocol server reports extended errors to the protocol client. To do so, this protocol uses an extension to WebDAV, as described in [\[MS-WDV\]](#). The extension consists of a response header (X-MSDAVEXT_ERROR), as described in [\[MS-WDV\]](#) section 2.2.3, indicating that the **WebDAV server** supports extended error reporting to the **WebDAV client**.

1.4 Relationship to Other Protocols

This protocol depends on the WebDAV Protocol: Client Extensions, as described in [\[MS-WDV\]](#), which in turn depends on WebDAV, as described in [\[RFC2518\]](#).

WebDAV is a set of methods, headers, and content types that extend **HTTP/1.1**, as described in [\[RFC2616\]](#). WebDAV allows data to be written to Internet servers and is an Internet standard for collaborative authoring, as described in [\[RFC2518\]](#).

WebDAV expands the basic support in HTTP/1.1 for content authoring by introducing additional methods and headers to provide support for resource properties and other base functions, such as resource locking. These new capabilities make the WebDAV protocol suitable for the basic use of remotely mounted file systems.

1.5 Prerequisites/Preconditions

This protocol requires a WebDAV server that supports client extensions, as described in [\[MS-WDV\]](#).

This protocol also requires that WebDAV clients have URLs that point to WebDAV servers.

1.6 Applicability Statement

This protocol is applicable in scenarios that require more robust error handling than is available in the existing HTTP/1.1 and WebDAV specifications.

This protocol does not specify a way for WebDAV clients to discover URLs for WebDAV servers.

1.7 Versioning and Capability Negotiation

This protocol introduces no new versioning mechanisms except those that already exist in WebDAV and HTTP/1.1.

The negotiation of WebDAV and of HTTP/1.1 options in general is as described in [\[RFC2518\]](#) and [\[RFC2616\]](#), respectively. The X-MSDAVEXT header, as described in [\[MS-WDV\]](#), is used as part of the HTTP/1.1 OPTIONS discovery mechanism to indicate WebDAV server support for this specification.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

No new transports are required except for those in the client extensions, as specified in [\[MS-WDV\]](#) section 2.1.

2.2 Message Syntax

No new message syntax is required except for that in the client extensions, as specified in [\[MS-WDV\]](#) section 2.2.

2.2.1 WebDAV Extension Header

The WebDAV extension header is part of the client extensions, as specified in [\[MS-WDV\]](#) section 2.2.1.

2.2.2 Extended Error Handling

Extended error handling is part of the client extensions, as specified in [\[MS-WDV\]](#) section 2.2.3.

In particular, as specified in [\[MS-WDV\]](#), section [2.2.3](#):

- An Extended-error is an implementation-specific number that provides additional information about the cause of the error.
- An Error-string is a percentage-encoded UTF-8 string, as specified in [\[RFC3986\]](#) section 2.1, that gives additional explanatory text about the cause of the error. This string is not significant to protocol operation and is intended only for display and logging purposes.

2.2.3 Currently Defined WebDAV Extended Errors

A protocol server implementing this protocol includes the X-MSDAVEXT_ERROR header in response buffers when an error occurs, as specified in [\[MS-WDV\]](#) section 2.2.3. Section [2.2.3.1](#) specifies a selection of common errors that require action from the protocol client. The protocol server MUST NOT expect a specific response from the protocol client to any specific error. However, no restrictions exist on the protocol server regarding which errors can be generated at what time nor what total set of errors can be used. Therefore, the protocol client MUST be prepared to handle any errors that are generated. If the protocol client encounters an error that it does not recognize or know how to interpret, the protocol client handles this condition preferably by outputting the error string to the user. Every error from the protocol server MUST be paired with a message string. The following table shows the error code ranges that have mapped module names.

| Module name for error code range | Error code range, in hexadecimal | Error code range, in decimal |
|----------------------------------|----------------------------------|------------------------------|
| File | 0x00020000-0x00020071 | 131072-131185 |
| Configuration | 0x00030000-0x00030070 | 196608-196720 |
| Server Parsing | 0x00040000-0x0004000C | 262144-262156 |
| Server | 0x00050000-0x00050092 | 327680-327826 |
| HTML | 0x00060000-0x0006000C | 393216-393228 |

