

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

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Revision Summary

Date	Revision History	Revision Class	Comments
04/10/2009	1.0		Initial Release. Deprecated for Exchange 2010.
07/15/2009	2.0	Major	Changes made for template compliance.
11/04/2009	3.0.0	Major	Updated and revised the technical content.
02/10/2010	4.0.0	Major	Updated and revised the technical content.
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1 Introduction

This document specifies extensions to the Web Distributed Authoring and Versioning (WebDAV) protocol ([\[RFC2518\]](#)) that provide additional functionality necessary for implementing additional WebDAV-based protocols.

1.1 Glossary

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

Augmented Backus-Naur Form (ABNF)
Calendar object
Contact object
E-mail object
folder
Folder object
mailbox
non-IPM subtree
property
public folder
Root folder
search folder
store
Uniform Resource Identifier (URI)
Uniform Resource Locator (URL)
WebDAV
XML

The following terms are specific to this document:

User Datagram Protocol (UDP): The connectionless protocol within TCP/IP that corresponds to the transport layer in the ISO/OSI reference model.

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-OXPROPS] 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, <http://msdn.microsoft.com/en-us/library/cc250200.aspx>

- [MS-XWDCAL] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Calendar Support](#)", December 2008.
- [MS-XWDCNTC] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Contacts Support](#)", February 2009.
- [MS-XWDDOC] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Documents Support](#)", December 2008.
- [MS-XWDFOLD] Microsoft Corporation, "[Web Distributed Authoring and Versioning \(WebDAV\) Extensions for Folders 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.
- [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](#)", April 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>
- [RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, <http://www.ietf.org/rfc/rfc2818.txt>
- [RFC4234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", RFC 4234, October 2005, <http://www.ietf.org/rfc/rfc4234.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-OXGLOS] Microsoft Corporation, "[Exchange Server Protocols Master Glossary](#)", April 2008.

1.3 Overview

This protocol specifies the following extensions to [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#):

- New verbs and extensions to existing verbs.
- New headers and extensions to existing headers.
- Special **URLs**.
- Default **property sets** for special **folder** types.

1.4 Relationship to Other Protocols

This protocol relies on [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#). It also relies on [\[RFC2818\]](#) for data protection services.

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

The following protocols rely on this protocol:

- [\[MS-XWDCAL\]](#)
- [\[MS-XWDCNTC\]](#)
- [\[MS-XWDDOC\]](#)
- [\[MS-XWDFOLD\]](#)
- [\[MS-XWDMAIL\]](#)
- [\[MS-XWDNOTIF\]](#)
- [\[MS-XWDREPL\]](#)
- [\[MS-XWDSEARCH\]](#)
- [\[MS-XWDSTRUCTDOC\]](#)
- [\[MS-XWDVSEC\]](#)

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

This protocol is used to enhance and extend the capabilities of [\[RFC2518\]](#), [\[MS-WDVSE\]](#), and [\[RFC2068\]](#) to support the WebDAV protocols listed in section [1.4](#) that rely on this protocol.

1.7 Versioning and Capability Negotiation

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

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

This protocol specifies extensions to, and uses the same transport mechanisms as, [\[RFC2518\]](#) 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 COPY in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **Brief** (section [2.2.2.4](#))
- **Savedestination** (section [2.2.2.19](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- <DAV:copy> (section [2.2.3.3](#))
- <DAV:target> (section [2.2.3.1](#))
- <DAV:href> ([\[RFC2518\]](#))
- <DAV:dest> (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 DELETE in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **Brief** (section [2.2.2.4](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- <DAV:delete> (section [2.2.3.12](#))
- <DAV:target> (section [2.2.3.1](#))
- <DAV:href> ([\[RFC2518\]](#))

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 MOVE in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **Allow-Rename** (section [2.2.2.3](#))
- **Brief** (section [2.2.2.4](#))
- **Savedestination** (section [2.2.2.19](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- <DAV:move> (section [2.2.3.4](#))
- <DAV:target> (section [2.2.3.1](#))
- <DAV:href> ([\[RFC2518\]](#))
- <DAV:dest> (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 PROPFIND in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **Brief** (section [2.2.2.4](#))

- **Range** (section [2.2.2.16](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- <DAV:target> (section [2.2.3.1](#))
- <DAV:href> ([\[RFC2518\]](#))

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 PROPPATCH in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **Brief** (section [2.2.2.4](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- All **XML** elements specified for PROPPATCH in section [2.2.1.18](#)
- <DAV:target> (section [2.2.3.1](#))
- <DAV:href> ([\[RFC2518\]](#))

2.2.1.6 COPY

Copies a resource to a destination. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

- All headers specified for COPY in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **Allow-Rename** (section [2.2.2.3](#))
- **Transaction** (section [2.2.2.24](#))

- **Savedestination** (section [2.2.2.19](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- None

2.2.1.7 DELETE

Deletes a resource. This method is specified in [\[RFC2068\]](#) and [\[RFC2518\]](#) and extended here.

