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Internet Message Access Protocol (IMAP) - UIDPLUS extension

Status of This Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

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Abstract

The UIDPLUS extension of the Internet Message Access Protocol (IMAP) provides a set of features intended to reduce the amount of time and resources used by some client operations. The features in UIDPLUS are primarily intended for disconnected-use clients.

1. Introduction and Overview

The UIDPLUS extension is present in any IMAP server implementation that returns "UIDPLUS" as one of the supported capabilities to the CAPABILITY command.

The UIDPLUS extension defines an additional command. In addition, this document recommends new status response codes in IMAP that SHOULD be returned by all server implementations, regardless of whether or not the UIDPLUS extension is implemented.

The added facilities of the features in UIDPLUS are optimizations; clients can provide equivalent functionality, albeit less efficiently, by using facilities in the base protocol.

1.1. Conventions Used in This Document

In examples, "C:" and "S:" indicate lines sent by the client and server, respectively.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [KEYWORDS].

A "UID set" is similar to the [IMAP] sequence set; however, the "*" value for a sequence number is not permitted.

2. Additional Commands

The following command definition is an extension to [IMAP] section 6.4.

2.1. UID EXPUNGE Command

```
Arguments:  sequence set

Data:       untagged responses: EXPUNGE

Result:     OK - expunge completed
            NO - expunge failure (e.g., permission denied)
            BAD - command unknown or arguments invalid
```

The UID EXPUNGE command permanently removes all messages that both have the \Deleted flag set and have a UID that is included in the specified sequence set from the currently selected mailbox. If a message either does not have the \Deleted flag set or has a UID that is not included in the specified sequence set, it is not affected.

This command is particularly useful for disconnected use clients. By using UID EXPUNGE instead of EXPUNGE when resynchronizing with the server, the client can ensure that it does not inadvertantly remove any messages that have been marked as \Deleted by other clients between the time that the client was last connected and the time the client resynchronizes.

If the server does not support the UIDPLUS capability, the client should fall back to using the STORE command to temporarily remove the \Deleted flag from messages it does not want to remove, then issuing the EXPUNGE command. Finally, the client should use the STORE command to restore the \Deleted flag on the messages in which it was temporarily removed.

Alternatively, the client may fall back to using just the EXPUNGE command, risking the unintended removal of some messages.

```
   Example:    C: A003 UID EXPUNGE 3000:3002
               S: * 3 EXPUNGE
               S: * 3 EXPUNGE
               S: * 3 EXPUNGE
               S: A003 OK UID EXPUNGE completed
```

3. Additional Response Codes

The following response codes are extensions to the response codes defined in [IMAP] section 7.1. With limited exceptions, discussed below, server implementations that advertise the UIDPLUS extension SHOULD return these response codes.

In the case of a mailbox that has permissions set so that the client can COPY or APPEND to the mailbox, but not SELECT or EXAMINE it, the server SHOULD NOT send an APPENDUID or COPYUID response code as it would disclose information about the mailbox.

In the case of a mailbox that has UIDNOTSTICKY status (as defined below), the server MAY omit the APPENDUID or COPYUID response code as it is not meaningful.

If the server does not return the APPENDUID or COPYUID response codes, the client can discover this information by selecting the destination mailbox. The location of messages placed in the destination mailbox by COPY or APPEND can be determined by using FETCH and/or SEARCH commands (e.g., for Message-ID or some unique marker placed in the message in an APPEND).

APPENDUID

Followed by the UIDVALIDITY of the destination mailbox and the UID assigned to the appended message in the destination mailbox, indicates that the message has been appended to the destination mailbox with that UID.

If the server also supports the [MULTIAPPEND] extension, and if multiple messages were appended in the APPEND command, then the second value is a UID set containing the UIDs assigned to the appended messages, in the order they were transmitted in the APPEND command. This UID set may not contain extraneous UIDs or the symbol "*".

> Note: the UID set form of the APPENDUID response code MUST NOT be used if only a single message was appended. In particular, a server MUST NOT send a range such as 123:123. This is because a client that does not support [MULTIAPPEND] expects only a single UID and not a UID set.

UIDs are assigned in strictly ascending order in the mailbox (refer to [IMAP], section 2.3.1.1) and UID ranges are as in [IMAP]; in particular, note that a range of 12:10 is exactly equivalent to 10:12 and refers to the sequence 10,11,12.

This response code is returned in a tagged OK response to the APPEND command.

COPYUID

Followed by the UIDVALIDITY of the destination mailbox, a UID set containing the UIDs of the message(s) in the source mailbox that were copied to the destination mailbox and containing the UIDs assigned to the copied message(s) in the destination mailbox, indicates that the message(s) have been copied to the destination mailbox with the stated UID(s).

The source UID set is in the order the message(s) were copied; the destination UID set corresponds to the source UID set and is in the same order. Neither of the UID sets may contain extraneous UIDs or the symbol "*".

UIDs are assigned in strictly ascending order in the mailbox (refer to [IMAP], section 2.3.1.1) and UID ranges are as in [IMAP]; in particular, note that a range of 12:10 is exactly equivalent to 10:12 and refers to the sequence 10,11,12.

This response code is returned in a tagged OK response to the COPY command.

