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RFC 9586
IMAP Extension for Using and Returning Unique Identifiers (UIDs) Only

Abstract

The UIDONLY extension to the Internet Message Access Protocol (RFCs 3501 and 9051) allows clients to enable a mode in which information about mailbox changes is returned using only Unique Identifiers (UIDs). Message numbers are not returned in responses and cannot be used in requests once this extension is enabled. This helps both clients and servers to reduce resource usage required to maintain a map between message numbers and UIDs.

This document defines an experimental IMAP extension.

Status of This Memo

This document is not an Internet Standards Track specification; it is published for examination, experimental implementation, and evaluation.

This document defines an Experimental Protocol for the Internet community. This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Not all documents approved by the IESG are candidates for any level of Internet Standard; see Section 2 of RFC 7841.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at https://www.rfc-editor.org/info/rfc9586.

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1. Introduction and Overview

This document defines an extension to the Internet Message Access Protocol [RFC3501] [RFC9051] for eliminating the use of message numbers. This extension is compatible with both IMAP4rev1 [RFC3501] and IMAP4rev2 [RFC9051].

The UIDONLY extension of the Internet Message Access Protocol allows clients to request that servers only use and return UIDs. This helps both clients and servers to reduce resource usage required to maintain a map between message numbers and UIDs.

2. Document Conventions

In protocol examples, this document uses a prefix of "C:" to denote lines sent by the client to the server and "S:" for lines sent by the server to the client. Lines prefixed with "//" are comments explaining the previous protocol line. These prefixes and comments are not part of the protocol. Lines without any of these prefixes are continuations of the previous line, and no line break is present in the protocol unless specifically mentioned.

The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**", "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**", and "**OPTIONAL**" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

Other capitalized words are names of IMAP commands or responses [RFC3501] [RFC9051] or keywords from this document.

3. The UIDONLY Extension

An IMAP server advertises support for the UIDONLY extension by including the "UIDONLY" capability in the CAPABILITY response/response code.

Once the UIDONLY extension is enabled (see Section 3.1), the client **MUST NOT** use message sequence numbers (including the special marker "*") in any arguments to IMAP commands, and the server **MUST** return a tagged BAD response if the client uses message sequence numbers. The server **MUST** include the UIDREQUIRED response code in such BAD responses (see below). Additionally, once the UIDONLY extension is enabled, the server **MUST NOT** return message sequence numbers in any response.

The UIDREQUIRED response code is defined as follows:

UIDREQUIRED:

Once the UIDONLY extension is enabled, the server returns the UIDREQUIRED response code when the client issues a command that includes message numbers instead of UIDs.

```
C: 07 FETCH 10000:14589 (UID FLAGS)
S: 07 BAD [UIDREQUIRED] Message numbers are not allowed
    once UIDONLY is enabled
```

The UIDONLY extension affects how information about new, expunged, or changed messages is returned in unsolicited responses. In particular, it affects responses to UID FETCH/UID STORE/ EXPUNGE/UID EXPUNGE, as well as how unsolicited mailbox changes are announced.

The following subsections describe changes introduced by this extension in more detail.

3.1. Enabling the UIDONLY Extension

As the UIDONLY extension affects how information about new, expunged, or changed messages is returned in unsolicited responses, it has to be enabled by the client first using the ENABLE command.

```
S: * OK [CAPABILITY IMAP4rev1 ENABLE CONDSTORE QRESYNC UIDONLY
    AUTH=SCRAM-SHA-256]
C: 01 ENABLE UIDONLY
S: * ENABLED UIDONLY
S: 01 OK ENABLE completed
```

3.2. Changes to FETCH/STORE/SEARCH/COPY/MOVE

When UIDONLY is enabled, the FETCH, STORE, SEARCH, COPY, and MOVE commands are prohibited and **MUST** result in a tagged BAD response. Clients should instead use UID FETCH, UID STORE, UID SEARCH, UID COPY, or UID MOVE, respectively.