| Module name for error code range | Error code range, in hexadecimal | Error code range, in decimal |
|----------------------------------|----------------------------------|------------------------------|
| System | 0x00080000-0x0008001C | 524288-524316 |
| Service | 0x00090000-0x0009007F | 589824-589951 |
| HTTP | 0x000D0000-0x000D0012 | 851968-851986 |
| Authentication | 0x000E0000-0x000E0098 | 917504-917656 |
| Document Related | 0x00100000-0x00100008 | 1048576-1048584 |
| Disk-Based Website | 0x00110000-0x00110007 | 1114112-1114119 |
| Socket | 0x00120000-0x00120037 | 1179648-1179703 |
| DNS | 0x00130000-0x00130004 | 1245184-1245188 |
| Internet | 0x00180000-0x0018003F | 1572864-1572927 |
| Hosting | 0x001D0000-0x001D000A | 1900544-1900554 |
| Web Services | 0x001E0000-0x001E00E8 | 1966080-1966312 |
| Server Network | 0x00210000-0x00210092 | 2162688-2162834 |
| Web Extender Client | 0x00640000-0x006400E9 | 6553600-6553833 |
| Virus Scan | 0x00960000-0x00960014 | 9830400-9830420 |
| Rights Management | 0x00970000-0x00970013 | 9895936-9895955 |

The tables in section [2.2.3.1](#) show the error code details for each range in the previous table.

2.2.3.1 Error Codes

2.2.3.1.1 File Errors

| Error code | Error description |
|--|--|
| 0x00020001 0x00020002 0x00020006 0x00020008 0x0002000B 0x0002000C 0x0002000D 0x00020010 0x00020011 | Cannot access specified file on the server. |
| 0x00020003 0x00020004 | The folder cannot be created. The folder could already exist or the Web server is temporarily busy. |
| 0x00020005 | Cannot create specified file. |
| 0x00020007 | Cannot remove specified file. |

| Error code | Error description |
|--|---|
| 0x00020009 | This is not a valid directory. |
| 0x0002000A 0x0002001D | Unable to connect to the server or to the specified file or folder on the server. |
| 0x00020014 0x00020056 | Cannot rename specified file. |
| 0x00020015 | The file does not exist. |
| 0x00020016 0x00020017 0x00020018 0x0002001F 0x00020020 0x00020023 0x00020024 0x00020025 0x00020026 0x00020027 0x00020028 0x00020029 0x0002002A 0x0002002C 0x0002002D 0x0002002E 0x0002002F 0x00020030 0x00020031 0x00020032 0x00020033 0x00020034 0x00020036 0x00020037 0x00020038 0x00020039 0x0002003A 0x0002003B 0x0002003D 0x0002003E 0x00020050 0x00020051 0x00020052 0x00020053 0x00020054 0x00020071 | There is a problem with the Web server. |

| Error code | Error description |
|--|---|
| 0x0002001B | The specified item is not a folder. |
| 0x0002001C | Cannot copy folder(s). |
| 0x00020022 | Cannot link file at specified location to file at specified location. |
| 0x0002003F 0x00020040 0x00020041 0x00020042 0x00020044 0x00020045 0x00020046 0x00020047 0x00020048 0x00020049 0x0002004B 0x0002004C 0x0002005D | Insufficient permissions. |
| 0x0002004D | There is not enough disk space. |
| 0x00020055 | Cannot copy file(s). |
| 0x00020057 0x00020058 0x00020059 | The size of files uploaded has exceeded, or could exceed, the limit set for the folder. |
| 0x0002005A 0x0002005B | Anonymous upload is disabled. |
| 0x0002005C | Specified file name is empty or does not exist. |

2.2.3.1.2 Configuration Errors

| Error code | Error description |
|--|---|
| 0x0003004E 0x0003004F 0x00030050 0x00030051 0x00030052 0x00030057 0x00030058 0x0003005C 0x0003005D 0x0003005F 0x00030061 0x00030063 | There is a problem with the Web server. |

| Error code | Error description |
|--|-------------------|
| 0x00030064 0x00030066 0x00030067 0x00030068 0x0003006B 0x0003006C 0x0003006D 0x0003006E 0x0003006F 0x00030070 | |

2.2.3.1.3 Server Parsing Errors

The error codes in the following table indicate parsing errors on the WebDAV server.

| Error code | Error description |
|--|---|
| 0x00040007 0x00040008 0x00040009 0x0004000A | An error occurred accessing the site. |
| 0x0004000C | The server is a newer version than the client. Newer version of the client is needed. |