Request Headers

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

Response Headers

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

XML Elements

- None

2.2.1.8 GET

Retrieves a document at the given **URI**. This method is specified in [\[RFC2068\]](#) and extended here.

Request Headers

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

Response Headers

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

XML Elements

- None

2.2.1.9 HEAD

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 HEAD in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

- All headers specified for HEAD in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **MS-WebStorage** (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 LOCK in [\[RFC2518\]](#)
- **Translate** (section [2.2.2.25](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

- <DAV:transaction> (section [2.2.3.6](#))
- <DAV:groupoperation> (section [2.2.3.7](#))
- <DAV:checkout> (section [2.2.3.14](#))
- <DAV:local> (section [2.2.3.5](#))

2.2.1.11 MKCOL

Creates a collection. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

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

Response Headers

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

XML Elements

- All XML elements specified for PROPPATCH in section [2.2.1.18](#)

2.2.1.12 MOVE

Moves a resource. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

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

Response Headers

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

XML Elements

- None

2.2.1.13 NOTIFY

The NOTIFY method is sent via **UDP** in response to changes in resources. The syntax for this method is specified in [\[MS-XWDNOTIF\]](#).

2.2.1.14 OPTIONS

This method is specified in [\[RFC2068\]](#) and [\[RFC2518\]](#) and extended here.

Request Headers

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

Response Headers

- All headers specified for OPTIONS in [\[RFC2068\]](#) and [\[RFC2518\]](#)
- **MS-Author-Via** (section [2.2.2.10](#))
- **Allow-Extension** (section [2.2.2.2](#))
- **Public-Extension** (section [2.2.2.15](#))
- **Accept-Ranges** (section [2.2.2.1](#))
- **DASL** (section [2.2.2.7](#))
- **MS-WebStorage** (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 MAY have fired. This method is specified in [\[MS-XWDNOTIF\]](#).

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 [\[RFC2068\]](#).

2.2.1.17 PROPFIND

PROPFIND returns properties or the list of properties on an entity. This method is specified in [\[RFC2518\]](#) and extended here.

Request Headers

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

- **Depth** ([\[MS-WDVSE\]](#))
- **Brief** (section [2.2.2.4](#))
- **Range** (section [2.2.2.16](#))
- **User-Agent** (section [2.2.2.26](#))

Response Headers

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

XML Elements

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

2.2.1.18 PROPPATCH

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

Request Headers

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

Response Headers

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

XML Elements

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

2.2.1.19 PUT

The PUT method is used to create new non-collection entities. This method is specified in [\[RFC2068\]](#) and extended here.

Request Headers

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

Response Headers

- All headers specified for PUT in [\[RFC2068\]](#)
- **GetETag** (section [2.2.2.9](#))
- **MS-Exchange-Permanent-URL** (section [2.2.2.11](#))
- **ResourceTag** (section [2.2.2.18](#))
- **MS-WebStorage** (section [2.2.2.12](#))
- **Repl-UID** (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, it will indicate whether or not to commit or abort the transaction.

Request Headers

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

Response Headers

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

XML Elements

- <DAV:transactioninfo> (section [2.2.3.8](#))
- <DAV:transactionstatus> (section [2.2.3.9](#))
- <DAV:commit> (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 PROPFIND ([\[RFC2518\]](#)).

Request Headers

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

Response Headers

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

XML Elements

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

2.2.2 Headers

The **Augmented Backus-Naur Form (ABNF)** notation ([\[RFC4234\]](#)) is used to specify the format of the following headers.

2.2.2.1 Accept-Ranges

This header is specified in [\[RFC2068\]](#) and extended in [\[MS-XWDSEARCH\]](#).

2.2.2.2 Allow-Extension

Response header for OPTIONS.

```
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. **Allow-Extension** is similar to the **Allow** header ([\[RFC2068\]](#)), 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. See [\[MS-XWDMAIL\]](#) and [\[MS-XWDREPL\]](#) for examples of these. **URI-reference** is specified in [\[RFC2396\]](#) section 4.

Methods

OPTIONS

2.2.2.3 Allow-Rename

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

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

Methods

COPY

MOVE

BCOPY

BMOVE

2.2.2.4 Brief

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", then 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

BPROPFIND

SEARCH

PROPPATCH

BPROPPATCH

2.2.2.5 Call-Back

Request header on SUBSCRIBE.

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

Method

SUBSCRIBE

2.2.2.6 Content-Range

This header is specified in [\[RFC2068\]](#) and extended in [\[MS-XWDSEARCH\]](#).

Methods

PROPFIND

SEARCH

2.2.2.7 DASL

This header is specified in [\[MS-XWDSEARCH\]](#).

Methods

OPTIONS

2.2.2.8 Depth

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

2.2.2.9 GetETag

Response header on PUT. This header returns the value that would be returned in the **ETag** header ([\[RFC2068\]](#)) 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

2.2.2.10 MS-Author-Via

A response header from an OPTIONS request to indicate the preferred mechanism by which clients should author content ([\[MS-WDVSE\]](#)).

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

Methods

OPTIONS

2.2.2.11 MS-Exchange-Permanent-URL

Response header for any newly created entity.