3.3. Changes to UID FETCH / UID STORE

When UIDONLY is enabled, all FETCH responses that would be returned by UID FETCH / UID STORE are replaced by UIDFETCH responses.

Note that the UIDFETCH response contains the same response data items as specified for the FETCH response. The UID is always returned at the beginning of a UIDFETCH response, and it can also appear in the UID response data item, if requested by the client. While the UID response data item is redundant when requested, it can simplify the updating of existing (non-UIDONLY) implementations to support UIDONLY.

```
C: 10 UID FETCH 25900:26600 (FLAGS)
[...]
S: * 25996 UIDFETCH (FLAGS (\Seen))
S: * 25997 UIDFETCH (FLAGS (\Flagged \Answered))
S: * 26600 UIDFETCH (FLAGS ())
S: 10 OK FETCH completed
```

```
C: 11 UID FETCH 25900:26600 (UID FLAGS)
S: * 25900 UIDFETCH (FLAGS (\Seen) UID 25900)
S: * 25902 UIDFETCH (FLAGS (\Flagged) UID 25902)
S: * 26310 UIDFETCH (FLAGS (\Answered) UID 26310)
S: * 26311 UIDFETCH (FLAGS () UID 26311)
S: * 26498 UIDFETCH (FLAGS (\Answered) UID 26498)
[...]
S: 11 OK FETCH completed
```

3.4. Changes to EXPUNGE / UID EXPUNGE

When UIDONLY is enabled, all EXPUNGED responses that would be returned by EXPUNGE / UID EXPUNGE are replaced by VANISHED responses, as defined in [RFC7162]. Note that a server that implements the UIDONLY extension is not required (but allowed) to also implement the CONDSTORE and/or QRESYNC extensions.

```
C: 12 EXPUNGE
S: * VANISHED 405,407,410,425
S: 12 OK expunged
```

3.5. Changes to UID SEARCH

The "<sequence set>" UID SEARCH criterion is prohibited (and results in a tagged BAD response) once UIDONLY is enabled. Clients should use ALL or "UID <sequence set>" UID SEARCH criterion instead.

3.6. Changes to How Other Mailbox Changes Are Announced

When UIDONLY is enabled, all changes to flags (and other dynamic message attributes) are returned using UIDFETCH responses instead of FETCH responses.

Similarly, all expunged messages are announced using VANISHED responses instead of EXPUNGE responses.

This extension doesn't affect EXISTS or RECENT responses.

The UID MOVE / UID COPY commands **SHOULD** return the COPYUID response code, as specified in [RFC4315].

Use of the UIDNOTSTICKY response code (see [RFC4315]) is not compatible with the UIDONLY extension, i.e., a server that advertises the UIDONLY extension **MUST NOT** return a UIDNOTSTICKY response code.

```
C: 15 UID move 597 "Archives/2023/2023-05"
S: * OK [COPYUID 1685977201 597 2] UID MOVE
S: * VANISHED 597
S: 15 OK UID MOVE Completed
```

3.7. Interaction with the CONDSTORE and QRESYNC Extensions

The CONDSTORE extension is compatible with the UIDONLY extension. The MODSEQ message data item is returned in UIDFETCH responses instead of FETCH responses.

The QRESYNC extension is compatible with the UIDONLY extension, but once UIDONLY is enabled, the fourth SELECT QRESYNC parameter (see Section 3.2.5.2 ("Message Sequence Match Data") of [RFC7162]) **MUST NOT** be used. The server **MUST** return a tagged BAD response if such a parameter is observed once UIDONLY is enabled.

3.8. Interaction with Other Extensions

IMAP extensions might define other commands that accept message sequence numbers ("sequence-set" ABNF non-terminal; see Section 9 of [RFC9051]). Once UIDONLY is enabled, the server **MUST** reject such commands with a tagged BAD response. For example, the SORT and THREAD [RFC5256] commands are prohibited, similarly to the SEARCH command. However, UID SORT and UID THREAD can be used instead.

