

[MS-XWDEXT]: Web Distributed Authoring and Versioning (WebDAV) Core Extensions

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Revision Summary

Date	Revision History	Revision Class	Comments
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07/15/2009	2.0	Major	Changes made for template compliance.
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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	8
1.4	Relationship to Other Protocols.....	8
1.5	Prerequisites/Preconditions	9
1.6	Applicability Statement.....	9
1.7	Versioning and Capability Negotiation.....	9
1.8	Vendor-Extensible Fields.....	9
1.9	Standards Assignments	9
2	Messages.....	10
2.1	Transport.....	10
2.2	Message Syntax	10
2.2.1	Verbs.....	10
2.2.1.1	BCOPY.....	10
2.2.1.2	BDELETE	10
2.2.1.3	BMOVE.....	11
2.2.1.4	BPROPFIND.....	11
2.2.1.5	BPROPPATCH	12
2.2.1.6	COPY	12
2.2.1.7	DELETE	13
2.2.1.8	GET	13
2.2.1.9	HEAD	14
2.2.1.10	LOCK.....	14
2.2.1.11	MKCOL	15
2.2.1.12	MOVE	15
2.2.1.13	NOTIFY.....	16
2.2.1.14	OPTIONS	16
2.2.1.15	POLL	16
2.2.1.16	POST.....	16
2.2.1.17	PROPFIND.....	16
2.2.1.18	PROPPATCH	17
2.2.1.19	PUT.....	18
2.2.1.20	SEARCH.....	18
2.2.1.21	SUBSCRIBE.....	18
2.2.1.22	UNLOCK	18
2.2.1.23	UNSUBSCRIBE.....	19
2.2.1.24	X-MS-ENUMATTS	19
2.2.2	Headers	19
2.2.2.1	Accept-Ranges	20
2.2.2.2	Allow-Extension.....	20
2.2.2.3	Allow-Rename	20
2.2.2.4	Brief	20
2.2.2.5	Call-Back	21
2.2.2.6	Content-Range	21
2.2.2.7	DASL	21
2.2.2.8	Depth.....	21

2.2.2.9	GetETag	21
2.2.2.10	MS-Author-Via.....	22
2.2.2.11	MS-Exchange-Permanent-URL	22
2.2.2.12	MS-WebStorage.....	22
2.2.2.13	Notification-Delay	23
2.2.2.14	Notification-Type	23
2.2.2.15	Public-Extension	23
2.2.2.16	Range	23
2.2.2.17	Repl-UID	24
2.2.2.18	ResourceTag	24
2.2.2.19	Savedestination	24
2.2.2.20	Saveinsent.....	24
2.2.2.21	Subscribe-Group	25
2.2.2.22	Subscription-ID	25
2.2.2.23	Subscription-Lifetime.....	25
2.2.2.24	Transaction	25
2.2.2.25	Translate	26
2.2.2.26	User-Agent	26
2.2.3	XML Element Definitions.....	26
2.2.3.1	target.....	27
2.2.3.2	dest.....	27
2.2.3.3	copy	27
2.2.3.4	move	27
2.2.3.5	local.....	27
2.2.3.6	transaction	28
2.2.3.7	groupoperation.....	28
2.2.3.8	transactioninfo	28
2.2.3.9	transactionstatus.....	28
2.2.3.10	abort.....	28
2.2.3.11	commit.....	29
2.2.3.12	delete.....	29
2.2.3.13	allprop.....	29
2.2.3.14	checkout.....	29
2.2.4	Special URLs.....	29
2.2.4.1	##DavMailSubmissionURI##	29
2.2.4.2	-FlatUrlSpace-	29
2.2.4.3	Non_IPM_Subtree.....	30
2.2.4.4	Public Folder Root.....	31
2.2.4.5	Mailbox Root.....	31
2.2.4.6	Mailbox Store VRoot.....	31
2.2.5	Default Properties	32
2.2.5.1	Mail	32
2.2.5.2	Calendar.....	35
2.2.5.3	Contacts.....	37
2.2.5.4	Folder	42
3	Protocol Details.....	44
3.1	Server Details	44
3.1.1	Abstract Data Model	44
3.1.2	Timers	44
3.1.3	Initialization	44
3.1.4	Higher-Layer Triggered Events.....	44
3.1.5	Message Processing Events and Sequencing Rules.....	44

3.1.5.1	Methods	44
3.1.5.1.1	BCOPY	44
3.1.5.1.2	BDELETE	45
3.1.5.1.3	BMOVE	45
3.1.5.1.4	BPROPFIND	45
3.1.5.1.5	BPROPPATCH	45
3.1.5.1.6	COPY	46
3.1.5.1.7	LOCK	46
3.1.5.1.7.1	Transaction Locks	46
3.1.5.1.7.2	Checkout locks	46
3.1.5.1.8	MKCOL	46
3.1.5.1.9	MOVE	47
3.1.5.1.10	PROPFIND	47
3.1.5.1.11	UNLOCK	47
3.1.5.1.11.1	Unlocking transactions	47
3.1.5.1.11.2	Response codes	48
3.1.5.1.11.2.1	204 No Content	48
3.1.5.1.11.2.2	412 Precondition Failed	48
3.1.5.1.11.2.3	424 Method Failure	48
3.1.5.1.12	X-MS-ENUMATTS	48
3.1.5.2	Headers	49
3.1.5.2.1	Brief	49
3.1.5.2.2	User-Agent	49
3.1.5.2.2.1	"Outlook-Express/", "Outlook Express/"	49
3.1.5.2.2.2	"OWAMIMECTL/"	49
3.1.5.2.2.3	"Microsoft Data Access Internet Publishing Provider DAV"	49
3.1.6	Timer Events	50
3.1.7	Other Local Events	50
4	Protocol Examples	51
4.1	BCOPY	51
4.2	BDELETE	52
4.3	BMOVE	53
4.4	BPROPFIND	54
4.5	BPROPPATCH	55
4.6	LOCK	57
4.7	MKCOL	60
4.8	PROPFIND	61
4.8.1	Retrieving names and values of all properties on an entity	61
4.8.2	Retrieving a list of all properties on an entity	61
4.9	X-MS-ENUMATTS	61
5	Security	63
5.1	Security Considerations for Implementers	63
5.2	Index of Security Parameters	63
6	Appendix A: Product Behavior	64
7	Change Tracking	65
8	Index	66

1 Introduction

The Web Distributed Authoring and Versioning (WebDAV) Core Extensions extend the Web Distributed Authoring and Versioning (WebDAV) Protocol to provide additional functionality necessary for implementing additional WebDAV-based protocols.

1.1 Glossary

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

Augmented Backus-Naur Form (ABNF)
resource
User Datagram Protocol (UDP)
XML

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

Calendar object
Contact object
E-mail object
Folder object
mailbox
Message object
non-interpersonal messaging subtree
public folder
root folder
search folder
store
transaction
Uniform Resource Identifier (URI)
Uniform Resource Locator (URL)

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

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-OXCDATA] Microsoft Corporation, "[Data Structures](#)", April 2008.

[MS-OXCFOLD] Microsoft Corporation, "[Folder Object Protocol Specification](#)", June 2008.

[MS-OXCMSG] Microsoft Corporation, "[Message and Attachment Object Protocol Specification](#)", June 2008.

[MS-EXOABK] Microsoft Corporation, "[Address Book Object Protocol Specification](#)", April 2008.

[MS-EXOCAL] Microsoft Corporation, "[Appointment and Meeting Object Protocol Specification](#)", June 2008.

[MS-EXOCNTC] Microsoft Corporation, "[Contact Object Protocol Specification](#)", June 2008.

[MS-EXOMSG] Microsoft Corporation, "[E-Mail Object Protocol Specification](#)", June 2008.

[MS-EXPROPS] Microsoft Corporation, "[Exchange Server Protocols Master Property List](#)", April 2008.

[MS-WDVSE] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Protocol: Server Extensions](#)", September 2007.

[MS-XWDCAL] Microsoft Corporation, "[\[MS-XWDCAL\]: Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Calendar Support](#)", December 2008.

[MS-XWDDOC] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Documents Support](#)", December 2008.

[MS-XWDMAIL] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for E-Mail Support](#)", December 2008.

[MS-XWDNOTIF] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Notifications](#)", December 2008.

[MS-XWDREPL] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Replication](#)", December 2008.

[MS-XWDSEARCH] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Search](#)", December 2008.

[RFC2068] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2068, January 1997, <http://www.ietf.org/rfc/rfc2068.txt>

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

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.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>

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

[XML1] Bray, T., Paoli, J., Sperberg-McQueen, C., Eds., "Extensible Markup Language (XML) 1.0", W3C Recommendation, February 1998, <http://www.w3.org/TR/1998/REC-xml-19980210>

1.2.2 Informative References

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

[MS-EXGLOS] Microsoft Corporation, "[Exchange Server Protocols Master Glossary](#)", April 2008.

[MS-XWDCNTC] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Contacts Support](#)", July 2009.

[MS-XWDFOLD] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Folders Support](#)", December 2008.

[MS-XWDSTRUCTDOC] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Structured Documents](#)", December 2008.

[MS-XWDVSEC] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Protocol Security Descriptor Extensions](#)", June 2008.

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

1.3 Overview

The WebDAV Core Extensions extend [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#) as follows:

- New verbs and extensions to existing verbs
- New headers and extensions to existing headers
- Special **URLs**
- Default properties for **Message objects** and folders

1.4 Relationship to Other Protocols

The WebDAV Core Extensions rely on the protocols described in [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#). It also relies on the protocol described in [\[RFC2818\]](#) for data protection services.

All properties are listed in [\[MS-OXPROPS\]](#) and are formatted as described in [\[MS-OXCDATA\]](#) for use with WebDAV.

The following protocols rely on the WebDAV Core Extensions:

- Web Distributed Authoring and Versioning (WebDAV) Extensions for Calendar Support, as described in [\[MS-XWDCAL\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for Contacts Support, as described in [\[MS-XWDCNTC\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for Documents Support, as described in [\[MS-XWDDOC\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for Folders Support, as described in [\[MS-XWDFOLD\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for E-Mail Support, as described in [\[MS-XWDMAIL\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for Notifications, as described in [\[MS-XWDNOTIF\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for Replication, as described in [\[MS-XWDREPL\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Extensions for Search, as described in [\[MS-XWDSEARCH\]](#)

- Web Distributed Authoring and Versioning (WebDAV) Extensions for Structured Documents, as described in [\[MS-XWDSTRUCTDOC\]](#)
- Web Distributed Authoring and Versioning (WebDAV) Protocol Security Descriptor Extensions, as described in [\[MS-XWDVSEC\]](#)

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

The WebDAV Core Extensions are used to enhance and extend the capabilities described in [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#) to support the WebDAV protocols listed in section [1.4](#) that rely on these extensions.

1.7 Versioning and Capability Negotiation

Clients can determine whether a server supports the WebDAV Core Extensions by sending an **OPTIONS** command, as described in [\[RFC2068\]](#), to the server and examining the response. If the server supports the WebDAV Core Extensions, it returns an **MS-WebStorage** header.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The WebDAV Core Extensions use the same transport mechanisms as the protocols specified in [\[RFC2518\]](#) and [\[MS-WDVSE\]](#).

2.2 Message Syntax

2.2.1 Verbs

2.2.1.1 BCOPY

The **BCOPY** method is used to copy one or more target **resources** to their destinations.

Request Headers

- All headers specified for the **COPY** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Brief** (as specified in section [2.2.2.4](#))
- **Savedestination** (as specified in section [2.2.2.19](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **COPY** method in [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- **DAV:copy** (as specified in section [2.2.3.3](#))
- **DAV:target** (as specified in section [2.2.3.1](#))
- **DAV:href** (as specified in [\[RFC2518\]](#))
- **DAV:dest** (as specified in section [2.2.3.2](#))

2.2.1.2 BDELETE

The **BDELETE** method is used to delete one or more target resources.

Request Headers

- All headers specified for the **DELETE** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Brief** (as specified in section [2.2.2.4](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **DELETE** method in [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- **DAV:delete** (as specified in section [2.2.3.12](#))
- **DAV:target** (as specified in section [2.2.3.1](#))
- **DAV:href** (as specified in [\[RFC2518\]](#))

2.2.1.3 BMOVE

The WebDAV **BMOVE** method is used to move one or more target resources to a destination.

Request Headers

- All headers specified for the **MOVE** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Allow-Rename** (as specified in section [2.2.2.3](#))
- **Brief** (as specified in section [2.2.2.4](#))
- **Savedestination** (as specified in section [2.2.2.19](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **MOVE** method in [\[RFC2518\]](#)
- **MS-WebStorage** as specified in (section [2.2.2.12](#))

XML Elements

- **DAV:move** (as specified in section [2.2.3.4](#))
- **DAV:target** (as specified in section [2.2.3.1](#))
- **DAV:href** (as specified in [\[RFC2518\]](#))
- **DAV:dest** (as specified in section [2.2.3.2](#))

2.2.1.4 BPROPFIND

The WebDAV **BPROPFIND** method is used to retrieve the properties of one or more target resources.

Request Headers

- All headers specified for the **PROPFIND** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))

- **Brief** as specified in (section [2.2.2.4](#))
- **Range** (as specified in section [2.2.2.16](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **PROPFIND** method in [\[RFC2518\]](#)
- **Accept-Ranges**: rows (as specified in section [2.2.2.1](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- **DAV:target** (as specified in section [2.2.3.1](#))
- **DAV:href** (as specified in [\[RFC2518\]](#))

2.2.1.5 BPROPPATCH

The WebDAV **BPROPPATCH** method is used to set properties on one or more target resources.

Request Headers

- All headers specified for the **PROPPATCH** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Brief** (as specified in section [2.2.2.4](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **PROPPATCH** method in [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- All XML elements specified for the **PROPPATCH** method in [\[RFC2518\]](#)
- **DAV:target** (as specified in section [2.2.3.1](#))
- **DAV:href** (as specified in [\[RFC2518\]](#))

2.2.1.6 COPY

The **COPY** method copies a resource to a destination. This method is specified in [\[RFC2518\]](#) section 8.8 and extended here.

Request Headers

- All headers specified for the **COPY** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))

- **Allow-Rename** (as specified in section [2.2.2.3](#))
- **Transaction** (as specified in section [2.2.2.24](#))
- **Savedestination** (as specified in section [2.2.2.19](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **COPY** method in [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- None

2.2.1.7 DELETE

The **DELETE** method deletes a resource. This method is specified in [\[RFC2068\]](#) section 9.7 and [\[RFC2518\]](#) section 8.6 and extended here.

Request Headers

- All headers specified for the **DELETE** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Transaction** (as specified in section [2.2.2.24](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **DELETE** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **ResourceTag** (as specified in section [2.2.2.18](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- None

2.2.1.8 GET

The **GET** method retrieves a document at the given **Uniform Resource Identifier (URI)**. This method is specified in [\[RFC2068\]](#) section 9.3 and [\[RFC2518\]](#) section 8.4 and extended here.

Request Headers

- All headers specified for the **GET** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **GET** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- None

2.2.1.9 HEAD

The **HEAD** method retrieves the response of a **GET** request, without returning the body. This method is specified in [\[RFC2068\]](#) and extended here.