```
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](#). It is a URL which the client can always use to get to the item, even if it moves to a different folder or is renamed. The URL is an alternate way of referencing to the entity in the **request-URI** ([\[RFC2068\]](#)) for HEAD, GET, OPTIONS, PROPFIND, SEARCH, and PUT. In the case of PUT, however, if the **request-URI** does not exist, it will not be created (return 404 Resource Not Found).

Any other usage of this URL as a target to an operation MUST fail with 403 Forbidden.

Methods

MKCOL

PUT

POST

PROPPATCH (when creating a new entity)

2.2.2.12 MS-WebStorage

Used to identify 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.

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 [\[MS-XWDNOTIF\]](#).

Methods

SUBSCRIBE

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 [\[MS-XWDNOTIF\]](#).

Methods

SUBSCRIBE

2.2.2.15 Public-Extension

Response header for OPTIONS.

```
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. **Public-Extension** is similar to the **Public** header ([\[RFC2068\]](#)), 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. See [\[MS-XWDMAIL\]](#) and [\[MS-XWDREPL\]](#) for examples of these.

Methods

OPTIONS

2.2.2.16 Range

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

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

Methods

PROPFIND

SEARCH

BPROPFIND

2.2.2.17 Repl-UID

This header is specified in [\[MS-XWDREPL\]](#).

Methods

MKCOL

PROPPATCH

PUT

UNLOCK

2.2.2.18 ResourceTag

This header is specified in [\[MS-XWDREPL\]](#).

Methods

DELETE

MKCOL

PROPPATCH

PUT

UNLOCK

2.2.2.19 Savedestination

This header is specified in [\[MS-XWDMAIL\]](#).

Methods

POST

PUT

COPY

MOVE

BCOPY

BMOVE

2.2.2.20 Saveinsent

This header is specified in [\[MS-XWDMAIL\]](#).

Methods

POST

PUT

COPY

MOVE

BCOPY

BMOVE

2.2.2.21 Subscribe-group

The **Subscribe-group** header is an identifier used to uniquely identify the source of a Subscription-id. This header is specified in [\[MS-XWDNOTIF\]](#).

Methods

SUBSCRIBE

NOTIFY

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 that **store**. This header is specified in [\[MS-XWDNOTIF\]](#).

Methods

SUBSCRIBE

POLL

UNSUBSCRIBE

NOTIFY

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 [\[MS-XWDNOTIF\]](#).

Methods

SUBSCRIBE

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 used to initiate the transaction.

The client must also 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 than one submitted in the **If** header ([\[RFC2518\]](#)). 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

PROPPATCH

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. Only the first letter of the string is examined. If the first letter is "f" or "F", then 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", then the server will not execute the script, but, instead, will return the actual script in the response.

Methods

All.

2.2.2.26 User-Agent

The User-Agent header is specified in [\[RFC2068\]](#) and extended here. See section [3.1.5.2.2](#) for more details.

Methods

All.

2.2.3 XML Element Definitions

In the section below, the final line of each section gives the element type declaration using the format defined in [\[XML1\]](#). The "Value" field, where present, specifies further restrictions on the allowable contents of the XML element using ABNF (i.e., to further restrict the values of a PCDATA element).

2.2.3.1 target XML element

Name: target

Namespace: DAV:

Purpose: Specifies the targets for a batched operation.

Value: Contains either:

1. A list of href XML elements that are targets for operations like BDELETE, BPROPPATCH, or BPROPFIND copied.
2. A single set of href and dest XML elements that are targets for BCOPY or BMOVE.

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

2.2.3.2 dest XML element

Name: dest

Namespace: DAV:

Purpose: Indicates the destination of a link.

Value: URI

<!ELEMENT dst (#PCDATA) >

2.2.3.3 copy XML element

Name: copy

Namespace: DAV:

Purpose: Contains the list of targets to be copied.

Value: One or more target XML element

<!ELEMENT copy (target)+ >

2.2.3.4 move XML element

Name: move

Namespace: DAV:

Purpose: Contains the list of targets to be moved.

Value: One or more target XML element

<!ELEMENT move (target)+ >

2.2.3.5 local XML element

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 XML element

Name: transaction

Namespace: DAV:

Purpose: Specifies a transaction.

<!ELEMENT transaction (groupoperation)>

2.2.3.7 groupoperation XML element

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 XML element

Name: transactioninfo

Namespace: DAV:

Purpose: Specifies transaction related information in the UNLOCK request.