2.2.3.1.4 Server Errors

| Error code | Error description |
|------------|--|
| 0x00050086 | Fill out all required properties before checking in this document. |

2.2.3.1.5 HTML Errors

| Error code | Error description |
|------------|---------------------------------------|
| 0x0006000A | The file being uploaded is too large. |

2.2.3.1.6 System Errors

| Error code | Error description |
|--|---|
| 0x0008000A 0x0008000B 0x0008000C 0x0008000D 0x0008000E 0x0008000F 0x00080010 0x00080011 | There is a problem with the Web server. |

| Error code | Error description |
|------------|-------------------|
| 0x00080012 | |
| 0x00080013 | |
| 0x00080014 | |
| 0x00080015 | |
| 0x00080016 | |
| 0x00080017 | |
| 0x00080018 | |
| 0x00080019 | |
| 0x0008001A | |

2.2.3.1.7 Service Errors

| Error code | Error description |
|------------|---|
| 0x00090001 | The lock is not valid on the server anymore. |
| 0x00090005 | Unable to connect to the server or to the specified file or folder on the server. |
| 0x00090006 | |
| 0x00090007 | |
| 0x00090008 | |
| 0x0009000A | |
| 0x0009000B | |
| 0x00090015 | |
| 0x00090016 | |
| 0x00090017 | |
| 0x00090018 | |
| 0x00090019 | |
| 0x0009003B | |
| 0x00090009 | The Web server is busy. |
| 0x0009000D | A directory already exists with that name. |
| 0x0009000E | The file is either checked out or locked for editing by another user. |
| 0x0009000F | The file is not checked out. |
| 0x00090010 | The file is already under source control. |
| 0x00090011 | The file is not under source control. |
| 0x00090013 | There is a problem with the Web server. |
| 0x0009001C | Unable to recalculate links for specified file. |
| 0x0009001D | Specified file has been automatically checked out from the source control repository. |
| 0x0009001E | Some files have been checked out automatically. |
| 0x0009001F | A file or folder already exists by that name. |
| 0x00090022 | The file in the Web server conflicts with the name of a file under source control. |

| Error code | Error description |
|--|--|
| 0x00090023 | The specified folder does not exist. |
| 0x00090024 | Project names are required to be absolute (required to start with "\$/") and have no other embedded "*", "\$", "\", or "?" characters. |
| 0x00090025 | Cannot copy the specified file or folder to itself. |
| 0x00090026 | Cannot add execute permissions to a folder on this server. |
| 0x0009002B | Files cannot be saved to this folder. |
| 0x0009002C | A theme already exists on the server. |
| 0x0009002D 0x0009002E 0x0009002F 0x00090031 0x00090032 0x00090036 0x0009003F 0x0009004A | There is a problem with the Web server. |
| 0x00090039 | This is a browse only Web site. Authoring is disabled for this server. |
| 0x0009003C | Cannot access specified file on server. |
| 0x0009003D | The FrontPage Server Extensions on this Web site do not support getting previous versions. |
| 0x0009003E | Only exclusive checkout for specified document is supported with Web site editor-based locking. |
| 0x00090040 | The file is currently in use. Please try again later. |
| 0x00090041 | Unable to rename Web location. Cannot change the parent URL when renaming a Web site. |
| 0x00090042 | Unable to rename Web location, because it is mapped to a virtual directory on the server. |
| 0x00090043 | Error renaming Web site. Unable to rename a site that has subsites. |
| 0x00090044 | Error deleting Web site. Unable to delete a site that has subsites. |
| 0x00090045 | Error renaming Web site. Unable to rename a site that has subsites. |
| 0x00090046 | Error copying folder. Unable to copy a folder that has subsites. |
| 0x00090047 | Error deleting folder. Unable to delete a folder that has subsites. |
| 0x00090048 | This folder containing supporting files. It cannot be moved, copied, renamed or deleted. |
| 0x00090049 | Operation interrupted because a subsite was created, renamed, or deleted during the operation. Refresh the view. |
| 0x0009004B | Unable to convert the Web location into a directory because it does not use the same permissions as its parent Web. |
| 0x0009004C | Unable to set Web to use the same permissions as its parent because the user and group |