Request Headers

- All headers specified for the **HEAD** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **HEAD** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- None

2.2.1.10 LOCK

The **LOCK** method is used to request a lock on a resource. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

- All headers specified for the **LOCK** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **LOCK** method in [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))
- **Repl-UID** (section [2.2.2.17](#))

XML Elements

- **DAV:transaction** (as specified in section [2.2.3.6](#))
- **DAV:groupoperation** (as specified in section [2.2.3.7](#))
- **DAV:checkout** (as specified in section [2.2.3.14](#))

- **DAV:local** (as specified in section [2.2.3.5](#))

2.2.1.11 MKCOL

The **MKCOL** method creates a collection. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

- All headers specified for the **MKCOL** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Transaction** (as specified in section [2.2.2.24](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **MKCOL** method in [\[RFC2518\]](#)
- **Repl-UID** (as specified in section [2.2.2.17](#))
- **ResourceTag** (as specified in section [2.2.2.18](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))
- **MS-Exchange-Permanent-URL** (as specified in section [2.2.2.11](#))

XML Elements

- All XML elements specified for the **MKCOL** method in [\[RFC2518\]](#)

2.2.1.12 MOVE

The **MOVE** method moves a resource. This method is specified in [\[RFC2518\]](#) section 8.9 and extended here.

Request Headers

- All headers specified for the **MOVE** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Allow-Rename** (as specified in section [2.2.2.3](#))
- **Transaction** (as specified in section [2.2.2.24](#))
- **Savedestination** (as specified in section [2.2.2.19](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **MOVE** method in [\[RFC2518\]](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- None

2.2.1.13 NOTIFY

The **NOTIFY** method is sent by using the **User Datagram Protocol (UDP)** in response to changes in resources. The syntax for this method is specified in [\[MS-XWDNOTIF\]](#) section 2.2.10.

2.2.1.14 OPTIONS

The **OPTIONS** method is specified in [\[RFC2068\]](#) section 9.2 and [\[RFC2518\]](#) and extended here.

Request Headers

- All headers specified for the **OPTIONS** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **OPTIONS** method in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **MS-Author-Via** (as specified in section [2.2.2.10](#))
- **Allow-Extension** (as specified in section [2.2.2.2](#))
- **Public-Extension** (as specified in section [2.2.2.15](#))
- **Accept-Ranges** (as specified in section [2.2.2.1](#))
- **DASL** (as specified in section [2.2.2.7](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- None

2.2.1.15 POLL

The **POLL** method is used either to acknowledge that the client has received and responded to a particular event, or to query the server for any events that have fired. This method is specified in [\[MS-XWDNOTIF\]](#) section 2.2.9.

2.2.1.16 POST

The **POST** method is used to submit e-mail messages to the server for delivery as specified in [\[MS-XWDMail\]](#). This method is specified in [\[RFC2068\]](#) section 9.5 and [\[RFC2518\]](#) section 8.5.

2.2.1.17 PROPFIND

The **PROPFIND** method returns properties or the list of properties on a resource. This method is specified in [\[RFC2518\]](#) section 8.1 and extended here.

Request Headers

- All headers specified for the **PROPFIND** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Depth** (as specified in [\[MS-WDVSE\]](#))
- **Brief** (as specified in section [2.2.2.4](#))
- **Range** (as specified in section [2.2.2.16](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **PROPFIND** method in [\[RFC2518\]](#)
- **Accept-Ranges**: rows (as specified in section [2.2.2.1](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))
- **Range** (as specified in section [2.2.2.16](#))

XML Elements

- All XML elements specified for the **PROPFIND** method in [\[RFC2518\]](#).
- **http://schemas.microsoft.com/exchange/allprop** (as specified in section [2.2.3.13](#))

2.2.1.18 PROPPATCH

The **PROPPATCH** method is used to update properties on an existing resource or to create a new resource. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

- All headers specified for the **PROPPATCH** method in [\[RFC2518\]](#)
- **Brief** (as specified in section [2.2.2.4](#))
- **Transaction** (as specified in section [2.2.2.24](#))
- **Translate** (as specified in section [2.2.2.25](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **PROPPATCH** method in [\[RFC2518\]](#)
- **MS-Exchange-Permanent-URL** (as specified in section [2.2.2.11](#))
- **Repl-UID** (as specified in section [2.2.2.17](#))
- **ResourceTag** (as specified in section [2.2.2.18](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- All XML elements specified for the **PROPPATCH** method in [\[RFC2518\]](#)

2.2.1.19 PUT

The **PUT** method is used to create a new resource that is not a **Folder object**. This method is specified in [\[RFC2068\]](#) section 9.6 and [\[RFC2518\]](#) section 8.7 and extended here.

Request Headers

- All headers specified for the **PUT** method in [\[RFC2068\]](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **Transaction** (as specified in section [2.2.2.24](#))
- **Savedestination** (as specified in section [2.2.2.19](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **PUT** method in [\[RFC2068\]](#)
- **GetETag** (as specified in section [2.2.2.9](#))
- **MS-Exchange-Permanent-URL** (as specified in section [2.2.2.11](#))
- **ResourceTag** (as specified in section [2.2.2.18](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))
- **Repl-UID** (as specified in section [2.2.2.17](#))

XML Elements

- None

2.2.1.20 SEARCH

The **SEARCH** method is used to request a search of the contents of a container. This method is specified in [\[MS-XWDSEARCH\]](#).

2.2.1.21 SUBSCRIBE

The **SUBSCRIBE** method is used to create a subscription to a resource. This method is specified in [\[MS-XWDNOTIF\]](#).

2.2.1.22 UNLOCK

The **UNLOCK** method is specified in [\[RFC2518\]](#) and extended here. This method removes a lock on a resource. In the case of a **transaction (2)**, it will indicate whether to commit or abort the transaction.

Request Headers

- All headers specified for the **UNLOCK** method in [\[RFC2518\]](#)
- **Translate** (as specified in section [2.2.2.25](#))

- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **UNLOCK** method in [\[RFC2518\]](#)
- **Repl-UID** (as specified in section [2.2.2.17](#))
- **ResourceTag** (as specified in section [2.2.2.18](#))
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- **DAV:transactioninfo** (as specified in section [2.2.3.8](#))
- **DAV:transactionstatus** (as specified in section [2.2.3.9](#))
- **DAV:commit** (as specified in section [2.2.3.11](#))
- **DAV:abort** (section [2.2.3.10](#))

2.2.1.23 UNSUBSCRIBE

The **UNSUBSCRIBE** method is used to end a subscription to a resource. This method is specified in [\[MS-XWDNOTIF\]](#).

2.2.1.24 X-MS-ENUMATTS

The **X-MS-ENUMATTS** method is used to enumerate the attachments of an e-mail message as specified in [\[MS-XWDMAIL\]](#). This enumeration comes back in the body of the response as an **XML** message that obeys the same rules as defined for the **PROPFIND** method, as specified in [\[RFC2518\]](#).

Request Headers

- All headers specified for the **PROPFIND** method in section [2.2.1.17](#)
- **Translate** (as specified in section [2.2.2.25](#))
- **User-Agent** (as specified in section [2.2.2.26](#))

Response Headers

- All headers specified for the **PROPFIND** method in section [2.2.1.17](#)
- **MS-WebStorage** (as specified in section [2.2.2.12](#))

XML Elements

- All XML elements specified for the **PROPFIND** method in section [2.2.1.17](#)

2.2.2 Headers

The **Augmented Backus-Naur Form (ABNF)** notation, as specified in [\[RFC5234\]](#), is used to specify the format of the following headers.

2.2.2.1 Accept-Ranges

The **Accept-Ranges** header is specified in [\[RFC2068\]](#) and extended in [\[MS-XWDSEARCH\]](#).

2.2.2.2 Allow-Extension

The **Allow-Extension** header is the response header for the **OPTIONS** method.

```
Allow-Extension = "Allow-Extension" ":" Extension-spec
Extension-spec = URI-reference *["," URI-reference]
;Where URI-reference is per [RFC2396] section 4
```

The **Allow-Extension** response header indicates a set of schemas and behaviors related to a particular feature of the server. The **Allow-Extension** header is similar to the **Allow** header, as specified in [\[RFC2068\]](#), but instead of a list of methods allowed on a particular entity, it specifies one or more sets of schemas and behaviors allowed on a particular entity. For examples of these, see [\[MS-XWDMAIL\]](#) and [\[MS-XWDREPL\]](#). **URI-reference** is specified in [\[RFC2396\]](#) section 4.

Methods

- **OPTIONS** (as specified in section [2.2.1.14](#))

2.2.2.3 Allow-Rename

The **Allow-Rename** header is a request header for copy or move methods.

```
Allow-rename = "Allow-rename" ":" rename-spec
Rename-spec = 1*VCHAR
```

If the first character in Rename-spec is 't' or 'T', this header indicates to the server that in case of a conflict in names, the name of the resource can be renamed to be unique. The unique name will be returned in the **Content-location** header, as specified in [\[RFC2068\]](#). Any other first character in the Rename-spec or the absence of this header indicates that the resource cannot be renamed in case of conflict.

Note that if this header is used in conjunction with the **Overwrite** header, as specified in [\[RFC2518\]](#), it only is paid attention to if the **Overwrite** header has a logical value of "FALSE". Otherwise it is ignored.

Methods

- **COPY** (as specified in section [2.2.1.6](#))
- **MOVE** (as specified in section [2.2.1.12](#))
- **BCOPY** (as specified in section [2.2.1.1](#))
- **BMOVE** (as specified in section [2.2.1.3](#))

2.2.2.4 Brief

The **Brief** header is a request header used to indicate that the XML response can be reduced.

```
Brief-header = "Brief" ":" brief-val
```

brief-val = 1*VCHAR

If the first character in the brief-val is 't' or 'T', the header has a logical value of "TRUE". Any other first character in the brief-val or the absence of the header itself means that the header has a logical value of "FALSE".

Methods

PROPFIND (as specified in section [2.2.1.17](#))

BPROPFIND (as specified in section [2.2.1.4](#))

SEARCH (as specified in section [2.2.1.20](#))

PROPPATCH (as specified in section [2.2.1.18](#))

BPROPPATCH (as specified in section [2.2.1.5](#))

2.2.2.5 Call-Back

The **Call-Back** header is a request header on the **SUBSCRIBE** method.

The **Call-Back** header is used to specify a UDP callback address so that notifications can be actively pushed to the client from the server by using the **NOTIFY** method. This header is specified in [\[MS-XWDNOTIF\]](#).

Method

SUBSCRIBE (as specified in section [2.2.1.21](#))

2.2.2.6 Content-Range

The **Content-Range** header is specified in [\[RFC2068\]](#) and extended in [\[MS-XWDSEARCH\]](#).

Methods

PROPFIND (as specified in section [2.2.1.17](#))

SEARCH (as specified in section [2.2.1.20](#))

2.2.2.7 DASL

The **DASL** header is specified in [\[MS-XWDSEARCH\]](#).

Methods

OPTIONS (as specified in section [2.2.1.14](#))

2.2.2.8 Depth

The **Depth** header is specified in [\[RFC2518\]](#) and [\[MS-WDVSE\]](#).

2.2.2.9 GetETag

The **GetETag** header is a response header on the **PUT** method. This header returns the value that would be returned in the **ETag** header, as specified in [\[RFC2068\]](#), if the client issued a **GET** request

with the **Translate** header set to 'f' on the resource that was just created or updated with the **PUT** request.

Methods

PUT (as specified in section [2.2.1.19](#))

2.2.2.10 MS-Author-Via

The **MS-Author-Via** header is a response header from an **OPTIONS** request to indicate the preferred mechanism by which clients can author content, as specified in [\[MS-WDVSE\]](#).

The server MUST set the value of this header to "DAV".

Methods

OPTIONS (as specified in section [2.2.1.14](#))

2.2.2.11 MS-Exchange-Permanent-URL

The **MS-Exchange-Permanent-URL** header is a response header for any newly created resource.

```
MS-Exchange-Permanent-URL-spec = "MS-Exchange-Permanent-URL" ":" P-URL-spec
P-URL-spec = URL-reference
;Where URL-reference is per [RFC2396] section 4
```

This header contains the value of the property **PidTagFlatUrlName** ([\[MS-XWDCAL\]](#) section 2.2.8.9). It is a URL that the client can always use to get to the resource, even if it moves to a different folder or is renamed. This header can be used as an alternate to the Request-URI, specified in [\[RFC2068\]](#), for the **HEAD** method, as specified in section [2.2.1.9](#); **GET** method, as specified in section [2.2.1.8](#); **OPTIONS** method, as specified in section [2.2.1.14](#); **PROPFIND** method, as specified in section [2.2.1.17](#); **SEARCH** method, as specified in section [2.2.1.20](#); and **PUT** method, as specified in section [2.2.1.19](#). In the case of the **PUT** method, however, if the URL does not exist, the resource will not be created (return 404 Not Found, as specified in [\[RFC2068\]](#) section 10.4.5).

Any other usage of this URL as a target to an operation MUST fail with 403 Forbidden, as specified in [\[RFC2068\]](#) section 10.4.4.

Methods

MKCOL (as specified in section [2.2.1.11](#))

PUT (as specified in section [2.2.1.19](#))

POST (as specified in section [2.2.1.16](#))

PROPPATCH (as specified in section [2.2.1.18](#), when creating a new entity)

2.2.2.12 MS-WebStorage

The **MS-WebStorage** header identifies the version of the server. The format of this header is implementation-specific. [<1>](#) This header MUST be returned on any response from the server.

Methods

All methods specified in section [2.2.1](#)

2.2.2.13 Notification-Delay

The **Notification-Delay** header is used in the **SUBSCRIBE** method request and specifies the delay the client would like the server to use in processing events. This header is specified in [\[MS-XWDNOTIF\]](#) section 2.2.4.

Methods

SUBSCRIBE (as specified in section [2.2.1.21](#))

2.2.2.14 Notification-Type

The **Notification-Type** header specifies the type of event that is to be monitored in a subscription request. This header is specified in [\[MS-XWDNOTIF\]](#) section 2.2.1.

Methods

SUBSCRIBE (as specified in section [2.2.1.21](#))

2.2.2.15 Public-Extension

The **Public-Extension** header is a response header for the **OPTIONS** method, as specified in section [2.2.1.14](#).

```
Allow-Extension    = "Public-Extension" ":" Extension-spec
Extension-spec     = URI-reference *["," URI-reference]
;Where URI-reference is per [RFC2396] section 4
```

The **Public-Extension** header indicates a set of schemas and behaviors related to a particular feature of the server. The **Public-Extension** header is similar to the **Public** header, as specified in [\[RFC2068\]](#), but instead of a list of methods allowed on a server, it specifies one or more sets of schemas and behaviors allowed on a server. For examples of these, see [\[MS-XWDMAIL\]](#) and [\[MS-XWDREPL\]](#).

Methods

OPTIONS (as specified in section [2.2.1.14](#))

2.2.2.16 Range

The **Range** header is specified in [\[RFC2518\]](#) and extended in [\[MS-XWDSEARCH\]](#).

Note that in order to use this header with the "rows" specified, as specified in [\[MS-XWDSEARCH\]](#) section 2.2.1.2, the client MUST submit a **Depth** header using the "noroot" variations found in [\[MS-WDVSE\]](#).

Methods

PROPFIND (as specified in section [2.2.1.17](#))

SEARCH (as specified in section [2.2.1.20](#))

BPROPFIND (as specified in section [2.2.1.4](#))

2.2.2.17 Repl-UID

The **Repl-UID** header is specified in [\[MS-XWDREPL\]](#).