<!ELEMENT transactioninfo (transactionstatus)>

2.2.3.9 transactionstatus XML Element

Name: transactionstatus

Namespace: DAV:

Purpose: Specifies a transaction lock.

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

2.2.3.10 abort XML Element

Name: abort

Namespace: DAV:

Purpose: Specifies the intention to abort transaction.

<!ELEMENT abort EMPTY>

2.2.3.11 commit XML Element

Name: commit

Namespace: DAV:

Purpose: Specifies the intention to commit transaction.

<!ELEMENT commit EMPTY>

2.2.3.12 delete XML element

Name: delete

Namespace: DAV:

Purpose: Contains the list of targets to be deleted.

Value: One or more target XML elements

<!ELEMENT delete (target)+ >

2.2.3.13 allprop XML element

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 XML element

Name: checkout

Namespace: DAV:

Purpose: Specifies the type of transaction. See section [3.1.5.1.7.2](#) for more information regarding checkout locks.

<!ELEMENT checkout EMPTY>

2.2.4 Special URLs

2.2.4.1 ##DavMailSubmissionURI##

This URL is specified in [\[MS-XWDMAIL\]](#) section 2.2.2.6.18.

2.2.4.2 -FlatUrlSpace-

The -FlatUrlSpace- is used to contain alternate URLs to items that are independent of the folder in which they exist. They 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 whenever a 201 response is appropriate.

An example of a flat URL is:

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

The general form is:

Public folder store:

[http\[s\]://<server:port>/public/-FlatUrlSpace-/<unique string>](http[s]://<server:port>/public/-FlatUrlSpace-/<unique string>)

Mailbox store:

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

Although "[http\[s\]://<server:port>/public/-FlatUrlSpace-/](http[s]://<server:port>/public/-FlatUrlSpace-/)" and "[http\[s\]://<server:port>/exchange/<user>-FlatUrlSpace-/](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 response.

Methods supported:

PROPFIND

GET

HEAD

PUT (to overwrite)

PROPPATCH

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

MOVE as the **Request-URI**

OPTIONS

DELETE

SEARCH

Any other methods that would otherwise succeed must return 403.

2.2.4.3 Non_IPM_Subtree

This is the **non-IPM subtree** found in every mailbox and public folder store that typically contains operational metadata.

To get to the root of the non-IPM subtree for the public folder store, append "**Non_IPM_Subtree**" to the location of the Public Folder Root (section [2.2.4.4](#)).

Example:

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

To get to the non-IPM subtree for a mailbox, append "Non_IPM_Subtree" to the location of the Mailbox Root (section [2.2.4.5](#)).

Example:

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

Note that non-IPM subtree is not discoverable by either PROPFIND or SEARCH of the Public Folder Root or the Mailbox Root. It is only accessible by attempting to access it.

2.2.4.4 Public Folder Root

This 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 in response to an OPTIONS request.

2.2.4.5 Mailbox Root

This 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

This 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 only utilized as a container for all mailboxes on a server.

On this mailbox root the server **MUST NOT** return the **Allow-Extension** header in response to an OPTIONS request.

Other methods **MUST** fail with the following errors:

Method	Error
BCOPY	404
BDELETE	404
BMOVE	404
BPROPFIND	404
BPROPPATCH	404
COPY	403
DELETE	403
LOCK	404
MKCOL	404
MOVE	403
POLL	404
POST	404
PUT	404
SEARCH	404
SUBSCRIBE	404
UNLOCK	404
UNSUBSCRIBE	404

Method	Error
X-MS-ENUMATTS	404

2.2.5 Default Property Sets

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

2.2.5.1 Mail

[PidTagComment](#)

[PidNameContentClass](#)

[PidTagCreationTime](#)

[PidTagTemporaryDefaultDocument](#)

[PidTagLastModificationTime](#)

[PidTagSubfolders](#)

[PidTagUrlName](#)

[PidNameDavId](#)

[PidNameDavIsCollection](#)

[PidTagSubfolder](#)

[PidTagAttributeHidden](#)

[PidTagAttributeReadOnly](#)

[PidNameDavIsStructuredDocument](#)

[PidNameDavParentName](#)

[PidNameDavResourceType](#)

[PidNameDavSearchRequest](#)

[PidNameDavSearchType](#)

[PidNameDavUid](#)

[PidTagContentCount](#)

[PidTagPublicFolderAdministrativeDescription](#)

[PidTagPublicFolderProxy](#)

[PidTagNormalMessageSize](#)

[PidTagMid](#)

[PidTagExchangeNTSecurityDescriptor](#)

[PidTagContainerClass](#)
[PidTagMessageClass](#)
[PidTagFlatUrlName](#)
[PidNameExchangePublicFolderEmailAddress](#)
[PidTagSensitivity](#)
[PidNameCalendarMethod](#)
[PidNameApproved](#)
[PidNameBcc](#)
[PidNameCc](#)
[PidNameInternetComment](#)
[PidNameContentClass](#)
[PidNameContentDisposition](#)
[PidNameContentID](#)