UIDNOTSTICKY

The selected mailbox is supported by a mail store that does not support persistent UIDs; that is, UIDVALIDITY will be different each time the mailbox is selected. Consequently, APPEND or COPY to this mailbox will not return an APPENDUID or COPYUID response code.

This response code is returned in an untagged NO response to the SELECT command.

> Note: servers SHOULD NOT have any UIDNOTSTICKY mail stores. This facility exists to support legacy mail stores in which it is technically infeasible to support persistent UIDs. This should be avoided when designing new mail stores.

```
   Example:    C: A003 APPEND saved-messages (\Seen) {297}
               C: Date: Mon, 7 Feb 1994 21:52:25 -0800 (PST)
               C: From: Fred Foobar <foobar@example.com>
               C: Subject: afternoon meeting
               C: To: mooch@example.com
               C: Message-Id: <B27397-0100000@example.com>
               C: MIME-Version: 1.0
               C: Content-Type: TEXT/PLAIN; CHARSET=US-ASCII
               C:
               C: Hello Joe, do you think we can meet at 3:30 tomorrow?
               C:
               S: A003 OK [APPENDUID 38505 3955] APPEND completed
               C: A004 COPY 2:4 meeting
               S: A004 OK [COPYUID 38505 304,319:320 3956:3958] Done
               C: A005 UID COPY 305:310 meeting
               S: A005 OK No matching messages, so nothing copied
               C: A006 COPY 2 funny
               S: A006 OK Done
               C: A007 SELECT funny
               S: * 1 EXISTS
               S: * 1 RECENT
               S: * OK [UNSEEN 1] Message 1 is first unseen
               S: * OK [UIDVALIDITY 3857529045] Validity session-only
               S: * OK [UIDNEXT 2] Predicted next UID
               S: * NO [UIDNOTSTICKY] Non-persistent UIDs
               S: * FLAGS (\Answered \Flagged \Deleted \Seen \Draft)
               S: * OK [PERMANENTFLAGS (\Deleted \Seen)] Limited
               S: A007 OK [READ-WRITE] SELECT completed
```

In this example, A003 and A004 demonstrate successful appending and copying to a mailbox that returns the UIDs assigned to the messages. A005 is an example in which no messages were copied; this is because in A003, we see that message 2 had UID 304, and message 3 had UID 319; therefore, UIDs 305 through 310 do not exist (refer to section 2.3.1.1 of [IMAP] for further explanation). A006 is an example of a message being copied that did not return a COPYUID; and, as expected, A007 shows that the mail store containing that mailbox does not support persistent UIDs.

4. Formal Syntax

Formal syntax is defined using ABNF [ABNF], which extends the ABNF rules defined in [IMAP]. The IMAP4 ABNF should be imported before attempting to validate these rules.

```
   append-uid      = uniqueid

   capability      =/ "UIDPLUS"
   command-select  =/ uid-expunge

   resp-code-apnd  = "APPENDUID" SP nz-number SP append-uid

   resp-code-copy  = "COPYUID" SP nz-number SP uid-set SP uid-set

   resp-text-code  =/ resp-code-apnd / resp-code-copy / "UIDNOTSTICKY"
                     ; incorporated before the expansion rule of
                     ;  atom [SP 1*<any TEXT-CHAR except "]">]
                     ; that appears in [IMAP]

   uid-expunge     = "UID" SP "EXPUNGE" SP sequence-set

   uid-set         = (uniqueid / uid-range) *("," uid-set)

   uid-range       = (uniqueid ":" uniqueid)
                     ; two uniqueid values and all values
                     ; between these two regards of order.
                     ; Example: 2:4 and 4:2 are equivalent.
```

Servers that support [MULTIAPPEND] will have the following extension to the above rules:

```
   append-uid      =/ uid-set
                     ; only permitted if client uses [MULTIAPPEND]
                     ; to append multiple messages.
```

5. Security Considerations

The COPYUID and APPENDUID response codes return information about the mailbox, which may be considered sensitive if the mailbox has permissions set that permit the client to COPY or APPEND to the mailbox, but not SELECT or EXAMINE it.

Consequently, these response codes SHOULD NOT be issued if the client does not have access to SELECT or EXAMINE the mailbox.

6. IANA Considerations

This document constitutes registration of the UIDPLUS capability in the imap4-capabilities registry, replacing [RFC2359].

7. Normative References

[ABNF] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", RFC 4234, October 2005.

[IMAP] Crispin, M., "INTERNET MESSAGE ACCESS PROTOCOL - VERSION 4rev1", RFC 3501, March 2003.

[KEYWORDS] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[MULTIAPPEND] Crispin, M., "Internet Message Access Protocol (IMAP) - MULTIAPPEND Extension", RFC 3502, March 2003.

8. Informative References

[RFC2359] Myers, J., "IMAP4 UIDPLUS extension", RFC 2359, June 1998.

9. Changes from RFC 2359

This document obsoletes [RFC2359]. However, it is based upon that document, and takes substantial text from it (albeit with numerous clarifications in wording).

[RFC2359] implied that a server must always return COPYUID/APPENDUID data; thus suggesting that in such cases the server should return arbitrary data if the destination mailbox did not support persistent UIDs. This document adds the UIDNOTSTICKY response code to indicate that a mailbox does not support persistent UIDs, and stipulates that a UIDPLUS server does not return COPYUID/APPENDUID data when the COPY (or APPEND) destination mailbox has UIDNOTSTICKY status.

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