Methods

MKCOL (as specified in section [2.2.1.11](#))

PROPPATCH (as specified in section [2.2.1.18](#))

PUT (as specified in section [2.2.1.19](#))

UNLOCK (as specified in section [2.2.1.22](#))

2.2.2.18 ResourceTag

The **ResourceTag** header is specified in [\[MS-XWDREPL\]](#).

Methods

DELETE (as specified in section [2.2.1.7](#))

MKCOL (as specified in section [2.2.1.11](#))

PROPPATCH (as specified in section [2.2.1.18](#))

PUT (as specified in section [2.2.1.19](#))

UNLOCK (as specified in section [2.2.1.22](#))

2.2.2.19 Savedestination

The **Savedestination** header is specified in [\[MS-XWDMAIL\]](#) section 2.2.1.3.

Methods

POST (as specified in section [2.2.1.16](#))

PUT (as specified in section [2.2.1.19](#))

COPY (as specified in section [2.2.1.6](#))

MOVE (as specified in section [2.2.1.12](#))

BCOPY (as specified in section [2.2.1.1](#))

BMOVE (as specified in section [2.2.1.3](#))

2.2.2.20 Saveinsent

The **Saveinsent** header is specified in [\[MS-XWDMAIL\]](#) section 2.2.1.4.

Methods

POST (as specified in section [2.2.1.16](#))

PUT (as specified in section [2.2.1.19](#))

COPY (as specified in section [2.2.1.6](#))

MOVE (as specified in section [2.2.1.12](#))

BCOPY (as specified in section [2.2.1.1](#))

BMOVE (as specified in section [2.2.1.3](#))

2.2.2.21 Subscribe-Group

The **Subscribe-Group** header is an identifier used to uniquely identify the message **store**. This header is specified in [\[MS-XWDNOTIF\]](#) section 2.2.6.

Methods

SUBSCRIBE (as specified in section [2.2.1.21](#))

NOTIFY (as specified in section [2.2.1.13](#))

2.2.2.22 Subscription-ID

The **Subscription-ID** header is a number that is assigned by the server to uniquely identify a subscription within the store. This header is specified in [\[MS-XWDNOTIF\]](#) section 2.2.5.

Methods

SUBSCRIBE (as specified in section [2.2.1.21](#))

POLL (as specified in section [2.2.1.15](#))

UNSUBSCRIBE (as specified in section [2.2.1.23](#))

NOTIFY (as specified in section [2.2.1.13](#))

2.2.2.23 Subscription-Lifetime

The **Subscription-Lifetime** header is used to specify the lifetime of a subscription in seconds. This header is specified in [\[MS-XWDNOTIF\]](#) section 2.2.3.

Methods

SUBSCRIBE (as specified in section [2.2.1.21](#))

2.2.2.24 Transaction

The **Transaction** header is used with the WebDAV and HTTP write methods to indicate that the method is to be included within the scope of a transaction. The **Transaction** header is set to the lock token obtained from the **LOCK** method response, as specified in section [2.2.1.10](#), used to initiate the transaction.

The client **MUST** be the owner of the transaction lock token; a client cannot add an operation to another client's transaction.

The **Transaction** header **MAY** submit a lock token that is different from one submitted in the **If** header, as specified in [\[RFC2518\]](#). This causes the method to be added to the transaction if the lock token is valid, but the method **MAY** succeed if the transaction does not exist.

Syntax:

```
Transaction = "Transaction" ":" OpaqueLockToken-URI  
; Where OpaqueLockToken-URI is as specified in [RFC2518] section 6.4
```

Example:

Transaction: <opaquelocktoken:a515cfa4-5da4-22e1-f5bf-00a0451e6bf7>

Methods

PUT (as specified in section [2.2.1.19](#))

PROPPATCH (as specified in section [2.2.1.18](#))

2.2.2.25 Translate

The **Translate** header indicates to the server whether to interpret the resource before responding to the client. This header has the following syntax.

```
Translate = "Translate" ":" Translate-value
```

Translate-value contains a string that indicates whether the server operates on the raw resource, which is identified by the **Request-URI**, as specified in [\[RFC2068\]](#). Only the first letter of the string is examined. If the first letter is 'f' or 'F', the value of **Translate** is equivalent to 'FALSE' and the server operates on the raw resource. If the first letter is not 'f' or 'F' or if the **Translate** header is not present, then the value of **Translate** is equivalent to "TRUE" and the server's behavior is implementation-defined.

For example, suppose that the client issues a **GET** command against a script that, normally, would be executed by the server. (The result of running the script would be returned in the server's response.) If the **Translate** header is set to 'f', the server will not execute the script but, instead, will return the actual script in the response.

Methods

All methods specified in section [2.2.1](#)

2.2.2.26 User-Agent

The **User-Agent** header is specified in [\[RFC2068\]](#) and extended here. For more details, see section [3.1.5.2.2](#).

Methods

All methods specified in section [2.2.1](#)

2.2.3 XML Element Definitions

In the sections following, the final line of each section specifies the syntax of the XML element. The format used to specify the syntax is specified in [\[XML1\]](#).

2.2.3.1 target

Name: **target**

Namespace: DAV:

Purpose: Specifies the targets for a batched operation.

Value: Contains either of the following:

1. A list of **href** XML elements as specified in [\[RFC2518\]](#), that are targets for the **BDELETE**, **BPROPPATCH**, or **BPROPFIND** methods specified in section [2.2.1](#).
2. A single set of **href** elements and **dest** XML elements, as specified in section [2.2.3.2](#), that are targets for the **BCOPY** method, as specified in section [2.2.1.1](#), or **BMOVE** method, as specified in section [2.2.1.3](#).

<!ELEMENT target ((href)+ | (href dest)) >

2.2.3.2 dest

Name: **dest**

Namespace: DAV:

Purpose: Indicates the destination of a link.

Value: URI

<!ELEMENT dest (#PCDATA) >

2.2.3.3 copy

Name: **copy**

Namespace: DAV:

Purpose: Contains the list of targets to be copied.

Value: One or more **target** XML elements

<!ELEMENT copy (target)+ >

2.2.3.4 move

Name: **move**

Namespace: DAV:

Purpose: Contains the list of targets to be moved.

Value: One or more **target** XML elements

<!ELEMENT move (target)+ >

2.2.3.5 local

Name: **local**

Namespace: DAV:

Purpose: Specifies a local transaction scope. A local transaction is one that will not cause a conflict as the changes made under such a transaction are not visible to any requests outside of the transaction.

<!ELEMENT local EMPTY>

2.2.3.6 transaction

Name: **transaction**

Namespace: DAV:

Purpose: Specifies a transaction.

<!ELEMENT transaction (groupoperation)>

2.2.3.7 groupoperation

Name: **groupoperation**

Namespace: DAV:

Purpose: Specifies the type of transaction. Group operations are a set of write operations that can be either committed or aborted atomically.

<!ELEMENT groupoperation EMPTY>

2.2.3.8 transactioninfo

Name: **transactioninfo**

Namespace: DAV:

Purpose: Specifies transaction-related information in the **UNLOCK** method request, as specified in section [2.2.1.22](#).

<!ELEMENT transactioninfo (transactionstatus)>

2.2.3.9 transactionstatus

Name: **transactionstatus**

Namespace: DAV:

Purpose: Specifies a transaction lock.

<!ELEMENT transactionstatus ((abort) | (commit))>

2.2.3.10 abort

Name: **abort**

Namespace: DAV:

Purpose: Specifies the intention to abort a transaction.

<!ELEMENT abort EMPTY>

2.2.3.11 **commit**

Name: **commit**

Namespace: DAV:

Purpose: Specifies the intention to commit a transaction.

<!ELEMENT commit EMPTY>

2.2.3.12 **delete**

Name: **delete**

Namespace: DAV:

Purpose: Contains the list of targets to be deleted.

Value: One or more **target** XML elements, as specified in section [2.2.3.1](#)

<!ELEMENT delete (target)+ >

2.2.3.13 **allprop**

Name: **allprop**

Namespace: <http://schemas.microsoft.com/exchange/>

Purpose: Specifies a request for all properties on a resource.

<!ELEMENT allprops EMPTY>

2.2.3.14 **checkout**

Name: **checkout**

Namespace: DAV:

Purpose: Specifies the type of transaction. For details regarding **checkout** locks, see section [3.1.5.1.7.2](#).

<!ELEMENT checkout EMPTY>

2.2.4 **Special URLs**

2.2.4.1 **##DavMailSubmissionURI##**

The ##DavMailSubmissionURI## URL is specified in [\[MS-XWDMail\]](#) section 2.2.2.6.18.

2.2.4.2 **-FlatUrlSpace-**

The -FlatUrlSpace- URL is used to contain alternate URLs to items that are independent of the folder in which they exist. The alternate URLs can be used instead of the normal URLs for certain methods. They are generated by the server and returned in the **MS-Exchange-Permanent-URL** header, as

specified in section [2.2.2.11](#), whenever a 201 Created response, as specified in [\[RFC2068\]](#) section 10.2.2, is appropriate.

An example of a flat URL is as follows:

```
http://server/exchange/user/-FlatUrlSpace-/3fcf4b905b63764683c7f135e3f9bd64-6ec7573/3fcf4b905b63764683c7f135e3f9bd64-6ec991c
```

The general form is as follows:

Public folder store:

```
http[s]://<server:port>/public/-FlatUrlSpace-/<unique string>
```

Mailbox store:

```
http[s]://<server:port>/exchange/<user>/-FlatUrlSpace-/<unique string>
```

Although "http[s]://<server:port>/public/-FlatUrlSpace-/" and "http[s]://<server:port>/exchange/<user>/-FlatUrlSpace-/" appear as collections, they are not. Any attempts to operate on them as collections MUST result in a 404 Resource Not Found response, as specified in [\[RFC2068\]](#) section 10.4.5.

Methods supported

PROPFIND (as specified in section [2.2.1.17](#))

GET (as specified in section [2.2.1.8](#))

HEAD (as specified in section [2.2.1.9](#))

PUT (as specified in section [2.2.1.19](#); to overwrite)

PROPPATCH (as specified in section [2.2.1.18](#))

COPY as the **Request-URI**, as specified in [\[RFC2068\]](#)

MOVE as the **Request-URI** (as specified in section [2.2.1.12](#))

OPTIONS (as specified in section [2.2.1.14](#))

DELETE (as specified in section [2.2.1.7](#))

SEARCH (as specified in section [2.2.1.20](#))

Any other methods that would otherwise succeed MUST return the 403 Forbidden error code, as specified in [\[RFC2068\]](#) section 10.4.4.

2.2.4.3 Non_IPM_Subtree

The Non_IPM_Subtree URL is used to access the **non-interpersonal messaging subtree** folder that is found in every mailbox and public folder store and that typically contains operational metadata.

To get to the non-interpersonal messaging subtree folder for the public folder store, append "Non_IPM_Subtree" to the Public Folder Root URL (section [2.2.4.4](#)).

Example:

http[s]://<server:port>/public/Non_IPM_Subtree/

To get to the non-interpersonal messaging subtree folder for a mailbox, append "Non_IPM_Subtree" to the Mailbox Root URL, as specified in section [2.2.4.5](#).

Example:

http[s]://<server:port>/exchange/<user>/Non_IPM_Subtree/

Note that the non-interpersonal messaging subtree folder is not discoverable by using either the **PROPFIND** method, as specified in section [2.2.1.17](#), or the **SEARCH** method, as specified in section [2.2.1.20](#), on the **root folder** of either the public folder store or the mailbox store. It is only accessible directly.

2.2.4.4 Public Folder Root

The Public Folder Root URL is used to access the root folder of the public folder store.

This URL takes the following form:

http[s]://<server:port>/public/

On the Public Folder Root, the server MUST NOT return the **Allow-Extension** header, as specified in section [2.2.2.2](#), in response to an **OPTIONS** request, as specified in section [2.2.1.14](#).

2.2.4.5 Mailbox Root

The Mailbox Root URL is used to access the root folder of the mailbox store.

This URL takes the following form:

http[s]://<server:port>/exchange/<user>/

2.2.4.6 Mailbox Store VRoot

The Mailbox Store VRoot URL is the root of all mailboxes on a server.

This URL takes the following form:

http[s]://<server:port>/exchange/

This particular entity is artificial and is used only as a container for all mailboxes on a server.

On this mailbox root the server MUST NOT return the **Allow-Extension** header, as specified in section [2.2.2.2](#), in response to an **OPTIONS** request, as specified in section [2.2.1.14](#).

Other methods MUST fail with the following errors:

Method name	Error
BCOPY (section 2.2.1.1)	404 ([RFC2068] section 10.4.5)
BDELETE (section 2.2.1.2)	404
BMOVE (section 2.2.1.3)	404
BPROPFIND (section 2.2.1.4)	404

Method name	Error
BPROPPATCH (section 2.2.1.5)	404
COPY (section 2.2.1.6)	403 ([RFC2068] section 10.4.4)
DELETE (section 2.2.1.7)	403
LOCK (section 2.2.1.10)	404
MKCOL (section 2.2.1.11)	404
MOVE (section 2.2.1.12)	403
POLL (section 2.2.1.15)	404
POST (section 2.2.1.16)	404
PUT section 2.2.1.19 ()	404
SEARCH (section 2.2.1.20)	404
SUBSCRIBE (section 2.2.1.21)	404
UNLOCK (section 2.2.1.22)	404
UNSUBSCRIBE (section 2.2.1.23)	404
X-MS-ENUMATTS (section 2.2.1.24)	404

2.2.5 Default Properties

The following sections specify the default properties for WebDAV resources that represent **E-mail objects**, **Calendar objects**, **Contact objects**, and Folder objects.