[PidNameContentLanguage](#)
[PidNameContentLocation](#)
[PidNameContentTransferEncoding](#)
[PidNameContentType](#)
[PidNameControl](#)
[PidNameDispositionNotificationTo](#)
[PidNameDistribution](#)
[PidNameExpires](#)
[PidNameExpiryDate](#)
[PidNameFollowupTo](#)
[PidNameImportance](#)
[PidNameInReplyTo](#)
[PidNameInternetKeywords](#)
[PidNameLines](#)
[PidNameMessageId](#)
[PidNameMimeVersion](#)
[PidNameNewsgroups](#)

[PidNameOrganization](#)
[PidNameOriginalRecipient](#)
[PidNamePath](#)
[PidNamePostingVersion](#)
[PidNamePriority](#)
[PidNameReceived](#)
[PidNameReferences](#)
[PidNameRelayVersion](#)
[PidNameReplyBy](#)
[PidNameReplyTo](#)
[PidNameReturnPath](#)
[PidNameReturnReceiptTo](#)
[PidNameSender](#)
[PidNameSensitivity](#)
[PidNameInternetSubject](#)
[PidNameSummary](#)
[PidNameThreadIndex](#)
[PidNameThreadTopic](#)
[PidNameTo](#)
[PidNameXMailer](#)
[PidNameXMessageCompleted](#)
[PidNameXMessageFlag](#)
[PidNameCrossReference](#)
[PidNameXUnsent](#)
[PidNameExchDatabaseSchema](#)
[PidNameExchDataExpectedContentClass](#)
[PidNameExchDataSchemaCollectionReference](#)
[PidNameKeywords](#)

2.2.5.2 Calendar

[PidTagComment](#)

[PidNameContentClass](#)
[PidTagCreationTime](#)
[PidTagTemporaryDefaultDocument](#)
[PidTagLastModificationTime](#)
[PidTagSubfolders](#)
[PidTagUrlName](#)
[PidNameDavId](#)
[PidNameDavIsCollection](#)
[PidTagSubfolder](#)
[PidTagAttributeHidden](#)
[PidTagAttributeReadOnly](#)
[PidNameDavIsStructuredDocument](#)
[PidNameDavParentName](#)
[PidNameDavResourceType](#)
[PidNameDavSearchRequest](#)
[PidNameDavSearchType](#)
[PidNameDavUid](#)
[PidTagContentCount](#)
[PidTagPublicFolderAdministrativeDescription](#)
[PidLidCompanies](#)
[PidTagPublicFolderProxy](#)
[PidTagNormalMessageSize](#)
[PidTagMid](#)
[PidTagExchangeNTSecurityDescriptor](#)
[PidTagContainerClass](#)
[PidTagMessageClass](#)
[PidTagFlatUrlName](#)
[PidNameExchangePublicFolderEmailAddress](#)
[PidTagSensitivity](#)
[PidLidAppointmentSubType](#)

[PidNameCalendarBusystatus](#)
[PidNameCalendarContactUrl](#)
[PidNameCalendarCreated](#)
[PidNameCalendarDescriptionUrl](#)
[PidTagICalendarEndTime](#)
[PidLidOwnerCriticalChange](#)
[PidTagICalendarStartTime](#)
[PidNameCalendarDuration](#)
[PidNameCalendarExceptionDate](#)
[PidNameCalendarExceptionRule](#)
[PidNameCalendarGeoLatitude](#)
[PidNameCalendarGeoLongitude](#)
[PidNameCalendarInstanceType](#)
[PidNameCalendarLastModified](#)
[PidNameCalendarLocationUrl](#)
[PidNameCalendarMeetingStatus](#)
[PidNameCalendarMethod](#)
[PidNameICalendarRecurrenceDate](#)
[PidNameCalendarRecurrenceIdRange](#)
[PidNameCalendarReminderOffset](#)
[PidLidAppointmentReplyTime](#)
[PidNameCalendarResources](#)
[PidTagResponseRequested](#)
[PidNameICalendarRecurrenceRule](#)
[PidNameCalendarSequence](#)
[PidNameCalendarTimeZoneId](#)
[PidNameCalendarTransparent](#)
[PidNameCalendarUid](#)
[PidLidBilling](#)
[PidTagExpiryTime](#)

[PidTagHasAttachments](#)

[PidNameHttpmailHtmlDescription](#)

[PidTagNormalizedSubject](#)

[PidTagPriority](#)

[PidTagRead](#)

[PidTagSubject](#)

[PidTagBody](#)

[PidTagContentUnreadCount](#)

[PidNameInternetSubject](#)

[PidNameExchDatabaseSchema](#)

[PidNameExchDataExpectedContentClass](#)

[PidNameExchDataSchemaCollectionReference](#)

[PidNameKeywords](#)

2.2.5.3 Contacts

[PidTagComment](#)

[PidNameContentClass](#)

[PidTagCreationTime](#)

[PidTagTemporaryDefaultDocument](#)

[PidTagLastModificationTime](#)

[PidTagSubfolders](#)

[PidTagUrlName](#)

[PidNameDavId](#)

[PidNameDavIsCollection](#)

[PidTagSubfolder](#)

[PidTagAttributeHidden](#)

[PidTagAttributeReadOnly](#)

[PidNameDavIsStructuredDocument](#)

[PidNameDavParentName](#)

[PidNameDavResourceType](#)

[PidNameDavSearchRequest](#)

[PidNameDavSearchType](#)
[PidNameDavUid](#)
[PidTagContentCount](#)
[PidTagPublicFolderAdministrativeDescription](#)
[PidLidCompanies](#)
[PidLidContactUserField1](#)
[PidLidContactUserField2](#)
[PidLidContactUserField3](#)
[PidLidContactUserField4](#)
[PidTagPublicFolderProxy](#)
[PidTagNormalMessageSize](#)
[PidTagMid](#)
[PidTagExchangeNTSecurityDescriptor](#)
[PidTagContainerClass](#)
[PidTagMessageClass](#)
[PidTagFlatUrlName](#)
[PidNameExchangePublicFolderEmailAddress](#)
[PidLidYomiFirstName](#)
[PidLidYomiLastName](#)
[PidLidYomiCompanyName](#)
[PidLidFreeBusyLocation](#)
[PidNameCalendarGeoLatitude](#)
[PidNameCalendarGeoLongitude](#)
[PidTagAccount](#)
[PidTagBirthday](#)
[PidLidBilling](#)
[PidTagBusinessHomePage](#)
[PidNameContactsCountry](#)
[PidTagCallbackTelephoneNumber](#)
[PidTagChildrensNames](#)

[PidTagDisplayName](#)
[PidLidWorkAddressCountry](#)
[PidTagComputerNetworkName](#)
[PidTagCustomerId](#)
[PidTagDepartmentName](#)
[PidTagMessageHandlingSystemCommonName](#)