| Error code | Error description |
|------------|--|
| | ids for the two Webs are different. |
| 0x0009004F | Unable to convert the Web location into a directory because it does not use the same permissions as its parent Web. |
| 0x00090051 | Anonymous upload is disabled. |
| 0x00090052 | Insufficient permission to delete the Web location or convert it to a folder. |
| 0x00090063 | Quota exceeded. |
| 0x00090064 | The following files have been blocked by the administrator. |
| 0x00090068 | The specified Web address is too long. |
| 0x00090070 | The file or folder name contains invalid characters. Please use a different name. Common invalid characters include the following: # % & * : < > ? / \ { |
| 0x00090075 | The specified file is not checked out. Check out this document first. |
| 0x0009007B | The specified file cannot be locked for the specified timeout. |
| 0x0009007C | Operation on the specified file cannot be completed due to invalid arguments. |
| 0x0009007D | The specified file is not locked. |
| 0x0009007E | The specified file is locked for shared use. |
| 0x0009007F | A file with the same name exists. |

2.2.3.1.8 HTTP Errors

| Error code | Error description |
|--|---|
| 0x000D0001 0x000D0010 | The Web server is busy. |
| 0x000D0002 | Unable to connect to the server. |
| 0x000D0003 0x000D0004 0x000D0005 0x000D0006 0x000D0007 0x000D0008 0x000D0009 0x000D000A 0x000D000E 0x000D000F 0x000D0011 | There is a problem with the Web server. |
| 0x000D000B 0x000D000C 0x000D000D | Unable to connect to the server or to the specified file or folder on the server. |

| Error code | Error description |
|------------|-------------------|
| 0x000D0012 | |

2.2.3.1.9 Authentication Errors

| Error code | Error description |
|--|---|
| 0x000E0001 | Insufficient permissions. |
| 0x000E0004 | An access setup description is required when creating the top-level Web site. |
| 0x000E0005 0x000E0006 0x000E0007 0x000E0008 | Error initializing access control. |
| 0x000E001A | This is a browse-only Web site. Authoring is disabled for this server. |
| 0x000E0098 | Access denied. Before opening files in this location, browse to the Web site and select the option to authenticate automatically. |

2.2.3.1.10 Document-Related Errors

| Error code | Error description |
|--------------------------|--|
| 0x00100001 0x00100006 | Could not process the specified file as a known document type. |

2.2.3.1.11 Disk-Based Website Errors

The following table shows error codes that are returned from Disk-Based Website modules on the WebDAV server.

| Error code | Error description |
|--|---|
| 0x00110001 0x00110002 0x00110003 | A related Web is already configured. |
| 0x00110005 | Unable to connect to the server or to the specified file or folder on the server. |

2.2.3.1.12 Socket Errors

| Error Code | Error Description |
|--|---|
| 0x00120002 0x00120003 0x00120004 0x00120005 0x00120006 0x00120008 | There is a problem with the Web server. |

| Error Code | Error Description |
|--|---|
| 0x0012000A 0x0012001B 0x0012001C 0x0012001D 0x0012001E 0x00120021 0x00120024 0x0012002E 0x0012002F 0x00120032 0x00120034 0x00120035 0x00120036 0x00120037 | |
| 0x00120016 0x00120017 0x0012002D 0x00120031 0x00120033 | The specified Web address is too long. |
| 0x00120020 0x00120025 0x00120030 | Unable to connect to the server or to the specified file or folder on the server. |

2.2.3.1.13 DNS Errors

The following table shows error codes that are returned from Domain Name System (DNS) modules on the WebDAV server.

| Error code | Error description |
|--------------------------|---|
| 0x00130002 0x00130004 | Unable to connect to the server or to the specified file or folder on the server. |

2.2.3.1.14 Internet Errors

| Error code | Error description |
|--|---|
| 0x00180001 0x00180003 0x00180004 0x00180005 0x00180006 0x00180008 0x00180009 0x0018000A | There is a problem with the Web server. |

| Error code | Error description |
|--|---|
| 0x0018000B 0x0018000C 0x00180010 0x00180011 0x00180012 0x00180013 0x00180014 0x00180015 0x00180016 0x00180017 0x00180018 0x00180019 0x0018001A 0x0018001B 0x0018001C 0x00180020 0x00180021 0x0018000D 0x0018000E 0x0018000F | |
| 0x00180022 0x00180023 0x00180024 0x00180025 0x00180026 0x00180027 0x00180028 0x00180029 0x0018002A 0x0018002B 0x0018002C 0x0018002D 0x0018002E 0x0018002F 0x00180030 0x00180031 0x00180032 0x00180033 0x00180034 0x00180035 0x00180036 0x00180037 0x00180038 0x00180039 0x0018003A | There is a problem with the Web server. |

| Error code | Error description |
|--|---|
| 0x0018003B 0x0018003C 0x0018003D 0x0018003E 0x0018003F | |
| 0x00180002 0x0018001E 0x0018001F | The Web server is busy. |
| 0x00180007 0x0018001D | Unable to connect to the server or to the specified file or folder on the server. |