2.2.5.1 Mail

PidTagComment ([\[MS-OXCFOLD\]](#) section 2.3.2.2.2)

PidNameContentClass ([\[MS-OXPROPS\]](#) section 2.432)

PidTagCreationTime ([\[MS-OXPROPS\]](#) section 2.725)

PidTagTemporaryDefaultDocument ([\[MS-OXPROPS\]](#) section 2.1156)

PidTagLastModificationTime ([\[MS-OXPROPS\]](#) section 2.861)

PidTagSubfolders ([\[MS-OXPROPS\]](#) section 2.1144)

PidTagUrlName ([\[MS-OXPROPS\]](#) section 2.1168)

PidNameDavId ([\[MS-OXPROPS\]](#) section 2.443)

PidNameDavIsCollection ([\[MS-OXPROPS\]](#) section 2.444)

PidTagSubfolder ([\[MS-OXPROPS\]](#) section 2.1143)

PidTagAttributeHidden ([\[MS-OXCFOLD\]](#) section 2.3.2.2.1)

PidTagAttributeReadOnly ([\[MS-XWDCAL\]](#) section 2.2.1.8)

PidNameDavIsStructuredDocument ([\[MS-OXPROPS\]](#) section 2.445)

PidNameDavParentName ([\[MS-OXPROPS\]](#) section 2.446)

PidNameDavResourceType ([\[MS-OXPROPS\]](#) section 2.447)

PidNameDavSearchRequest ([\[MS-OXPROPS\]](#) section 2.448)

PidNameDavSearchType ([\[MS-OXPROPS\]](#) section 2.449)

PidNameDavUid ([\[MS-OXPROPS\]](#) section 2.450)

PidTagContentCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.1)

PidTagPublicFolderAdministrativeDescription ([\[MS-OXPROPS\]](#) section 2.971)

PidTagPublicFolderProxy ([\[MS-OXPROPS\]](#) section 2.972)

PidTagNormalMessageSize ([\[MS-OXPROPS\]](#) section 2.908)

PidTagMid ([\[MS-OXPROPS\]](#) section 2.898)

PidTagExchangeNTSecurityDescriptor ([\[MS-OXPROPS\]](#) section 2.763)

PidTagContainerClass ([\[MS-OXOCAL\]](#) section 2.2.11.1)

PidTagMessageClass ([\[MS-OXPROPS\]](#) section 2.884)

PidTagFlatUrlName ([\[MS-OXPROPS\]](#) section 2.774)

PidNameExchangePublicFolderEmailAddress ([\[MS-OXPROPS\]](#) section 2.462)

PidTagSensitivity ([\[MS-OXPROPS\]](#) section 2.1115)

PidNameCalendarMethod ([\[MS-OXPROPS\]](#) section 2.397)

PidNameApproved ([\[MS-OXPROPS\]](#) section 2.369)

PidNameBcc ([\[MS-OXPROPS\]](#) section 2.379)

PidNameCc ([\[MS-OXPROPS\]](#) section 2.410)

PidNameInternetComment ([\[MS-OXPROPS\]](#) section 2.490)

PidNameContentDisposition ([\[MS-OXPROPS\]](#) section 2.433)

PidNameContentID ([\[MS-OXPROPS\]](#) section 2.434)

PidNameContentLanguage ([\[MS-OXPROPS\]](#) section 2.435)

PidNameContentLocation ([\[MS-OXPROPS\]](#) section 2.436)

PidNameContentTransferEncoding ([\[MS-OXPROPS\]](#) section 2.437)

PidNameContentType ([\[MS-OXPROPS\]](#) section 2.438)

PidNameControl ([\[MS-OXPROPS\]](#) section 2.439)

PidNameDispositionNotificationTo ([\[MS-OXPROPS\]](#) section 2.452)
PidNameDistribution ([\[MS-OXPROPS\]](#) section 2.453)
PidNameExpires ([\[MS-OXPROPS\]](#) section 2.467)
PidNameExpiryDate ([\[MS-OXPROPS\]](#) section 2.468)
PidNameFollowupTo ([\[MS-OXPROPS\]](#) section 2.469)
PidNameImportance ([\[MS-OXPROPS\]](#) section 2.486)
PidNameInReplyTo ([\[MS-OXPROPS\]](#) section 2.487)
PidNameInternetKeywords ([\[MS-OXPROPS\]](#) section 2.491)
PidNameLines ([\[MS-OXPROPS\]](#) section 2.498)
PidNameMessageId ([\[MS-OXPROPS\]](#) section 2.503)
PidNameMimeVersion ([\[MS-OXPROPS\]](#) section 2.504)
PidNameNewsgroups ([\[MS-OXPROPS\]](#) section 2.506)
PidNameOrganization ([\[MS-OXPROPS\]](#) section 2.514)
PidNameOriginalRecipient ([\[MS-OXPROPS\]](#) section 2.515)
PidNamePath ([\[MS-OXPROPS\]](#) section 2.522)
PidNamePostingVersion ([\[MS-OXPROPS\]](#) section 2.524)
PidNamePriority ([\[MS-OXPROPS\]](#) section 2.526)
PidNameReceived ([\[MS-OXPROPS\]](#) section 2.528)
PidNameReferences ([\[MS-OXPROPS\]](#) section 2.529)
PidNameRelayVersion ([\[MS-OXPROPS\]](#) section 2.530)
PidNameReplyBy ([\[MS-OXPROPS\]](#) section 2.531)
PidNameReplyTo ([\[MS-OXPROPS\]](#) section 2.532)
PidNameReturnPath ([\[MS-OXPROPS\]](#) section 2.533)
PidNameReturnReceiptTo ([\[MS-OXPROPS\]](#) section 2.534)
PidNameSender ([\[MS-OXPROPS\]](#) section 2.540)
PidNameSensitivity ([\[MS-OXPROPS\]](#) section 2.541)
PidNameInternetSubject ([\[MS-OXPROPS\]](#) section 2.492)
PidNameSummary ([\[MS-OXPROPS\]](#) section 2.544)
PidNameThreadIndex ([\[MS-OXPROPS\]](#) section 2.546)
PidNameThreadTopic ([\[MS-OXPROPS\]](#) section 2.547)

PidNameTo ([\[MS-OXPROPS\]](#) section 2.550)
PidNameXMailer ([\[MS-OXPROPS\]](#) section 2.554)
PidNameXMessageCompleted ([\[MS-OXPROPS\]](#) section 2.555)
PidNameXMessageFlag ([\[MS-OXPROPS\]](#) section 2.556)
PidNameCrossReference ([\[MS-OXPROPS\]](#) section 2.441)
PidNameXUnsent ([\[MS-OXPROPS\]](#) section 2.578)
PidNameExchDatabaseSchema ([\[MS-OXPROPS\]](#) section 2.464)
PidNameExchDataExpectedContentClass ([\[MS-OXPROPS\]](#) section 2.465)
PidNameExchDataSchemaCollectionReference ([\[MS-OXPROPS\]](#) section 2.466)
PidNameKeywords ([\[MS-OXPROPS\]](#) section 2.493)

2.2.5.2 Calendar

PidTagComment ([\[MS-OXCFOLD\]](#) section 2.3.2.2.2)
PidNameContentClass ([\[MS-OXPROPS\]](#) section 2.432)
PidTagCreationTime ([\[MS-OXCMSG\]](#) section 2.2.2.3)
PidTagTemporaryDefaultDocument ([\[MS-OXPROPS\]](#) section 2.1156)
PidTagLastModificationTime ([\[MS-OXPROPS\]](#) section 2.861)
PidTagSubfolders ([\[MS-OXPROPS\]](#) section 2.1144)
PidTagUrlName ([\[MS-OXPROPS\]](#) section 2.1168)
PidNameDavId ([\[MS-OXPROPS\]](#) section 2.443)
PidNameDavIsCollection ([\[MS-OXPROPS\]](#) section 2.444)
PidTagSubfolder ([\[MS-OXPROPS\]](#) section 2.1143)
PidTagAttributeHidden ([\[MS-OXCFOLD\]](#) section 2.3.2.2.1)
PidTagAttributeReadOnly ([\[MS-XWDCAL\]](#) section 2.2.1.8)
PidNameDavIsStructuredDocument ([\[MS-OXPROPS\]](#) section 2.445)
PidNameDavParentName ([\[MS-OXPROPS\]](#) section 2.446)
PidNameDavResourceType ([\[MS-OXPROPS\]](#) section 2.447)
PidNameDavSearchRequest ([\[MS-OXPROPS\]](#) section 2.448)
PidNameDavSearchType ([\[MS-OXPROPS\]](#) section 2.449)
PidNameDavUid ([\[MS-OXPROPS\]](#) section 2.450)
PidTagContentCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.1)

PidTagPublicFolderAdministrativeDescription ([\[MS-OXPROPS\]](#) section 2.971)
PidLidCompanies ([\[MS-OXPROPS\]](#) section 2.64)
PidTagPublicFolderProxy ([\[MS-OXPROPS\]](#) section 2.972)
PidTagNormalMessageSize ([\[MS-OXPROPS\]](#) section 2.908)
PidTagMid ([\[MS-OXPROPS\]](#) section 2.898)
PidTagExchangeNTSecurityDescriptor ([\[MS-XWDCAL\]](#) section 2.2.8.8)
PidTagContainerClass ([\[MS-OXOCAL\]](#) section 2.2.11.1)
PidTagMessageClass ([\[MS-OXPROPS\]](#) section 2.884)
PidTagFlatUrlName ([\[MS-XWDCAL\]](#) section 2.2.8.9)
PidNameExchangePublicFolderEmailAddress ([\[MS-OXPROPS\]](#) section 2.462)
PidTagSensitivity ([\[MS-OXPROPS\]](#) section 2.1115)
PidLidAppointmentSubType ([\[MS-OXOCAL\]](#) section 2.2.1.9)
PidNameCalendarBusystatus ([\[MS-OXPROPS\]](#) section 2.382)
PidNameCalendarContactUrl ([\[MS-OXPROPS\]](#) section 2.384)
PidNameCalendarCreated ([\[MS-OXPROPS\]](#) section 2.385)
PidNameCalendarDescriptionUrl ([\[MS-OXPROPS\]](#) section 2.386)
PidTagICalendarEndTime ([\[MS-OXPROPS\]](#) section 2.810)
PidLidOwnerCriticalChange ([\[MS-OXOCAL\]](#) section 2.2.1.34)
PidTagICalendarStartTime ([\[MS-OXPROPS\]](#) section 2.812)
PidNameCalendarDuration ([\[MS-OXPROPS\]](#) section 2.387)
PidNameCalendarExceptionDate ([\[MS-OXPROPS\]](#) section 2.388)
PidNameCalendarExceptionRule ([\[MS-OXPROPS\]](#) section 2.389)
PidNameCalendarGeoLatitude ([\[MS-OXPROPS\]](#) section 2.390)
PidNameCalendarGeoLongitude ([\[MS-OXPROPS\]](#) section 2.391)
PidNameCalendarInstanceType ([\[MS-OXPROPS\]](#) section 2.392)
PidNameCalendarLastModified ([\[MS-OXPROPS\]](#) section 2.394)
PidNameCalendarLocationUrl ([\[MS-OXPROPS\]](#) section 2.395)
PidNameCalendarMeetingStatus ([\[MS-OXPROPS\]](#) section 2.396)
PidNameCalendarMethod ([\[MS-OXPROPS\]](#) section 2.397)
PidNameICalendarRecurrenceDate ([\[MS-OXPROPS\]](#) section 2.484)

PidNameCalendarRecurrenceIdRange ([\[MS-OXPROPS\]](#) section 2.399)
PidNameCalendarReminderOffset ([\[MS-OXPROPS\]](#) section 2.400)
PidLidAppointmentReplyTime ([\[MS-OXOCAL\]](#) section 2.2.4.3)
PidNameCalendarResources ([\[MS-OXPROPS\]](#) section 2.401)
PidTagResponseRequested ([\[MS-OXPROPS\]](#) section 2.1026)
PidNameICalendarRecurrenceRule ([\[MS-OXPROPS\]](#) section 2.485)
PidNameCalendarSequence ([\[MS-OXPROPS\]](#) section 2.403)
PidNameCalendarTimeZoneId ([\[MS-OXPROPS\]](#) section 2.405)
PidNameCalendarTransparent ([\[MS-OXPROPS\]](#) section 2.406)
PidNameCalendarUid ([\[MS-OXPROPS\]](#) section 2.407)
PidLidBilling ([\[MS-OXOCNTC\]](#) section 2.2.1.9.24)
PidTagExpiryTime ([\[MS-OXPROPS\]](#) section 2.765)
PidTagHasAttachments ([\[MS-OXPROPS\]](#) section 2.793)
PidNameHttpmailHtmlDescription ([\[MS-OXPROPS\]](#) section 2.479)
PidTagNormalizedSubject ([\[MS-OXPROPS\]](#) section 2.907)
PidTagPriority ([\[MS-OXPROPS\]](#) section 2.965)
PidTagRead ([\[MS-OXPROPS\]](#) section 2.975)
PidTagSubject ([\[MS-OXPROPS\]](#) section 2.1145)
PidTagBody ([\[MS-OXCMSG\]](#) section 2.2.1.44.1)
PidTagContentUnreadCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.2)
PidNameInternetSubject ([\[MS-OXPROPS\]](#) section 2.492)
PidNameExchDatabaseSchema ([\[MS-OXPROPS\]](#) section 2.464)
PidNameExchDataExpectedContentClass ([\[MS-OXPROPS\]](#) section 2.465)
PidNameExchDataSchemaCollectionReference ([\[MS-OXPROPS\]](#) section 2.466)
PidNameKeywords ([\[MS-OXPROPS\]](#) section 2.493)

2.2.5.3 Contacts

PidTagComment ([\[MS-OXCFOLD\]](#) section 2.3.2.2.2)
PidNameContentClass ([\[MS-OXPROPS\]](#) section 2.432)
PidTagCreationTime ([\[MS-OXCMSG\]](#) section 2.2.2.3)
PidTagTemporaryDefaultDocument ([\[MS-OXPROPS\]](#) section 2.1156)

PidTagLastModificationTime ([\[MS-OXPROPS\]](#) section 2.861)

PidTagSubfolders ([\[MS-OXPROPS\]](#) section 2.1144)

PidTagUrlName ([\[MS-OXPROPS\]](#) section 2.1168)

PidNameDavId ([\[MS-OXPROPS\]](#) section 2.443)

PidNameDavIsCollection ([\[MS-OXPROPS\]](#) section 2.444)

PidTagSubfolder ([\[MS-OXPROPS\]](#) section 2.1143)

PidTagAttributeHidden ([\[MS-OXCFOLD\]](#) section 2.3.2.2.1)

PidTagAttributeReadOnly ([\[MS-XWDCAL\]](#) section 2.2.1.8)

PidNameDavIsStructuredDocument ([\[MS-OXPROPS\]](#) section 2.445)

PidNameDavParentName ([\[MS-OXPROPS\]](#) section 2.446)

PidNameDavResourceType ([\[MS-OXPROPS\]](#) section 2.447)

PidNameDavSearchRequest ([\[MS-OXPROPS\]](#) section 2.448)

PidNameDavSearchType ([\[MS-OXPROPS\]](#) section 2.449)

PidNameDavUid ([\[MS-OXPROPS\]](#) section 2.450)

PidTagContentCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.1)

PidTagPublicFolderAdministrativeDescription ([\[MS-OXPROPS\]](#) section 2.971)

PidLidCompanies ([\[MS-OXPROPS\]](#) section 2.64)

PidLidContactUserField1 ([\[MS-OXOCNTC\]](#) section 2.2.1.7.3)

PidLidContactUserField2 ([\[MS-OXOCNTC\]](#) section 2.2.1.7.3)

PidLidContactUserField3 ([\[MS-OXOCNTC\]](#) section 2.2.1.7.3)

PidLidContactUserField4 ([\[MS-OXOCNTC\]](#) section 2.2.1.7.3)

PidTagPublicFolderProxy ([\[MS-OXPROPS\]](#) section 2.972)

PidTagNormalMessageSize ([\[MS-OXPROPS\]](#) section 2.908)

PidTagMid ([\[MS-OXPROPS\]](#) section 2.898)

PidTagExchangeNTSecurityDescriptor ([\[MS-XWDCAL\]](#) section 2.2.8.8)

PidTagContainerClass ([\[MS-OXOCAL\]](#) section 2.2.11.1)

PidTagMessageClass ([\[MS-OXPROPS\]](#) section 2.884)

PidTagFlatUrlName ([\[MS-XWDCAL\]](#) section 2.2.8.9)

PidNameExchangePublicFolderEmailAddress ([\[MS-OXPROPS\]](#) section 2.462)

PidLidYomiFirstName ([\[MS-OXOCNTC\]](#) section 2.2.1.1.9)