4. Formal Syntax

The following syntax specification uses the Augmented Backus-Naur Form (ABNF) notation as specified in [ABNF].

Non-terminals referenced but not defined below are as defined in Section 9 of IMAP4 [RFC9051].

Except as noted otherwise, all alphabetic characters are case insensitive. The use of uppercase or lowercase characters to define token strings is for editorial clarity only. Implementations **MUST** accept these strings in a case-insensitive fashion.

```
SP                = <Defined in RFC 5234>

capability        =/ "UIDONLY"
                     ;; <capability>; see RFC 9051

message-data      =/ uidfetch-resp

uidfetch-resp     = uniqueid SP "UIDFETCH" SP msg-att
                     ;; The uniqueid is the UID of
                     ;; the corresponding message

message-data      =/ expunged-resp

expunged-resp     = <defines VANISHED response; see RFC 7162>

resp-text-code    =/ "UIDREQUIRED"
```

5. Security Considerations

This IMAP extension is not believed to add any additional Security Considerations beyond the ones that are generally applicable to IMAP4rev1 [RFC3501] and IMAP4rev2 [RFC9051].

6. IANA Considerations

IMAP4 capabilities are registered by publishing a Standards Track or IESG-approved Informational or Experimental RFC.

IANA has added the UIDONLY extension to the "IMAP Capabilities" registry with RFC 9586 as the reference. The registry is located at <https://www.iana.org/assignments/imap4-capabilities/>.

IANA has also added the UIDREQUIRED response code to the "IMAP Response Codes" registry with RFC 9586 as the reference. The registry is located at <https://www.iana.org/assignments/imap-response-codes/>.

7. Alternative Solutions Not Taken

An earlier draft version of this document proposed use of FETCH responses with the message number parameter always set to 0. This was considered to be too risky as it could cause unexpected side effects and cache corruptions in client code that was not properly updated to handle a lack of message numbers.

8. Normative References

[ABNF]   Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, DOI 10.17487/RFC5234, January 2008, <https://www.rfc-editor.org/info/rfc5234>.

[RFC2119]   Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/info/rfc2119>.

[RFC3501]   Crispin, M., "INTERNET MESSAGE ACCESS PROTOCOL - VERSION 4rev1", RFC 3501, DOI 10.17487/RFC3501, March 2003, <https://www.rfc-editor.org/info/rfc3501>.

[RFC4315]   Crispin, M., "Internet Message Access Protocol (IMAP) - UIDPLUS extension", RFC 4315, DOI 10.17487/RFC4315, December 2005, <https://www.rfc-editor.org/info/rfc4315>.

[RFC5256]   Crispin, M. and K. Murchison, "Internet Message Access Protocol - SORT and THREAD Extensions", RFC 5256, DOI 10.17487/RFC5256, June 2008, <https://www.rfc-editor.org/info/rfc5256>.

[RFC7162]   Melnikov, A. and D. Cridland, "IMAP Extensions: Quick Flag Changes Resynchronization (CONDSTORE) and Quick Mailbox Resynchronization (QRESYNC)", RFC 7162, DOI 10.17487/RFC7162, May 2014, <https://www.rfc-editor.org/info/rfc7162>.

[RFC8174]   Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

[RFC9051]   Melnikov, A., Ed. and B. Leiba, Ed., "Internet Message Access Protocol (IMAP) - Version 4rev2", RFC 9051, DOI 10.17487/RFC9051, August 2021, <https://www.rfc-editor.org/info/rfc9051>.

9. Informative References

[IMAP-UIDONLY-ORIG]   Gulbrandsen, A., "The IMAP UIDONLY Extension", Work in Progress, Internet-Draft, draft-gulbrandsen-imap-uidonly-00, 25 April 2014, <https://datatracker.ietf.org/doc/html/draft-gulbrandsen-imap-uidonly-00>.

Acknowledgments

This document is similar to [IMAP-UIDONLY-ORIG], but some different syntactic choices were made in the end.

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