2.2.3.1.15 Hosting Errors

| Error code | Error description |
|--|---|
| 0x001D0001 0x001D0002 0x001D0003 0x001D0004 0x001D0005 0x001D0006 0x001D0007 0x001D0008 0x001D0009 0x001D000A | There is a problem with the Web server. |

2.2.3.1.16 Web Services Errors

| Error code | Error description |
|--|---|
| 0x001E0001 0x001E0004 0x001E0006 0x001E0007 | There is a problem with the Web server. |
| 0x001E0002 0x001E0008 | Insufficient permissions. |
| 0x001E0005 0x001E000B 0x001E0018 0x001E0019 | The Web server is busy. |
| 0x001E0009 0x001E001D | Unable to connect to the server or to the specified file or folder on the server. |
| 0x001E0024 | The specified Web address is too long. |

2.2.3.1.17 Server Network Errors

| Error code | Error description |
|------------|---|
| 0x00210055 | Quota exceeded. |
| 0x00210086 | Error due to cancellation by event handler. |
| 0x00210088 | The file has too many minor versions. |

2.2.3.1.18 Web Extender Client Errors

| Error code | Error description |
|--|---|
| 0x00640001 0x00640002 0x00640003 0x00640007 0x00640008 0x0064000B 0x00640015 0x00640016 0x00640017 0x0064001C 0x0064001D 0x00640037 0x00640038 0x00640039 0x0064003B 0x0064004C 0x0064004E 0x0064004F | There is a problem with the Web server. |
| 0x00640004 0x00640005 0x0064000D 0x0064000E 0x00640013 0x0064002C 0x0064004B | Unable to connect to the server or to the specified file or folder on the server. |
| 0x00640006 0x0064000C 0x00640036 | The Web server is busy. |
| 0x00640009 0x0064000A 0x00640019 0x0064001B | Insufficient permissions. |
| 0x00640053 | Cannot publish Web to a nested subsite on this server. |

2.2.3.1.19 Virus Scan Errors

| Error code | Error description |
|------------|---|
| 0x00960004 | This upload is infected with a virus. |
| 0x00960005 | A virus has been removed from this upload. |
| 0x00960006 | This download is infected with a virus. |
| 0x00960007 | A virus has been cleaned from this download. |
| 0x00960008 | A virus caused the deletion of this download. |
| 0x00960009 | A virus blocked the download of this file. |
| 0x00960014 | A virus scanner has encountered an error while scanning the specified file. |

2.2.3.1.20 IRM Errors

The following table shows error codes returned from **Information Rights Management (IRM)** modules on the WebDAV server.

| Error code | Error description |
|------------|--|
| 0x00970002 | The IRM component cannot be found. |
| 0x00970003 | The IRM component returned an unexpected error. |
| 0x00970004 | The IRM component successfully encrypted the content. |
| 0x00970005 | The IRM component successfully decrypted the content. |
| 0x00970006 | This content is already encrypted. |
| 0x00970007 | Cannot protect this file. |
| 0x00970008 | The content is already decrypted. |
| 0x00970009 | Cannot unprotect this file. Unprotect the file prior to uploading. |
| 0x0097000A | Cannot unprotect this file. Unprotect the file prior to uploading. |
| 0x0097000B | Cannot unprotect this file. Unprotect the file prior to uploading. |
| 0x0097000C | The IRM component reports the protection is corrupted. |
| 0x0097000D | The IRM configuration on Microsoft Windows SharePoint Services is invalid. Contact your administrator. |
| 0x0097000E | The IRM installation on Microsoft Windows SharePoint Services is invalid. Contact your administrator. |
| 0x0097000F | The IRM component timed out. Contact your administrator. |
| 0x00970010 | The IRM component stopped responding. Contact your administrator. |
| 0x00970011 | Cannot unprotect this file. Unprotect the file prior to uploading. |

3 Protocol Details

3.1 WebDAV Client Details

3.1.1 Abstract Data Model

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

No new abstract data model is required, except for that as specified in [\[MS-WDV\]](#) section 3.1.1.