PidLidYomiLastName ([\[MS-OXOCNTC\]](#) section 2.2.1.1.10)

PidLidYomiCompanyName ([\[MS-OXOCNTC\]](#) section 2.2.1.6.8)

PidLidFreeBusyLocation ([\[MS-OXOCNTC\]](#) section 2.2.1.9.10)

PidNameCalendarGeoLatitude ([\[MS-OXPROPS\]](#) section 2.390)

PidNameCalendarGeoLongitude ([\[MS-OXPROPS\]](#) section 2.391)

PidTagAccount ([\[MS-OXPROPS\]](#) section 2.585)

PidTagBirthday ([\[MS-OXOABK\]](#) section 2.2.4.79)

PidLidBilling ([\[MS-OXOCNTC\]](#) section 2.2.1.9.24)

PidTagBusinessHomePage ([\[MS-OXOABK\]](#) section 2.2.4.78)

PidNameContactsCountry ([\[MS-OXPROPS\]](#) section 2.415)

PidTagCallbackTelephoneNumber ([\[MS-OXOABK\]](#) section 2.2.4.44)

PidTagChildrensNames ([\[MS-OXOCNTC\]](#) section 2.2.1.9.17)

PidTagDisplayName ([\[MS-OXCFOLD\]](#) section 2.3.2.2.3)

PidLidWorkAddressCountry ([\[MS-OXOCNTC\]](#) section 2.2.1.3.5)

PidTagComputerNetworkName ([\[MS-OXOABK\]](#) section 2.2.4.74)

PidTagCustomerId ([\[MS-OXOABK\]](#) section 2.2.4.75)

PidTagDepartmentName ([\[MS-OXOABK\]](#) section 2.2.4.9)

PidTagMessageHandlingSystemCommonName ([\[MS-OXPROPS\]](#) section 2.889)

PidNameContactsEmail1 ([\[MS-OXPROPS\]](#) section 2.416)

PidNameContactsEmail2 ([\[MS-OXPROPS\]](#) section 2.417)

PidNameContactsEmail3 ([\[MS-OXPROPS\]](#) section 2.418)

PidTagOrganizationalIdNumber ([\[MS-OXPROPS\]](#) section 2.918)

PidTagBusinessFaxNumber ([\[MS-OXOABK\]](#) section 2.2.4.51)

PidNameContactsFileasId ([\[MS-OXPROPS\]](#) section 2.420)

PidTagFtpSite ([\[MS-OXPROPS\]](#) section 2.785)

PidTagGender ([\[MS-OXPROPS\]](#) section 2.789)

PidTagGivenName ([\[MS-OXPROPS\]](#) section 2.791)

PidTagGovernmentIdNumber ([\[MS-OXPROPS\]](#) section 2.792)

PidTagHobbies ([\[MS-OXPROPS\]](#) section 2.798)

PidTagHomeAddressCity ([\[MS-OXPROPS\]](#) section 2.801)

PidTagHomeAddressCountry ([\[MS-OXPROPS\]](#) section 2.802)
PidTagHomeFaxNumber ([\[MS-OXPROPS\]](#) section 2.807)
PidNameContactsHomeLatitude ([\[MS-OXPROPS\]](#) section 2.421)
PidNameContactsHomeLongitude ([\[MS-OXPROPS\]](#) section 2.422)
PidTagHomeTelephoneNumber ([\[MS-OXPROPS\]](#) section 2.808)
PidTagHome2TelephoneNumber ([\[MS-OXPROPS\]](#) section 2.799)
PidLidHomeAddress ([\[MS-OXOCNTC\]](#) section 2.2.1.3.8)
PidTagHomeAddressPostalCode ([\[MS-OXPROPS\]](#) section 2.803)
PidTagHomeAddressPostOfficeBox ([\[MS-OXPROPS\]](#) section 2.804)
PidTagHomeAddressStateOrProvince ([\[MS-OXPROPS\]](#) section 2.805)
PidTagHomeAddressStreet ([\[MS-OXPROPS\]](#) section 2.806)
PidNameContactsHomeTimeZone ([\[MS-OXPROPS\]](#) section 2.423)
PidTagInitials ([\[MS-OXPROPS\]](#) section 2.837)
PidTagIsdnNumber ([\[MS-OXPROPS\]](#) section 2.853)
PidLidWorkAddressCity ([\[MS-OXOCNTC\]](#) section 2.2.1.3.2)
PidTagLanguage ([\[MS-OXPROPS\]](#) section 2.860)
PidTagLocation ([\[MS-OXPROPS\]](#) section 2.873)
PidLidPostalAddressId ([\[MS-OXOCNTC\]](#) section 2.2.1.3.9)
PidTagLocality ([\[MS-OXPROPS\]](#) section 2.872)
PidTagCountry ([\[MS-OXOABK\]](#) section 2.2.4.24)
PidTagPostalAddress ([\[MS-OXPROPS\]](#) section 2.957)
PidTagPostalCode ([\[MS-OXPROPS\]](#) section 2.958)
PidTagPostOfficeBox ([\[MS-OXPROPS\]](#) section 2.959)
PidTagStateOrProvince ([\[MS-OXPROPS\]](#) section 2.1138)
PidTagStreetAddress ([\[MS-OXPROPS\]](#) section 2.1142)
PidTagManagerName ([\[MS-OXPROPS\]](#) section 2.876)
PidNameContactsMapUrl ([\[MS-OXPROPS\]](#) section 2.424)
PidTagMiddleName ([\[MS-OXPROPS\]](#) section 2.899)
PidTagMobileTelephoneNumber ([\[MS-OXPROPS\]](#) section 2.901)
PidTagGeneration ([\[MS-OXPROPS\]](#) section 2.790)

PidTagNickname ([\[MS-OXPROPS\]](#) section 2.906)

PidNameContactsOtherTimeZone ([\[MS-OXPROPS\]](#) section 2.427)

PidTagCompanyMainTelephoneNumber ([\[MS-OXOABK\]](#) section 2.2.4.53)

PidTagOtherAddressCity ([\[MS-OXPROPS\]](#) section 2.941)

PidNameContactsOtherCountryCode ([\[MS-OXPROPS\]](#) section 2.425)

PidTagPrimaryFaxNumber ([\[MS-OXPROPS\]](#) section 2.961)

PidTagCarTelephoneNumber ([\[MS-OXOABK\]](#) section 2.2.4.47)

PidNameContactsOtherPager ([\[MS-OXPROPS\]](#) section 2.426)

PidLidOtherAddress ([\[MS-OXOCNTC\]](#) section 2.2.1.3.8)

PidTagOtherAddressPostalCode ([\[MS-OXPROPS\]](#) section 2.943)

PidTagOtherAddressPostOfficeBox ([\[MS-OXPROPS\]](#) section 2.944)

PidTagOtherAddressStateOrProvince ([\[MS-OXPROPS\]](#) section 2.945)

PidTagOtherAddressStreet ([\[MS-OXPROPS\]](#) section 2.946)

PidTagOtherTelephoneNumber ([\[MS-OXPROPS\]](#) section 2.947)

PidTagPagerTelephoneNumber ([\[MS-OXPROPS\]](#) section 2.950)

PidTagPersonalHomePage ([\[MS-OXPROPS\]](#) section 2.955)

PidTagDisplayNamePrefix ([\[MS-OXPROPS\]](#) section 2.747)

PidLidWorkAddressPostalCode ([\[MS-OXOCNTC\]](#) section 2.2.1.3.4)

PidLidWorkAddressPostOfficeBox ([\[MS-OXOCNTC\]](#) section 2.2.1.3.7)

PidTagProfession ([\[MS-OXPROPS\]](#) section 2.967)

PidNameContactsProxyAddresses ([\[MS-OXPROPS\]](#) section 2.428)

PidLidReferredBy ([\[MS-OXPROPS\]](#) section 2.215)

PidTagOfficeLocation ([\[MS-OXPROPS\]](#) section 2.910)

PidTagAssistant ([\[MS-OXOABK\]](#) section 2.2.4.11)

PidTagAssistantTelephoneNumber ([\[MS-OXOABK\]](#) section 2.2.4.57)

PidNameContactsSecretaryUrl ([\[MS-OXPROPS\]](#) section 2.429)

PidTagSurname ([\[MS-OXPROPS\]](#) section 2.1147)

PidNameContactsSourceUrl ([\[MS-OXPROPS\]](#) section 2.430)

PidTagSpouseName ([\[MS-OXPROPS\]](#) section 2.1129)

PidLidWorkAddressStreet ([\[MS-OXOCNTC\]](#) section 2.2.1.3.1)

PidTagBusinessTelephoneNumber ([\[MS-OXOABK\]](#) section 2.2.4.38)
PidTagBusiness2TelephoneNumber ([\[MS-OXOABK\]](#) section 2.2.4.40)
PidTagTelexNumber ([\[MS-OXPROPS\]](#) section 2.1153)
PidTagTitle ([\[MS-OXPROPS\]](#) section 2.1159)
PidTagTelecommunicationsDeviceForDeafTelephoneNumber ([\[MS-OXPROPS\]](#) section 2.1152)
PidTagWeddingAnniversary ([\[MS-OXPROPS\]](#) section 2.1179)
PidLidWorkAddress ([\[MS-OXOCNTC\]](#) section 2.2.1.3.8)
PidTagExpiryTime ([\[MS-OXOMSG\]](#) section 2.2.3.7)
PidTagHasAttachments ([\[MS-OXPROPS\]](#) section 2.793)
PidNameHttpmailHtmlDescription ([\[MS-OXPROPS\]](#) section 2.479)
PidNameHttpmailOutbox ([\[MS-OXPROPS\]](#) section 2.480)
PidTagRead ([\[MS-OXPROPS\]](#) section 2.975)
PidTagSubject ([\[MS-OXPROPS\]](#) section 2.1145)
PidTagBody ([\[MS-OXCMSG\]](#) section 2.2.1.44.1)
PidTagContentUnreadCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.2)
PidNameInternetSubject ([\[MS-OXPROPS\]](#) section 2.492)
PidNameExchDatabaseSchema ([\[MS-OXPROPS\]](#) section 2.464)
PidNameExchDataExpectedContentClass ([\[MS-OXPROPS\]](#) section 2.465)
PidNameExchDataSchemaCollectionReference ([\[MS-OXPROPS\]](#) section 2.466)
PidNameKeywords ([\[MS-OXPROPS\]](#) section 2.493)

2.2.5.4 Folder

PidTagComment ([\[MS-OXCFOLD\]](#) section 2.3.2.2.2)
PidNameContentClass ([\[MS-OXPROPS\]](#) section 2.432)
PidTagCreationTime ([\[MS-OXCMSG\]](#) section 2.2.2.3)
PidTagTemporaryDefaultDocument ([\[MS-OXPROPS\]](#) section 2.1156)
PidTagLastModificationTime ([\[MS-OXPROPS\]](#) section 2.861)
PidTagSubfolders ([\[MS-OXPROPS\]](#) section 2.1144)
PidTagUrlName ([\[MS-OXPROPS\]](#) section 2.1168)
PidNameDavId ([\[MS-OXPROPS\]](#) section 2.443)
PidNameDavIsCollection ([\[MS-OXPROPS\]](#) section 2.444)

PidTagSubfolder ([\[MS-OXPROPS\]](#) section 2.1143)

PidTagAttributeHidden ([\[MS-OXCFOLD\]](#) section 2.3.2.2.1)

PidTagAttributeReadOnly ([\[MS-XWDCAL\]](#) section 2.2.1.8)

PidNameDavIsStructuredDocument ([\[MS-OXPROPS\]](#) section 2.445)

PidNameDavParentName ([\[MS-OXPROPS\]](#) section 2.446)

PidNameDavResourceType ([\[MS-OXPROPS\]](#) section 2.447)

PidNameDavSearchRequest ([\[MS-OXPROPS\]](#) section 2.448)

PidNameDavSearchType ([\[MS-OXPROPS\]](#) section 2.449)

PidNameDavUid ([\[MS-OXPROPS\]](#) section 2.450)

PidTagContentCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.1)

PidTagPublicFolderAdministrativeDescription ([\[MS-OXPROPS\]](#) section 2.971)

PidTagPublicFolderProxy ([\[MS-OXPROPS\]](#) section 2.972)

PidTagNormalMessageSize ([\[MS-OXPROPS\]](#) section 2.908)

PidTagMid ([\[MS-OXPROPS\]](#) section 2.898)

PidTagExchangeNTSecurityDescriptor ([\[MS-XWDCAL\]](#) section 2.2.8.8)

PidTagContainerClass ([\[MS-OXOCAL\]](#) section 2.2.11.1)

PidTagMessageClass ([\[MS-OXPROPS\]](#) section 2.884)

PidTagFlatUrlName ([\[MS-XWDCAL\]](#) section 2.2.8.9)

PidNameExchangePublicFolderEmailAddress ([\[MS-OXPROPS\]](#) section 2.462)

PidTagExpiryTime ([\[MS-OXOMSG\]](#) section 2.2.3.7)

PidTagRead ([\[MS-OXPROPS\]](#) section 2.975)

PidTagContentUnreadCount ([\[MS-OXCFOLD\]](#) section 2.3.2.1.2)

PidNameExchDataExpectedContentClass ([\[MS-OXPROPS\]](#) section 2.465)

PidNameKeywords ([\[MS-OXPROPS\]](#) section 2.493)

3 Protocol Details

3.1 Server 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 document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

3.1.5.1 Methods

3.1.5.1.1 BCOPY

Unlike the **COPY** method, as specified in section [2.2.1.6](#), the **BCOPY** method contains a request body, which MUST contain at least one **target** XML element, as specified in section [2.2.3.1](#). The **Overwrite** header, as specified in [\[RFC2518\]](#), and the **Allow-Rename** header, as specified in section [2.2.2.3](#), modify the overall behavior in handling the destination entities.

A **BCOPY** method request can include a **Destination** header, as specified in [\[RFC2518\]](#), that specifies the URI of a folder. In this case, the **dest** XML element, as specified in section [2.2.3.2](#), can be a relative URI that is appended to the URI specified by the **Destination** header.

If the **Destination** header is not included, then the **dest** XML element MUST contain a full URL to the resource to be created by the **BCOPY** method.

The URI specified in both the Request-URI and the **Destination** header (if included) ends with a trailing '/' if the intent is for the **dest** element and the **href** XML element, as specified in [\[RFC2518\]](#), to refer to a resource within a folder.

The responses for the **BCOPY** method are similar to those of the **COPY** method, but each response node MAY contain a **location** XML element to specify the location of each resource after the operation.

The **BCOPY** method applied with the target **href** element being a non-folder and the target **dest** element being a folder will succeed and overwrite the folder with the non-collection folder when **Overwrite** is "FALSE" and the **Allow-Rename** header is "TRUE". This is not in accordance with the specification of the **Overwrite** header in [\[RFC2518\]](#).

The **BCOPY** method is not supported in transactions.

3.1.5.1.2 BDELETE

Unlike the **DELETE** method, as specified in section [2.2.1.7](#), the **BDELETE** method MUST contain a request body that has at least one **target** XML element, as specified in section [2.2.3.1](#).

The response for the **BDELETE** method includes within a 207 (Multi-Status) response all the resources, status as to the success of the delete, and if successful, the **resourceetag** element, as specified in [\[MS-XWDREPL\]](#) section 2.2.2.6, of the item deleted.

The **BDELETE** method is not supported in transactions.