[PidNameContactsEmail1](#)
[PidNameContactsEmail2](#)
[PidNameContactsEmail3](#)
[PidTagOrganizationalIdNumber](#)
[PidTagBusinessFaxNumber](#)
[PidNameContactsFileasId](#)
[PidTagFtpSite](#)
[PidTagGender](#)
[PidTagGivenName](#)
[PidTagGovernmentIdNumber](#)
[PidTagHobbies](#)
[PidTagHomeAddressCity](#)
[PidTagHomeAddressCountry](#)
[PidTagHomeFaxNumber](#)
[PidNameContactsHomeLatitude](#)
[PidNameContactsHomeLongitude](#)
[PidTagHomeTelephoneNumber](#)
[PidTagHome2TelephoneNumber](#)
[PidLidHomeAddress](#)
[PidTagHomeAddressPostalCode](#)
[PidTagHomeAddressPostOfficeBox](#)
[PidTagHomeAddressStateOrProvince](#)
[PidTagHomeAddressStreet](#)
[PidNameContactsHomeTimeZone](#)

[PidTagInitials](#)
[PidTagIsdnNumber](#)
[PidLidWorkAddressCity](#)
[PidTagLanguage](#)
[PidTagLocation](#)
[PidLidPostalAddressId](#)
[PidTagLocality](#)
[PidTagCountry](#)
[PidTagPostalAddress](#)
[PidTagPostalCode](#)
[PidTagPostOfficeBox](#)
[PidTagStateOrProvince](#)
[PidTagStreetAddress](#)
[PidTagManagerName](#)
[PidNameContactsMapUrl](#)
[PidTagMiddleName](#)
[PidTagMobileTelephoneNumber](#)
[PidTagGeneration](#)
[PidTagNickname](#)
[PidNameContactsOtherTimeZone](#)
[PidTagCompanyMainTelephoneNumber](#)
[PidTagOtherAddressCity](#)
[PidNameContactsOtherCountryCode](#)
[PidTagPrimaryFaxNumber](#)
[PidTagCarTelephoneNumber](#)
[PidNameContactsOtherPager](#)
[PidLidOtherAddress](#)
[PidTagOtherAddressPostalCode](#)
[PidTagOtherAddressPostOfficeBox](#)
[PidTagOtherAddressStateOrProvince](#)

[PidTagOtherAddressStreet](#)
[PidTagOtherTelephoneNumber](#)
[PidNameContactsOtherTimeZone](#)
[PidTagPagerTelephoneNumber](#)
[PidTagPersonalHomePage](#)
[PidTagDisplayNamePrefix](#)
[PidLidWorkAddressPostalCode](#)
[PidLidWorkAddressPostOfficeBox](#)
[PidTagProfession](#)
[PidNameContactsProxyAddresses](#)
[PidLidReferredBy](#)
[PidTagOfficeLocation](#)
[PidTagAssistant](#)
[PidTagAssistantTelephoneNumber](#)
[PidNameContactsSecretaryUrl](#)
[PidTagSurname](#)
[PidNameContactsSourceUrl](#)
[PidTagSpouseName](#)
[PidLidWorkAddressStreet](#)
[PidTagBusinessTelephoneNumber](#)
[PidTagBusiness2TelephoneNumber](#)
[PidTagTelexNumber](#)
[PidTagTitle](#)
[PidTagTelecommunicationsDeviceForDeafTelephoneNumber](#)
[PidTagWeddingAnniversary](#)
[PidLidWorkAddress](#)
[PidTagExpiryTime](#)
[PidTagHasAttachments](#)
[PidNameHttpmailHtmlDescription](#)
[PidNameHttpmailOutbox](#)

[PidTagRead](#)

[PidTagSubject](#)

[PidTagBody](#)

[PidTagContentUnreadCount](#)

[PidNameInternetSubject](#)

[PidNameExchDatabaseSchema](#)

[PidNameExchDataExpectedContentClass](#)

[PidNameExchDataSchemaCollectionReference](#)

[PidNameKeywords](#)

2.2.5.4 Folder

[PidTagComment](#)

[PidNameContentClass](#)

[PidTagCreationTime](#)

[PidTagTemporaryDefaultDocument](#)

[PidTagLastModificationTime](#)

[PidTagSubfolders](#)

[PidTagUrlName](#)

[PidNameDavId](#)

[PidNameDavIsCollection](#)

[PidTagSubfolder](#)

[PidTagAttributeHidden](#)

[PidTagAttributeReadOnly](#)

[PidNameDavIsStructuredDocument](#)

[PidNameDavParentName](#)

[PidNameDavResourceType](#)

[PidNameDavSearchRequest](#)

[PidNameDavSearchType](#)

[PidNameDavUid](#)

[PidTagContentCount](#)

[PidTagPublicFolderAdministrativeDescription](#)

[PidTagPublicFolderProxy](#)
[PidTagNormalMessageSize](#)
[PidTagMid](#)
[PidTagExchangeNTSecurityDescriptor](#)
[PidTagContainerClass](#)
[PidTagMessageClass](#)
[PidTagFlatUrlName](#)
[PidNameExchangePublicFolderEmailAddress](#)
[PidTagExpiryTime](#)
[PidTagRead](#)
[PidTagContentUnreadCount](#)
[PidNameExchDataExpectedContentClass](#)
[PidNameKeywords](#)

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, the BCOPY Method contains a request body, which MUST contain at least one target XML element. The **Overwrite** and **Allow-Rename** headers modify the overall behavior in handling the destination entities.

A BCOPY method request can include a **Destination** header ([\[RFC2518\]](#)) that specifies the Uniform Resource Identifier (URI) of a collection. In this case, the *dest* XML element can be a relative URL that appended to the **Destination** header URI will create the URI to the resource created by the BCOPY method.

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

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

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.

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

The BCOPY method is not supported in transactions.

3.1.5.1.2 BDELETE

Unlike the DELETE method, the BDELETE method MUST contain a request body which has at least one target XML element.

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 **resourcetag** ([\[MS-XWDREPL\]](#)) 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 that specifies the URI of a collection. In this case, the value of the *dest* XML element can be a relative URL. This relative URL can be appended to the **Destination** header URI 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 BMOVE.