3.1.2 Timers

No new timers are required, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.1.3 Initialization

No new initialization is required, except for that as specified in [\[MS-WDV\]](#) section 3.1.3.

3.1.4 Higher-Layer Triggered Events

No new events are triggered, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.1.5 Message Processing Events and Sequencing Rules

No new message processing events or sequencing rules are required, except for those as specified in [\[MS-WDV\]](#) section 3.1.5.

3.1.6 Timer Events

No new timer events are required, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.1.7 Other Local Events

No new local events are required, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.2 WebDAV Server Details

3.2.1 Abstract Data Model

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

No new abstract data model is required, except for that in WebDAV, as specified in [\[RFC2518\]](#).

3.2.2 Timers

No new timers are required, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.2.3 Initialization

No initialization is required, except for that in WebDAV protocol, as specified in [\[RFC2518\]](#).

3.2.4 Higher-Layer Triggered Events

No new events are triggered, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.2.5 Message Processing Events and Sequencing Rules

No new message processing events or sequencing rules are required, except for those as specified in [\[MS-WDV\]](#) section 3.2.5.

3.2.6 Timer Events

No new timer events are required, except for those in WebDAV, as specified in [\[RFC2518\]](#).

3.2.7 Other Local Events

No new local events are required, except for those in WebDAV protocol, as specified in [\[RFC2518\]](#).

4 Protocol Examples

The only differences between the examples in section [4.1](#) and section [4.2](#) are the X-MSDAVEXT_ERROR header code and string.

4.1 Client Attempts to Open a Checked-Out File

The following is an example of an extended error that is returned by the protocol server when a protocol client attempts to open a file that is checked out to another user.

```
HTTP/1.1 401 Unauthorized
Content-Length: 1656
Content-Type: text/html
X-MSDAVEXT_ERROR: 589838; The%20file%20is%20checked%20out%20to%20%22domain%5cusername%22
Server: Microsoft-IIS/6.0
WWW-Authenticate: NTLM
X-Powered-By: ASP.NET
Date: Tue, 25 Jan 2005 03:11:51 GMT
```

4.2 Client Attempts to Exceed the Storage Quota Limit for a Location

The following is an example of an extended error that is returned by the protocol server when the protocol client attempts to save a file to a location that would exceed the storage quota limit for that location.

```
HTTP/1.1 409 Conflict
Date: Wed, 30 Jan 2008 18:56:33 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
MicrosoftSharePointTeamServices: 12.0.0.4518
ContentLength: 0
X-MSDAVEXT_Error: 589923;
Your%20changes%20could%20not%20be%20saved%20because%20this%20SharePoint%20Web%20site%20has%20
exceeded%20the%20storage%20quota%20limit%2e%0aYou%20must%20save%20your%20work%20to%20another%
20location%2e%20%20Contact%20your%20administrator
```

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

Preliminary

6 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- The 2007 Microsoft® Office system
- Microsoft® Office 2010 suites
- Microsoft® Office 2013 Preview
- Microsoft® SharePoint® Foundation 2010
- Microsoft® SharePoint® Foundation 2013 Preview
- Windows® SharePoint® Services 3.0

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

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

7 Change Tracking

This section identifies changes that were made to the [MS-WEBDAVE] protocol document between the April 2012 and July 2012 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

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 or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

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 **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

Major and minor changes can be described further using the following change types:

- New content added.
- Content updated.
- Content removed.
- New product behavior note added.
- Product behavior note updated.
- Product behavior note removed.
- New protocol syntax added.
- Protocol syntax updated.
- Protocol syntax removed.
- New content added due to protocol revision.
- Content updated due to protocol revision.
- Content removed due to protocol revision.
- New protocol syntax added due to protocol revision.

- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.
- Content removed for template compliance.
- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated**.