3.1.5.1.3 BMOVE

A **BMOVE** method request MAY include a **Destination** header, as specified in [\[RFC2518\]](#), that specifies the URI of a collection. In this case, the value of the **dest** XML element, as specified in section [2.2.3.2](#), can be a relative URL. This relative URL can be appended to the **Destination** header URI, as specified in [\[RFC2518\]](#), to create the URI to the resource created by the **BMOVE** method.

If the **Destination** header is not included, then the **dest** XML element MUST contain a full URL to the resource to be created by the **BMOVE** method.

In both the request URI and the **Destination** URI (if included) the collection ends with a trailing '/' if the intent is for the **dest** element and the **href** XML element, as specified in [\[RFC2518\]](#), to refer to entities within the collections.

The responses for the **BMOVE** method are similar to the responses for the **MOVE** method, as specified in section [3.1.5.1.9](#), but each response node MUST contain a location element to specify the location of each resource after the move.

The **BMOVE** method is not supported in transactions.

The **BMOVE** method applied with the target **href** element being a non-collection and the target **dest** element being a collection will succeed and overwrite the collection with the non-collection when the **Overwrite** header is "FALSE" and the **Allow-Rename** header, as specified in section [2.2.2.3](#), is "TRUE". This is not in accordance with the specification of the **Overwrite** header in [\[RFC2518\]](#).

3.1.5.1.4 BPROPFIND

The **Depth** header, as specified in section [2.2.2.8](#), MUST be present in **BPROPFIND** method requests and have a value of 0.

The request body for the **BPROPFIND** method is the same as the **PROPFIND** method, as specified in section [3.1.5.1.10](#), with the addition of the **target** XML element, as specified in section [2.2.3.1](#), at the same level as the **prop** XML element, specified in [\[RFC2518\]](#) section 12.11.

The **BPROPFIND** method is not supported in transactions.

3.1.5.1.5 BPROPPATCH

The request body for the **BPROPPATCH** method is the same as the **PROPPATCH** method, as specified in section [2.2.1.18](#), with the addition of the **target** XML element, as specified in section [2.2.3.1](#), at the same level as the **prop** XML element, specified in [\[RFC2518\]](#) section 12.11.

The response for the **BPROPPATCH** method is the same as the 207 (Multi-Status) response for the **PROPPATCH** method.

Unlike the **PROPPATCH** method, the **BPROPPATCH** method will not create a new resource if the items being written to do not exist.

The **BPROPPATCH** method is not supported in transactions.

3.1.5.1.6 COPY

The **COPY** method applied with the Request-URI being a non-collection and the **Destination** header URI, as specified in [\[RFC2518\]](#), being a collection will succeed and overwrite the collection with the non-collection when the **Overwrite** header is "FALSE" and the **Allow-Rename** header, as specified in section [2.2.2.3](#), is "TRUE". This is not in accordance with the specification of the **Overwrite** header in [\[RFC2518\]](#).

3.1.5.1.7 LOCK

In addition to the lock types specified in [\[RFC2518\]](#), the server MUST support two additional lock types: **transaction**, as specified in section [3.1.5.1.7.1](#), and **checkout**, as specified in section [3.1.5.1.7.2](#).

The public folder and mailbox stores support different sets of locks:

The mailbox store only supports **transaction** locks.

The public folder store supports transaction-local, write-exclusive, as specified in [\[RFC2518\]](#), write-shared, as specified in [\[RFC2518\]](#), checkout-exclusive, and checkout-shared.

3.1.5.1.7.1 Transaction Locks

Transaction locks allow for changes to occur atomically in multiple resources.

Locking a resource with a lock type of **transaction** and within it a **groupoperation** element will return a **locktoken** element that contains an opaquelocktoken URI scheme, as specified in [\[RFC2518\]](#) section 6.4. This opaquelocktoken can be used with the **Transaction** header, as specified in section [2.2.2.24](#), to add additional changes into the transaction.

Group operations coordinate multiple writes into a single transaction. Because of this, only the following writing operations can be done under a transaction: **PROPPATCH**, as specified in section [2.2.1.18](#), and **PUT**, as specified in section [2.2.1.19](#).

To commit the changes of this transaction, the **UNLOCK** method, as specified in section [2.2.1.22](#), is used with a body that indicates whether to commit or abort.

3.1.5.1.7.2 Checkout locks

Although checkout locks MUST be listed for resources in the public folder store, any request to do a checkout lock, shared or exclusive, MUST fail with a 403 Forbidden response.

3.1.5.1.8 MKCOL

The **MKCOL** method with no body is used to make collections, as specified in [\[RFC2518\]](#).

The **MKCOL** method with a body, as specified for the **PROPPATCH** method in [\[RFC2518\]](#), is used to make a collection with specific properties set on it.

One of the properties that can be set is **DAV:searchrequest**, as specified in [\[MS-XWDSEARCH\]](#) section 2.2.3.1. This creates a **search folder (2)**.

3.1.5.1.9 MOVE

The **propertybehavior** XML element, as specified in [\[RFC2518\]](#), is not supported and MUST be ignored by the server. The default behavior is equivalent to "best effort", as specified in [\[RFC2518\]](#) section 8.8.2.

The **MOVE** method applied with the **Request-URI**, as specified in [\[RFC2068\]](#), being a non-collection and the **Destination** header URI, as specified in [\[RFC2518\]](#), being a collection will succeed and overwrite the collection with the non-collection when the **Overwrite** header is "FALSE" and the **Allow-Rename** header, as specified in section [2.2.2.3](#), is "TRUE". This is not in accordance with the specification of the **Overwrite** header in [\[RFC2518\]](#).

3.1.5.1.10 PROPFIND

The behavior of the **PROPFIND** method, as specified in section [2.2.1.17](#), differs from the behavior specified in [\[RFC2518\]](#) in that it does not return all the properties on an item for an **allprop** request, as specified in section [2.2.3.13](#). In order to get the complete set/list of properties on items, the client passes the **http://schemas.microsoft.com/exchange/allprop** element within the **DAV:allprop** element in the XML request body. For examples, see section [4.8](#).

3.1.5.1.11 UNLOCK

If an **UNLOCK** method request for a transaction does not happen before the time-out lifespan of the **LOCK** method, as specified in section [2.2.1.10](#), then the server MUST treat it as though the transaction was aborted.

3.1.5.1.11.1 Unlocking transactions

The **UNLOCK** method, as specified in section [2.2.1.22](#), is used to remove the transaction lock identified by the token in the **Lock-Token** request header, as specified in [\[RFC2518\]](#). If a **Depth** header, as specified in section [2.2.2.8](#), is issued with the **UNLOCK** method request, it will be ignored. An XML body is sent in the request to specify whether the transaction has been committed or aborted. The XML body consists of a **DAV:transactioninfo** element, which will contain subelements that specify whether to commit or to abort the transaction.

Once the **UNLOCK** method succeeds, either by being committed or aborted, the transaction ceases to exist, and the lock token becomes invalid. Alternatively, if a transaction times out, the transaction token becomes invalid. Invalid tokens can no longer be used, so:

- If the **If** header is used with an improperly formatted value, the method will fail (412 Precondition Failed). If the **If** header is used with a properly formatted but invalid value, the method will succeed. The format for the value of the **If** header is specified in [\[RFC2518\]](#).
- If the **Transaction** header, as specified in section [2.2.2.24](#), is used with an invalid token, the method will not be added to the transaction and will fail (400 Bad Request).
- If another **UNLOCK** method request is issued with an invalid token, it fails (412 Precondition Failed, as specified in section [3.1.5.1.11.2.2](#)).
- If a **LOCK** method request is issued with the **If** header with an invalid token to refresh it, it fails (412 Precondition Failed, as specified in section [3.1.5.1.11.2.2](#)).

3.1.5.1.11.2 Response codes

3.1.5.1.11.2.1 204 No Content

The 204 No Content response code is a successful response code for an **UNLOCK** method request, as specified in section [2.2.1.22](#), whether the user chooses to commit or abort the transaction.

3.1.5.1.11.2.2 412 Precondition Failed

The **UNLOCK** method request, as specified in section [2.2.1.22](#), **MUST** contain a body if the lock token corresponds to a transaction. If there is no body, the request fails with a 412 Precondition Failed error.

3.1.5.1.11.2.3 424 Method Failure

The 424 Method Failure response code is returned when one of the methods in the transaction failed, and therefore the entire transaction failed. This response is returned only if the client tried to commit the transaction.

3.1.5.1.12 X-MS-ENUMATTS

Any body sent along with the **X-MS-ENUMATTS** method **MUST** be ignored by the server.

For any embedded e-mail message, the following properties **MUST** be returned for each instance:

PidTagAttachMethod ([\[MS-OXCMSG\]](#) section 2.2.2.9)

PidTagRenderingPosition ([\[MS-OXPROPS\]](#) section 2.1012)

PidTagAttachFlags ([\[MS-OXCMSG\]](#) section 2.2.2.18)

PidTagAttachSize ([\[MS-OXCMSG\]](#) section 2.2.2.5)

PidTagAttachNumber ([\[MS-OXCMSG\]](#) section 2.2.2.6)

PidTagDisplayName ([\[MS-OXCFOLD\]](#) section 2.3.2.2.3)

For any other non-e-mail message attachment, the following properties **MUST** be returned for each instance:

PidTagAttachExtension ([\[MS-OXCMSG\]](#) section 2.2.2.12)

PidTagAttachFilename ([\[MS-OXCMSG\]](#) section 2.2.2.11)

PidTagAttachMethod

PidTagRenderingPosition

PidTagAttachFlags

PidTagAttachSize

PidTagAttachNumber

PidTagAttachLongFilename ([\[MS-OXPROPS\]](#) section 2.659)

PidTagDisplayName

Any resource that is enumerable by using this method can also be acted on by using any other read-only method – including this method for those attachments that are e-mail messages.

3.1.5.2 Headers

3.1.5.2.1 Brief

For the **PROPFIND** method, as specified in section [2.2.1.17](#), **BPROPFIND** method, as specified in section [2.2.1.4](#), and **SEARCH** method, as specified in section [2.2.1.20](#):

When the value of the **Brief** header is logically "TRUE", the server MUST omit the list of properties that are "not found" from the response and returns only properties for which a value exists.

For the **PROPPATCH** method, as specified in section [2.2.1.18](#), and the **BPROPPATCH** method, as specified in section [2.2.1.5](#):

When the value of the **Brief** header is logically "TRUE", the server MUST omit the **DAV:propstat** element for resources that are successfully updated and return only the list of properties that have errors associated with changing them.

3.1.5.2.2 User-Agent

Some values found in the **User-Agent** header, as specified in section [2.2.2.26](#), cause specific behavior on the server.

3.1.5.2.2.1 "Outlook-Express/", "Outlook Express/"

If the **User-Agent** header, as specified in section [2.2.2.26](#), contains either "Outlook-Express/" or "Outlook Express/", the server will alter its default behavior in the following ways:

1. Documents that are of content-type message/rfc821, as specified in [\[MS-XWDMail\]](#) section 2.2.3.1, are not returned to the client. If a **GET** method, as specified in section [2.2.1.8](#), is requested against such a document, the content is converted to the message/rfc822 content type and then returned.
2. In response to a **PROPFIND** request, as specified in section [2.2.1.17](#), with the **Depth** header, as specified in section [2.2.2.8](#), set to "1,noroot", the server MUST NOT return any entity that has the **DAV:ishidden** property, specified in [\[MS-XWDDOC\]](#) section 2.2.1.7, equal to "TRUE".

3.1.5.2.2.2 "OWAMIMECTL/"

If the **User-Agent** header, as specified in section [2.2.2.26](#), contains "OWAMIMECTL/", the server will alter its default behavior in the following way:

- Documents that are of content-type message/rfc821, as specified in [\[MS-XWDMail\]](#) section 2.2.3.1, are not returned to the client. If a **GET** method, as specified in section [2.2.1.8](#), is requested against such a document, the content is converted to message/rfc822 and then returned.

3.1.5.2.2.3 "Microsoft Data Access Internet Publishing Provider DAV"

If the **User-Agent** header, as specified in section [2.2.2.26](#), contains "Microsoft Data Access Internet Publishing Provider DAV", the server will alter its default behavior in the following ways:

1. All properties in bin.base64 format ([\[MS-OXCDATA\]](#)) that are zero-length are converted to bin.hex type format ([\[MS-OXCDATA\]](#)).
2. A **LOCK** method request, as specified in section [3.1.5.1.7](#), of type write-exclusive MUST succeed against entities in the mailbox store.
3. If the **LOCK** method request includes a **Timeout** header, specified in [\[RFC2518\]](#) section 9.8, the server increases the time-out counter by 120 seconds without indicating to the client that the server has done so.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

4 Protocol Examples

4.1 BCOPY

The following example illustrates the batch copying of two files from one collection to another. Specifically, the source entity's absolute URL is the concatenation of the Request-URI, as described in [RFC2068], and the **href** element, as described in [RFC2518], in the request body. Similarly, the destination entity's absolute URL is the concatenation of the URL in the **Destination** header, as described in [RFC2518], and the **dest** element, as described in section 2.2.3.2, in the request body. It's important to note that these are concatenations, so the trailing '/' in the URLs is significant.

Request:

```
BCOPY /public/batchmethods/src/ HTTP/1.1
Host: feamd10
Destination: /public/batchmethods/dst/
Allow-Rename: T
Overwrite: F
Content-type: text/xml

<?xml version="1.0" ?>
<a:copy xmlns:a="DAV:">
  <a:target>
    <a:href>handprints.jpg</a:href>
    <a:dest>handprints-copy.jpg</a:dest>
  </a:target>
  <a:target>
    <a:href>garden.jpg</a:href>
    <a:dest>garden-copy.jpg</a:dest>
  </a:target>
</a:copy>
```

Response:

```
HTTP/1.1 207 Multi-Status
Date: Wed, 23 Apr 2008 18:14:23 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
Content-Type: text/xml
Content-Length: 932
MS-WebStorage: 08.01.10240
Cache-Control: no-cache

<?xml version="1.0"?>
<a:multistatus xmlns:b="http://schemas.microsoft.com/repl/" xmlns:a="DAV:">
  <a:response>
    <a:href>http://feamd10/public/batchmethods/src/handprints.jpg</a:href>
    <a:location>http://feamd10/public/batchmethods/dst/handprints-copy.jpg</a:location>
    <a:status>HTTP/1.1 201 Created</a:status>

    <b:resourcetag>rt:b47ccc92a5271a459505d235c7b584770000000045fbb47ccc92a5271a459505d235c7b58477000000004835</b:resourcetag>
    <b:repl-uid>rid:b47ccc92a5271a459505d235c7b584770000000045fb</b:repl-uid>
  </a:response>
</a:multistatus>
```

```

<a:href>http://feamd10/public/batchmethods/src/garden.jpg</a:href>
<a:location>http://feamd10/public/batchmethods/dst/garden-copy.jpg</a:location>
<a:status>HTTP/1.1 201 Created</a:status>

<b:resourcetag>rt:b47ccc92a5271a459505d235c7b584770000000045fcb47ccc92a5271a459505d235c7b5847
7000000004836</b:resourcetag>
  <b:repl-uid>rid:b47ccc92a5271a459505d235c7b584770000000045fc</b:repl-uid>
</a:response>
</a:multistatus>

```

The two request headers, **Allow-Rename** and **Overwrite**, can significantly alter the behavior of this request. By default the **Overwrite** header is 'T' (see [RFC2518](#) section 9.6), so setting this explicitly to 'F' will cause the request to fail if the destination resource or resources already exist. This is where the **Allow-Rename** header comes in. By explicitly setting this to 'T', it allows the server to generate a unique name for that resource such that it does not conflict with existing destination entities. It does this only if not doing so would cause a conflict.