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

The responses for the BMOVE method are similar to the responses for the MOVE method, 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.

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

3.1.5.1.4 BPROPFIND

The Depth header MUST be present in BPROPFIND requests and have a value of 0.

The request body for the BPROPFIND method is the same as the PROPFIND method with the addition of the target XML element at the same level as the *prop* XML element.

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 with the addition of the target XML element at the same level as the *prop* XML element.

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

Unlike PROPPATCH, BPROPPATCH will not create new entities if the items being written to do not exist.

The BPROPPATCH method is not supported in transactions.

3.1.5.1.6 COPY

COPY applied with the request URI being a non-collection and the **Destination** being a collection will succeed and overwrite the collection with the non-collection when **Overwrite** is FALSE and **Allow-Rename** is TRUE. This is not in accordance with the specification of **Overwrite** in [\[RFC2518\]](#).

3.1.5.1.7 LOCK

In addition to the locktypes specified in [\[RFC2518\]](#), the server MUST support two additional locktypes: transaction and checkout.

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 ([\[RFC2518\]](#)), write-shared ([\[RFC2518\]](#)), 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 locktype of DAV:transaction and within it a DAV:groupoperation will return a DAV:locktoken that contains an opaquelocktoken ([\[RFC2518\]](#)). This opaquelocktoken can be used with the **Transaction** header 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 and PUT.

To commit the changes of this transaction, the UNLOCK method is used with a body that indicates whether to commit or abort.

3.1.5.1.7.2 Checkout locks

Although they must be listed for entities 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

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

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

One of the properties that can be set is **DAV:searchrequest**. This creates a **search folder** and is covered in detail in [\[MS-XWDSEARCH\]](#).

3.1.5.1.9 MOVE

<DAV:propertybehavior/> ([\[RFC2518\]](#)) 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.

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

3.1.5.1.10 PROPFIND

PROPFIND differs from [\[RFC2518\]](#) in that it does not return all the properties on an item for an <DAV:allprops/> request. 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. See section [4.8](#) for examples.

3.1.5.1.11 UNLOCK

If an UNLOCK for a transaction does not happen before the timeout lifespan of the LOCK, then the server MUST treat it as though the transaction was aborted.

3.1.5.1.11.1 Unlocking transactions

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

Once the UNLOCK 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 is used with an invalid token, the method will not be added to the transaction and should fail (400 Bad Request).
- If another UNLOCK is issued with an invalid token, it fails (412 Precondition Failed).
- If a LOCK is issued with the **If** header with an invalid token to refresh it, it fails (412 Precondition Failed).

3.1.5.1.11.2 Response codes

3.1.5.1.11.2.1 204 No Content

Successful response code for an UNLOCK whether the user chooses to commit or abort the transaction.

3.1.5.1.11.2.2 412 Precondition Failed

The UNLOCK MUST contain a body if the lock-token corresponds to a transaction. The request fails with a 412 Precondition Failed error if there is no body.

3.1.5.1.11.2.3 424 Method Failure

One of the methods in the transaction failed, therefore the entire transaction failed. This response is only returned if the client tried to commit the transaction.

3.1.5.1.12 X-MS-ENUMATTS

Any body sent along with this method **MUST** be ignored by the server.

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

[PidTagAttachMethod](#)

[PidTagRenderingPosition](#)

[PidTagAttachFlags](#)

[PidTagAttachSize](#)

[PidTagAttachNumber](#)

[PidTagDisplayName](#)

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

[PidTagAttachExtension](#)

[PidTagAttachFilename](#)

[PidTagAttachMethod](#)

[PidTagRenderingPosition](#)

[PidTagAttachFlags](#)

[PidTagAttachSize](#)

[PidTagAttachNumber](#)

[PidTagAttachLongFilename](#)

[PidTagDisplayName](#)