Some important terms used in the change type descriptions are defined as follows:

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.
- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

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

| Section | Tracking number (if applicable) and description | Major change (Y or N) | Change type |
|--|--|-----------------------|--|
| 1 Introduction | Updated description of protocol for clarity. | N | Content updated. |
| 1.3 Overview | Changed title from "Protocol Overview (Synopsis)". | N | Content updated for template compliance. |
| 1.9 Standards Assignments | Updated description. | N | Content updated for template compliance. |
| 2.2.3 Currently Defined WebDAV Extended Errors | Refined error code range table. | N | Content updated. |
| 3.1.1 Abstract Data Model | Added description regarding conceptual model. | N | Content updated for template compliance. |
| 3.2.1 Abstract Data Model | Added description regarding conceptual model. | N | Content updated for template compliance. |
| 4.1 Client Attempts to Open a Checked-Out File | Changed title from "Extended Error Example 1". | N | Content updated. |
| 4.2 Client Attempts to Exceed the Storage Quota Limit for a Location | Changed title from "Extended Error Example 2". | N | Content updated. |

8 Index

A

Abstract data model
 [client](#) 23
 [server](#) 23
[Applicability](#) 7
[Authentication errors](#) 17

C

[Capability negotiation](#) 8
[Change tracking](#) 28
Client
 [abstract data model](#) 23
 [higher-layer triggered events](#) 23
 [initialization](#) 23
 [message processing](#) 23
 [other local events](#) 23
 [sequencing rules](#) 23
 [timer events](#) 23
 [timers](#) 23
[Client attempts to exceed the storage quota limit for a location example](#) 25
[Client attempts to open a checked-out file example](#) 25
[Configuration errors](#) 12
[Currently Defined WebDAV Extended Errors message](#) 9

D

Data model - abstract
 [client](#) 23
 [server](#) 23
[DBW errors](#) 17
[DNS errors](#) 18
[Document-related errors](#) 17

E

Errors
 [authentication](#) 17
 [configuration](#) 12
 [DBW](#) 17
 [DNS](#) 18
 [document-related](#) 17
 [file](#) 10
 [hosting](#) 20
 [HTML](#) 13
 [HTTP](#) 16
 [Internet](#) 18
 [IRM](#) 22
 [server](#) 13
 [server network](#) 21
 [server parsing](#) 13
 [service](#) 14
 [socket](#) 17
 [system](#) 13

[virus scan](#) 22
 [Web extender client](#) 21
 [Web services](#) 20

Examples
 [client attempts to exceed the storage quota limit for a location](#) 25
 [client attempts to open a checked-out file](#) 25
 [overview](#) 25
[Extended Error Handling message](#) 9

F

[Fields - vendor-extensible](#) 8
[File errors](#) 10

G

[Glossary](#) 6

H

Higher-layer triggered events
 [client](#) 23
 [server](#) 24
[Hosting errors](#) 20
[HTML errors](#) 13
[HTTP errors](#) 16

I

[Implementer - security considerations](#) 26
[Index of security parameters](#) 26
[Informative references](#) 7
Initialization
 [client](#) 23
 [server](#) 24
[Internet errors](#) 18
[Introduction](#) 6
[IRM errors](#) 22

M

Message processing
 [client](#) 23
 [server](#) 24
Message syntax
 [overview](#) 9
Messages
 [Currently Defined WebDAV Extended Errors](#) 9
 [Extended Error Handling](#) 9
 [syntax](#) 9
 [transport](#) 9
 [WebDAV Extension Header](#) 9

N

[Normative references](#) 6

O

Other local events
[client](#) 23
[server](#) 24
[Overview \(synopsis\)](#) 7

P

[Parameters - security index](#) 26
[Preconditions](#) 7
[Prerequisites](#) 7
[Product behavior](#) 27

R

[References](#) 6
[informative](#) 7
[normative](#) 6
[Relationship to other protocols](#) 7

S

Security
[implementer considerations](#) 26
[parameter index](#) 26
Sequencing rules
[client](#) 23
[server](#) 24
Server
[abstract data model](#) 23
[higher-layer triggered events](#) 24
[initialization](#) 24
[message processing](#) 24
[other local events](#) 24
[sequencing rules](#) 24
[timer events](#) 24
[timers](#) 24
[Server errors](#) 13
[Server network errors](#) 21
[Server parsing errors](#) 13
[Service errors](#) 14
[Socket errors](#) 17
[Standards assignments](#) 8
[System errors](#) 13

T

Timer events
[client](#) 23
[server](#) 24
Timers
[client](#) 23
[server](#) 24
[Tracking changes](#) 28
[Transport](#) 9
Triggered events - higher-layer
[client](#) 23
[server](#) 24

V

[Vendor-extensible fields](#) 8
[Versioning](#) 8
[Virus scan errors](#) 22

W

[Web extender client errors](#) 21
[Web services errors](#) 20
[WebDAV Extension Header message](#) 9