To illustrate this, executing this request again results in the following:

```

HTTP/1.1 207 Multi-Status
Date: Wed, 23 Apr 2008 19:06:26 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
Content-Type: text/xml
Content-Length: 936
MS-WebStorage: 08.01.10240
Cache-Control: no-cache

<?xml version="1.0"?>
<a:multistatus xmlns:b="http://schemas.microsoft.com/repl/" xmlns:a="DAV:">
  <a:response>
    <a:href>http://feamd10/public/batchmethods/src/handprints.jpg</a:href>
    <a:location>http://feamd10/public/batchmethods/dst/handprints-copy-2.jpg</a:location>
    <a:status>HTTP/1.1 201 Created</a:status>

    <b:resourcetag>rt:b47ccc92a5271a459505d235c7b584770000000045fdb47ccc92a5271a459505d235c7b5847
7000000004837</b:resourcetag>
      <b:repl-uid>rid:b47ccc92a5271a459505d235c7b584770000000045fd</b:repl-uid>
    </a:response>
  <a:response>
    <a:href>http://feamd10/public/batchmethods/src/garden.jpg</a:href>
    <a:location>http://feamd10/public/batchmethods/dst/garden-copy-2.jpg</a:location>
    <a:status>HTTP/1.1 201 Created</a:status>

    <b:resourcetag>rt:b47ccc92a5271a459505d235c7b584770000000045feb47ccc92a5271a459505d235c7b5847
7000000004838</b:resourcetag>
      <b:repl-uid>rid:b47ccc92a5271a459505d235c7b584770000000045fe</b:repl-uid>
    </a:response>
  </a:multistatus>

```

4.2 BDELETE

Request:

```
BDELETE /public/batchmethods/dst/ HTTP/1.1
```

```
Host: feamd10
Content-type: text/xml

<?xml version="1.0" ?>
<a:delete xmlns:a="DAV:">
  <a:target>
    <a:href>handprints-copy.jpg</a:href>
    <a:href>garden-copy.jpg</a:href>
  </a:target>
</a:delete>
```

Response:

```
HTTP/1.1 207 Multi-Status
Date: Wed, 23 Apr 2008 18:09:54 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
Content-Type: text/xml
Content-Length: 538
MS-WebStorage: 08.01.10240
Cache-Control: no-cache

<?xml version="1.0" ?>
<a:multistatus xmlns:b="http://schemas.microsoft.com/repl/" xmlns:a="DAV:">
  <a:response>
    <a:href>http://feamd10/public/batchmethods/dst/handprints-copy.jpg</a:href>
    <a:status>HTTP/1.1 200 OK</a:status>
    <b:resourcetag>rtd:b47ccc92a5271a459505d235c7b584770000000045c9</b:resourcetag>
  </a:response>
  <a:response>
    <a:href>http://feamd10/public/batchmethods/dst/garden-copy.jpg</a:href>
    <a:status>HTTP/1.1 200 OK</a:status>
    <b:resourcetag>rtd:b47ccc92a5271a459505d235c7b584770000000045ca</b:resourcetag>
  </a:response>
</a:multistatus>
```

4.3 BMOVE

Request:

```
BMOVE /exchange/user/folder1/ HTTP/1.1
Host: server
Destination: http://server/exchange/user/folder1/
Allow-Rename: t
Overwrite: f
Content-type: text/xml

<?xml version="1.0" ?>
<a:move xmlns:a="DAV:">
  <a:target>
    <a:href>file1.txt</a:href>
    <a:dest>file11.txt</a:dest>
  </a:target>
  <a:target>
    <a:href>file2.txt</a:href>
```

```

    <a:dest>file9.txt</a:dest>
  </a:target>
</a:move>

```

Response:

```

HTTP/1.1 207 Multi-Status
Cache-Control: no-cache
Content-Length: 921
Content-Type: text/xml
Server: Microsoft-IIS/7.0
MS-WebStorage: 08.01.10240
Date: Wed, 11 Mar 2009 01:05:31 GMT

<?xml version="1.0"?>
<a:multistatus xmlns:b="http://schemas.microsoft.com/repl/" xmlns:a="DAV:">
  <a:response>
    <a:href>http://server/exchange/user/folder1/file1.txt</a:href>
    <a:location>http://server/exchange/user/folder1/file11.txt</a:location>
    <a:status>HTTP/1.1 201 Created</a:status>

    <b:resourcetag>rt:3fcf4b905b63764683c7f135e3f9bd64000006ec99053fcf4b905b63764683c7f135e3f9bd6
4000006ec9b49</b:resourcetag>
    <b:repl-uid>rid:3fcf4b905b63764683c7f135e3f9bd64000006ec9905</b:repl-uid>
  </a:response>
  <a:response>
    <a:href>http://server/exchange/user/folder1/file2.txt</a:href>
    <a:location>http://server/exchange/user/folder1/file9-5.txt</a:location>
    <a:status>HTTP/1.1 201 Created</a:status>

    <b:resourcetag>rt:3fcf4b905b63764683c7f135e3f9bd64000006ec99063fcf4b905b63764683c7f135e3f9bd6
4000006ec9b4c</b:resourcetag>
    <b:repl-uid>rid:3fcf4b905b63764683c7f135e3f9bd64000006ec9906</b:repl-uid>
  </a:response>
</a:multistatus>

```

4.4 BPROPFIND

Request:

```

BPROPFIND /exchange/user/inbox/ HTTP/1.1
Depth: 0
Content-type: text/xml

<?xml version="1.0"?>
<a:propfind xmlns:a="DAV:" xmlns:dt="urn:uuid:c2f41010-65b3-11d1-a29f-00aa00c14882/" >
  <a:prop>
    <a:displayname/>
  </a:prop>
  <a:target>
    <a:href>/exchange/user/folder1/file11.txt</a:href>
    <a:href>Meet%20Monica.EML</a:href>
  </a:target>
</a:propfind>

```

Response:

```
HTTP/1.1 207 Multi-Status
Cache-Control: no-cache
Transfer-Encoding: chunked
Content-Type: text/xml
Accept-Ranges: rows
Server: Microsoft-IIS/7.0
MS-WebStorage: 08.01.10240
Date: Wed, 11 Mar 2009 17:06:19 GMT

<?xml version="1.0"?>
<a:multistatus xmlns:b="urn:uuid:c2f41010-65b3-11d1-a29f-00aa00c14882/" xmlns:a="DAV:">
  <a:response>
    <a:href>http://server/exchange/user/folder1/file11.txt</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:displayname>file11.txt</a:displayname>
      </a:prop>
    </a:propstat>
  </a:response>
  <a:response>
    <a:href>http://server/exchange/user/Inbox/Meet%20Monica.EML</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:displayname>Meet Monica.EML</a:displayname>
      </a:prop>
    </a:propstat>
  </a:response>
</a:multistatus>
```

4.5 BPROPPATCH

The following example illustrates setting two custom properties on three documents within a folder.

Request:

```
BPROPPATCH /exchange/user/folder1/ HTTP/1.1
Content-type: text/xml
Brief: f
Translate: f

<?xml version="1.0"?>
<a:propertyupdate xmlns:a="DAV:" xmlns:x="xml:" xmlns:c="urn:schemas:calendar:"
xmlns:m="MAIL:" xmlns:h="urn:schemas:mailheader:" xmlns:dt="urn:uuid:c2f41010-65b3-11d1-a29f-
00aa00c14882/" xmlns:e="http://schemas.microsoft.com/exchange/" xmlns:z="urn:schemas-
microsoft-com:exch-data:">
  <a:set>
    <a:prop>
      <a:CustomProp1>This is a test</a:CustomProp1>
      <a:CustomProp2>Of the emergency DAV request</a:CustomProp2>
    </a:prop>
  </a:set>
<a:target>
```

```

    <a:href>file1.txt</a:href>
    <a:href>file2.txt</a:href>
    <a:href>file3.txt</a:href>
  </a:target>
</a:propertyupdate>

```

Response:

```

HTTP/1.1 207 Multi-Status
Cache-Control: no-cache
Content-Length: 1303
Content-Type: text/xml
Server: Microsoft-IIS/7.0
MS-WebStorage: 08.01.10240
Date: Tue, 10 Mar 2009 21:22:38 GMT

```

```

<a:multistatus xmlns:b="http://schemas.microsoft.com/repl/" xmlns:a="DAV:">
  <a:response>
    <a:href>http://server/exchange/user/folder1/file1.txt</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:CustomProp1 />
        <a:CustomProp2 />
      </a:prop>
    </a:propstat>
  </a:response>
  <b:resourcetag>rt:3fcf4b905b63764683c7f135e3f9bd64000006ec99053fcf4b905b63764683c7f135e3f9bd6
4000006ec9b23</b:resourcetag>
    <b:repl-uid>rid:3fcf4b905b63764683c7f135e3f9bd64000006ec9905</b:repl-uid>
  </a:response>
  <a:response>
    <a:href>http://server/exchange/user/folder1/file2.txt</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:CustomProp1 />
        <a:CustomProp2 />
      </a:prop>
    </a:propstat>
  </a:response>
  <b:resourcetag>rt:3fcf4b905b63764683c7f135e3f9bd64000006ec99063fcf4b905b63764683c7f135e3f9bd6
4000006ec9b25</b:resourcetag>
    <b:repl-uid>rid:3fcf4b905b63764683c7f135e3f9bd64000006ec9906</b:repl-uid>
  </a:response>
  <a:response>
    <a:href>http://server/exchange/user/folder1/file3.txt</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:CustomProp1 />
        <a:CustomProp2 />
      </a:prop>
    </a:propstat>
  </a:response>
  <b:resourcetag>rt:3fcf4b905b63764683c7f135e3f9bd64000006ec99073fcf4b905b63764683c7f135e3f9bd6
4000006ec9b27</b:resourcetag>

```



```

        <b:repl-uid>rid:3fcf4b905b63764683c7f135e3f9bd64000006ec9907</b:repl-uid>
    </a:response>
</a:multistatus>

```

4.6 LOCK

In the following example, a new entity is created, its body is set, its properties are also set, and it is finally committed.

Request to create the new resource by using the **LOCK** method, as described in section [3.1.5.1.7](#):

```

LOCK /public/test4/new.txt HTTP/1.1
Translate: f
Content-Type: text/xml
Depth: 0

<?xml version="1.0"?>
<D:lockinfo xmlns:D="DAV:">
  <D:locktype>
    <D:transaction><D:groupoperation/></D:transaction>
  </D:locktype>
  <D:lockscope>
    <D:local/>
  </D:lockscope>
  <D:owner>
    <D:href>http://www.fabrikam.com/user1/contact.html</D:href>
  </D:owner>
</D:lockinfo>

```

Response:

```

HTTP/1.1 201 Created
Date: Tue, 17 Mar 2009 18:34:19 GMT
Server: Microsoft-IIS/6.0
Location: http://server/public/test4/new.txt
Content-Type: text/xml
Content-Length: XXX
Lock-Token:
MS-WebStorage: 6.5.7638
Cache-Control: no-cache

<?xml version="1.0"?>
<a:prop xmlns:a="DAV:">
  <a:lockdiscovery>
    <a:activelock>
      <a:locktype>
        <a:transaction>
          <a:groupoperation />
        </a:transaction>
      </a:locktype>
      <a:lockscope>
        <a:local />
      </a:lockscope>
      <D:owner xmlns:D="DAV:">
        <D:href>http://www.fabrikam.com/user1/contact.html</D:href>
      </D:owner>
    </a:activelock>
  </a:lockdiscovery>
</a:prop>

```

```

        </D:owner>
        <a:locktoken>
            <a:href>opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36</a:href>
        </a:locktoken>
        <a:depth>0</a:depth>
        <a:timeout>Second-180</a:timeout>
    </a:activelock>
</a:lockdiscovery>
</a:prop>

```

Request to set the body of the document:

```

PUT /public/test4/new.txt HTTP/1.1
Translate: f
Content-Type: text/plain
Transaction: <opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36>
If: <opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36>

Testing...testing...testing. Is this thing on?

```

Response:

```

HTTP/1.1 200 OK
Date: Tue, 17 Mar 2009 18:35:50 GMT
Server: Microsoft-IIS/6.0
Content-Type: text/html
Content-Length: 70
Allow: OPTIONS, TRACE, GET, HEAD, DELETE, PUT, COPY, MOVE, PROPFIND, PROPPATCH, SEARCH,
SUBSCRIBE, UNSUBSCRIBE, POLL, BDELETE, BCOPY, BMOVE, BPROPPATCH, BPROPFIND, LOCK, UNLOCK
MS-WebStorage: 6.5.7638
Cache-Control: no-cache

<body><h1>/public/test4/new.txt was written successfully</h1></body>

```

Request to set a property on the document:

```

PROPPATCH /public/test4/new.txt HTTP/1.1
Content-type: text/xml
Translate: f
Transaction: <opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36>
If: <opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36>

<?xml version="1.0"?>
<a:propertyupdate
  xmlns:a="DAV:"
  xmlns:dt="urn:uuid:c2f41010-65b3-11d1-a29f-00aa00c14882/">
  <a:set>
    <a:prop>
      <a:comment>It's a trap!!</a:comment>
    </a:prop>
  </a:set>

```

</a:propertyupdate>

Response:

```
HTTP/1.1 207 Multi-Status
Date: Tue, 17 Mar 2009 18:38:04 GMT
Server: Microsoft-IIS/6.0
Content-Type: text/xml
Content-Length: XXX
MS-WebStorage: 6.5.7638
Cache-Control: no-cache

<?xml version="1.0"?>
<a:multistatus xmlns:a="DAV:">
  <a:response>
    <a:href>http://server/public/Test4/new.txt</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:comment />
      </a:prop>
    </a:propstat>
  </a:response>
</a:multistatus>
```

Finally, request to UNLOCK the document, committing the transaction:

```
UNLOCK /public/test4/new.txt HTTP/1.1
If: <opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36>
Lock-Token: <opaquelocktoken:40906D63-9512-43A7-B267-6A7396CB2976:YN36>
Content-Type: text/xml
Translate: f

<?xml version="1.0" ?>
<D:transactioninfo xmlns:D="DAV:">
  <D:transactionstatus>
    <D:commit/>
  </D:transactionstatus>
</D:transactioninfo>
```

Response:

```
HTTP/1.1 204 No Content
Date: Tue, 17 Mar 2009 18:39:42 GMT
Server: Microsoft-IIS/6.0
Location: http://server/public/Test4/new.txt
Repl-UID: <rid:c7891b7975ca344986385a2ce3cf09af000000005302>
Content-Length: 0
ResourceTag:
<rt:c7891b7975ca344986385a2ce3cf09af000000005302c7891b7975ca344986385a2ce3cf09af00000000551f>
MS-WebStorage: 6.5.7638
```

Cache-Control: no-cache

4.7 MKCOL

In the following example, an **MKCOL** request, as described in section [2.2.1.11](#), with a **PROPPATCH** body, as described in section [2.2.1.18](#), is used to create a search folder (2) with a custom property.