Any resource that is enumerable via this method can also be acted on via 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 PROPFIND, BPROPFIND, and SEARCH:

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

For PROPPATCH, BPROPPATCH:

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

3.1.5.2.2 User-Agent

There are some values found in this header that cause specific behavior on the server.

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

If the server sees that the User-Agent header contains either "Outlook-Express/" or "Outlook Express/", the server will alter its default behavior in the following way(s):

1. Documents that are of content-type message/rfc821 ([\[MS-XWDMAIL\]](#)) should not be returned to the client. If a GET is requested against such a document, the content should be converted to message/rfc822 and then returned.
2. In response to a PROPFIND request with the **Depth** header set to "1,noroot" the server MUST NOT return any **entity** which has DAV:ishidden equal to TRUE.

3.1.5.2.2.2 "OWAMIMECTL/"

If the server sees that the User-Agent header contains "OWAMIMECTL/" the server will alter its default behavior in the following way(s):

- Documents that are of content-type message/rfc821 ([\[MS-XWDMAIL\]](#)) should not be returned to the client. If a GET is requested against such a document, the content should be converted to message/rfc822 and then returned.

3.1.5.2.2.3 "Microsoft Data Access Internet Publishing Provider DAV"

If the server sees that the User-Agent header contains "Microsoft Data Access Internet Publishing Provider DAV" the server will alter its default behavior in the following way(s):

1. All properties in bin.base64 ([\[MS-OXCDATA\]](#)) format that are zero-length are converted to bin.hex type ([MS-OXCDATA]).
2. A LOCK of type Write-Exclusive MUST succeed against entities in the mailbox store.
3. A client specifying a LOCK request with a Timeout will have that Timeout increased 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

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:b47ccc92a5271a459505d235c7b584770000000045fbb47ccc92a5271a459505d235c7b5847
    7000000004835</b:resourcetag>
    <b:repl-uid>rid:b47ccc92a5271a459505d235c7b584770000000045fb</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.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 above 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** ([RFC2068])- and <href> in the request body. Similarly, the destination entity's absolute URL is the concatenation of the URL in the **Destination** header and the *dest* in the request body. It's important to note that these are concatenations, so the trailing '/' in the URLs is significant.

Also, the two request headers, **Allow-Rename** and **Overwrite**, can significantly alter the behavior of this request. By default **Overwrite** is 'T' (See [RFC2518] section 9.6) so setting this explicitly to 'F' will cause the request to fail if the destination resource(s) 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 only does this if not doing so would cause a conflict.

To illustrate this, executing this request again results in:

```
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>rtid: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>rtid: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:3fcf4b905b63764683c7f135e3f9bd64000006ec99053fcf4b905b63764683c7f135e3f9bd64000006ec9b23</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:3fcf4b905b63764683c7f135e3f9bd64000006ec99063fcf4b905b63764683c7f135e3f9bd64000006ec9b25</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:3fcf4b905b63764683c7f135e3f9bd64000006ec99073fcf4b905b63764683c7f135e3f9bd64000006ec9b27</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 set, properties also set, and finally committed.

Request to create the new resource via a LOCK:

```
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: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 with a PROPPATCH body is used to create a search folder 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

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>

```

In the above example, we have 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.

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 specified 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:

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

Exceptions, if any, are noted below. If a service pack number appears with the product version, behavior changed in that service pack. 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 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 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.

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