Request:

```

MKCOL /exchange/user/search2 HTTP/1.1
Content-type: text/xml

<?xml version="1.0"?>
<a:propertyupdate xmlns:a="DAV:"
                  xmlns:cp="Custom:"
                  xmlns:dt="urn:uuid:c2f41010-65b3-11d1-a29f-00aa00c14882/">
  <a:set>
    <a:prop>
      <a:searchrequest>
        <a:sql>
          SELECT "DAV:displayname"
          FROM SCOPE ('SHALLOW TRAVERSAL OF "/exchange/user/inbox"')
          WHERE "DAV:displayname" LIKE '%Monica%'
        </a:sql>
      </a:searchrequest>
      <cp:topic>All mail about Monica</cp:topic>
    </a:prop>
  </a:set>
</a:propertyupdate>
```

Response:

```

HTTP/1.1 207 Multi-Status
Cache-Control: no-cache
Content-Length: 314
Content-Type: text/xml
Location: http://server/exchange/user/search2/
Server: Microsoft-IIS/7.0
MS-Exchange-Permanent-URL: http://server/exchange/user/-FlatUrlSpace-
/3fcf4b905b63764683c7f135e3f9bd64-6ec7585
Timeout: Infinity
Repl-UID:
ResourceTag:
MS-WebStorage: 08.01.10240
Date: Wed, 11 Mar 2009 21:39:55 GMT

<?xml version="1.0"?>
<a:multistatus xmlns:b="Custom:" xmlns:a="DAV:">
  <a:response>
    <a:href>http://server/exchange/user/search2</a:href>
    <a:status>HTTP/1.1 201 Created</a:status>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <a:searchrequest />
```

```

        <b:topic />
      </a:prop>
    </a:propstat>
  </a:response>
</a:multistatus>

```

4.8 PROPFIND

4.8.1 Retrieving names and values of all properties on an entity

Request:

```

PROPFIND /exchange/user/inbox/ HTTP/1.1
Translate: f
Depth: 0
Content-type: text/xml

<?xml version="1.0" encoding="utf-8"?>
<a:propfind xmlns:a="DAV:" xmlns:E="http://schemas.microsoft.com/exchange/">
  <a:allprop>
    <E:allprop/>
  </a:allprop>
</a:propfind>

```

4.8.2 Retrieving a list of all properties on an entity

```

PROPFIND /exchange/user/inbox/ HTTP/1.1
Translate: f
Depth: 0
Content-type: text/xml

<?xml version="1.0" encoding="utf-8"?>
<a:propfind xmlns:a="DAV:" xmlns:E="http://schemas.microsoft.com/exchange/">
  <a:propname>
    <E:allprop/>
  </a:propname>
</a:propfind>

```

4.9 X-MS-ENUMATTS

In the following example is a single message, "attachment.EML", with two attachments, "longnamestuff.doc" and "msginmsg.EML". The former is a simple document; the latter is an embedded e-mail message.

Request:

```

X-MS-ENUMATTS /exchange/user/inbox/attachment.EML HTTP/1.1

```

Response:

```

HTTP/1.1 207 Multi-Status

```

Date: Thu, 22 Jan 2009 22:39:43 GMT
Server: Microsoft-IIS/6.0
Content-Type: text/xml
Accept-Ranges: rows
MS-WebStorage: 6.5.7638
Transfer-Encoding: chunked
Cache-Control: no-cache

```
<?xml version="1.0" ?>
<a:multistatus xmlns:b="urn:uuid:c2f41010-65b3-11d1-a29f-00aa00c14882/"
xmlns:e="urn:schemas:httpmail:" xmlns:c="xml:"
xmlns:d="http://schemas.microsoft.com/mapi/proptag/" xmlns:f="urn:schemas:contacts:"
xmlns:a="DAV:">
  <a:response>
    <a:href>http://server/exchange/user/inbox/attachment.EML/longnamestuff.doc</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <d:x3703001f>.doc</d:x3703001f>
        <d:x3704001f>LONGNA~1.DOC</d:x3704001f>
        <d:x37050003 b:dt="int">1</d:x37050003>
        <d:x370b0003 b:dt="int">-1</d:x370b0003>
        <d:x37140003 b:dt="int">0</d:x37140003>
        <d:x0e200003 b:dt="int">111634</d:x0e200003>
        <d:x0e210003 b:dt="int">0</d:x0e210003>
        <e:attachmentfilename>longnamestuff.doc</e:attachmentfilename>
        <f:cn>longnamestuff.doc</f:cn>
      </a:prop>
    </a:propstat>
  </a:response>
  <a:response>
    <a:href>http://server/exchange/user/inbox/attachment.EML/msginmsg.EML</a:href>
    <a:propstat>
      <a:status>HTTP/1.1 200 OK</a:status>
      <a:prop>
        <d:x37050003 b:dt="int">5</d:x37050003>
        <d:x370b0003 b:dt="int">-1</d:x370b0003>
        <d:x37140003 b:dt="int">0</d:x37140003>
        <d:x0e200003 b:dt="int">6434</d:x0e200003>
        <d:x0e210003 b:dt="int">1</d:x0e210003>
        <f:cn>msginmsg</f:cn>
      </a:prop>
    </a:propstat>
  </a:response>
</a:multistatus>
```

5 Security

5.1 Security Considerations for Implementers

There are no special security concerns specific to the WebDAV Core Extensions Protocol. General security considerations pertaining to the underlying transport apply, as described in [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#).

5.2 Index of Security Parameters

None.

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:

- Microsoft® Exchange Server 2003
- Microsoft® Exchange Server 2007

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

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

[<1> Section 2.2.2.12:](#) Exchange 2003 returns a string beginning with "6.5". Exchange 2007 returns a string beginning with "08". These strings correspond to the file version of the store.exe executable on the server.

7 Change Tracking

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

8 Index

[-FlatUrlSpace- special URLs](#) 29
[##DayMailSubmissionURI## special URL](#) 29

A

[abort XML element](#) 28
Abstract data model
 [server](#) 44
[Accept-Ranges header](#) 20
[Allow-Extension header](#) 20
[Allow-Rename header](#) 20
[allprop XML element](#) 29
[Applicability](#) 9

B

[BCOPY example](#) 51
[BCOPY verb](#) 10
[BDELETE example](#) 52
[BDELETE verb](#) 10
[BMOVE example](#) 53
[BMOVE verb](#) 11
[BPROPFIND example](#) 54
[BPROPFIND verb](#) 11
[BPROPPATCH example](#) 55
[BPROPPATCH verb](#) 12
[Brief header](#) 20

C

[Calendar default properties](#) 35
[Call-Back header](#) 21
[Capability negotiation](#) 9
[Change tracking](#) 65
[checkout XML element](#) 29
[commit XML element](#) 29
[Contact default properties](#) 37
[Content-Range header](#) 21
[COPY verb](#) 12
[copy XML element](#) 27

D

[DASL header](#) 21
Data model - abstract
 [server](#) 44
Default properties
 [calendar](#) 35
 [contact](#) 37
 [folder](#) 42
 [mail](#) 32
[Default Properties message](#) 32
[DELETE verb](#) 13
[delete XML element](#) 29
[Depth header](#) 21
[dest XML element](#) 27

E

Examples
 [BCOPY](#) 51
 [BDELETE](#) 52
 [BMOVE](#) 53
 [BPROPFIND](#) 54
 [BPROPPATCH](#) 55
 [LOCK](#) 57
 [MKCOL](#) 60
 PROPFIND
 [retrieving a list of all properties on an entity](#) 61
 [retrieving names and values of all properties on an entity](#) 61
 [X-MS-ENUMATTS](#) 61

F

[Fields - vendor-extensible](#) 9
[Folder default properties](#) 42

G

[GET verb](#) 13
[GetETag header](#) 21
[Glossary](#) 6
[groupoperation XML element](#) 28

H

[HEAD verb](#) 14
Headers
 [Accept-Ranges](#) 20
 [Allow-Extension](#) 20
 [Allow-Rename](#) 20
 [Brief](#) 20
 [Call-Back](#) 21
 [Content-Range](#) 21
 [DASL](#) 21
 [Depth](#) 21
 [GetETag](#) 21
 [MS-Author-Via](#) 22
 [MS-Exchange-Permanent-URL](#) 22
 [MS-WebStorage](#) 22
 [Notification-Delay](#) 23
 [Notification-Type](#) 23
 [Public-Extension](#) 23
 [Range](#) 23
 [Repl-UID](#) 24
 [ResourceTag](#) 24
 [Savedestination](#) 24
 [Saveinsent](#) 24
 [Subscribe-Group](#) 25
 [Subscription-ID](#) 25
 [Subscription-Lifetime](#) 25
 [Transaction](#) 25
 [Translate](#) 26
 [User-Agent](#) 26
[Headers message](#) 19
Higher-layer triggered events
 [server](#) 44

I

[Implementer - security considerations](#) 63
[Index of security parameters](#) 63
[Informative references](#) 7
Initialization
 [server](#) 44
[Introduction](#) 6

L

[local XML element](#) 27
[LOCK example](#) 57
[LOCK verb](#) 14

M

[Mail default properties](#) 32
[Mailbox Root special URL](#) 31
[Mailbox Store VRoot special URL](#) 31
Message processing - server headers
 [Brief](#) 49
 [User-Agent](#) 49
Message processing - server methods
 [BCOPY](#) 44
 [BDELETE](#) 45
 [BMOVE](#) 45
 [BPROPFIND](#) 45
 [BPROPPATCH](#) 45
 [COPY](#) 46
 [LOCK](#) 46
 [MOVE](#) 47
 [PROPFIND](#) 47
 [UNLOCK](#) 47
 [X-MS-ENUMATTS](#) 48
Messages
 [Default Properties](#) 32
 [Headers](#) 19
 [transport](#) 10
 [XML Element Definitions](#) 26
[MKCOL example](#) 60
[MKCOL verb](#) 15
[MOVE verb](#) 15
[move XML element](#) 27
[MS-Author-Via header](#) 22
[MS-Exchange-Permanent-URL header](#) 22
[MS-WebStorage](#) 22

N

[Non_IPM_Subtree special URL](#) 30
[Normative references](#) 6
[Notification-Delay](#) 23
[Notification-Type](#) 23
[NOTIFY verb](#) 16

O

[OPTIONS verb](#) 16
Other local events
 [server](#) 50
[Overview](#) 8

P

[Parameters - security index](#) 63
[POLL verb](#) 16
[POST verb](#) 16
[Preconditions](#) 9
[Prerequisites](#) 9
[Product behavior](#) 64
PROPFIND example
 [retrieving a list of all properties on an entity](#) 61
 [retrieving names and values of all properties on an entity](#) 61
[PROPFIND verb](#) 16
[PROPPATCH verb](#) 17
[Public Folder Root special URL](#) 31
[Public-Extension](#) 23
[PUT verb](#) 18

R

[Range](#) 23
References
 [informative](#) 7
 [normative](#) 6
[Relationship to other protocols](#) 8
[Repl-UID header](#) 24
[ResourceTag header](#) 24

S

[Savedestination header](#) 24
[Saveinsent header](#) 24
[SEARCH verb](#) 18
Security
 [implementer considerations](#) 63
 [parameter index](#) 63
Sequencing rules - server headers
 [Brief](#) 49
 [User-Agent](#) 49
Sequencing rules - server methods
 [BCOPY](#) 44
 [BDELETE](#) 45
 [BMOVE](#) 45
 [BPROPFIND](#) 45
 [BPROPPATCH](#) 45
 [COPY](#) 46
 [LOCK](#) 46
 [MOVE](#) 47
 [PROPFIND](#) 47
 [UNLOCK](#) 47
 [X-MS-ENUMATTS](#) 48
Server
 [abstract data model](#) 44
 [higher-layer triggered events](#) 44
 [initialization](#) 44
 [other local events](#) 50
 [timer events](#) 50
 [timers](#) 44
Server - message processing headers
 [Brief](#) 49
 [User-Agent](#) 49

Server - message processing methods

- [BCOPY](#) 44
- [BDELETE](#) 45
- [BMOVE](#) 45
- [BPROPFIND](#) 45
- [BPROPPATCH](#) 45
- [COPY](#) 46
- [LOCK](#) 46
- [MOVE](#) 47
- [PROPFIND](#) 47
- [UNLOCK](#) 47
- [X-MS-ENUMATTS](#) 48

Server - sequencing rule headers

- [Brief](#) 49
- [User-Agent](#) 49

Server - sequencing rule methods

- [BCOPY](#) 44
- [BDELETE](#) 45
- [BMOVE](#) 45
- [BPROPFIND](#) 45
- [BPROPPATCH](#) 45
- [COPY](#) 46
- [LOCK](#) 46
- [MOVE](#) 47
- [PROPFIND](#) 47
- [UNLOCK](#) 47
- [X-MS-ENUMATTS](#) 48

Special URLs

- [##DavMailSubmissionURI##](#) 29
- [-FlatUrlSpace-](#) 29
- [Mailbox Root](#) 31
- [Mailbox Store VRoot](#) 31
- [Non-IPM Subtree](#) 30
- [Public Folder Root](#) 31
- [Standards assignments](#) 9
- [SUBSCRIBE verb](#) 18
- [Subscribe-Group header](#) 25
- [Subscription-ID header](#) 25
- [Subscription-Lifetime header](#) 25

T

- [target XML element](#) 27

Timer events

- [server](#) 50

Timers

- [server](#) 44
- [Tracking changes](#) 65
- [Transaction header](#) 25
- [transaction XML element](#) 28
- [transactioninfo XML element](#) 28
- [transactionstatus XML element](#) 28
- [Translate header](#) 26
- [Transport](#) 10
- Triggered events - higher-layer
 - [server](#) 44

U

- [UNLOCK verb](#) 18
- [UNSUBSCRIBE verb](#) 19
- [User-Agent header](#) 26

V

- [Vendor-extensible fields](#) 9

Verbs

- [BCOPY](#) 10
- [BDELETE](#) 10
- [BMOVE](#) 11
- [BPROPFIND](#) 11
- [BPROPPATCH](#) 12
- [COPY](#) 12
- [DELETE](#) 13
- [GET](#) 13
- [HEAD](#) 14
- [LOCK](#) 14
- [MKCOL](#) 15
- [MOVE](#) 15
- [NOTIFY](#) 16
- [OPTIONS](#) 16
- [POLL](#) 16
- [POST](#) 16
- [PROPFIND](#) 16
- [PROPPATCH](#) 17
- [PUT](#) 18
- [SEARCH](#) 18
- [SUBSCRIBE](#) 18
- [UNLOCK](#) 18
- [UNSUBSCRIBE](#) 19
- [X-MS-ENUMATTS](#) 19

- [Versioning](#) 9

X

- [XML Element Definitions message](#) 26

XML elements

- [abort](#) 28
- [allprop](#) 29
- [checkout](#) 29
- [commit](#) 29
- [copy](#) 27
- [delete](#) 29
- [dest](#) 27
- [groupoperation](#) 28
- [local](#) 27
- [move](#) 27
- [target](#) 27
- [transaction](#) 28
- [transactioninfo](#) 28
- [transactionstatus](#) 28
- [X-MS-ENUMATTS example](#) 61
- [X-MS-ENUMATTS verb](#) 19