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IMAP Extension for only using and returning UIDs

Abstract

The UIDONLY extension to the Internet Message Access Protocol (RFC 3501/RFC 9051) allows clients to enable a mode in which information about mailbox changes is returned using only UIDs. Message numbers are not returned in responses, and can't 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.

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1. Introduction and Overview

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

The UIDONLY extension of the Internet Message Access Protocol (RFC 3501/RFC 9051) allows clients to request that servers only use and

return UIDs. This helps both clients and servers to reduce resource usage required for maintenance of message number to UID map.

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 capitalised 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 tagged BAD response if the client uses message sequence numbers. The server SHOULD 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

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

```
C: 07 FETCH 10000:14589 (UID FLAGS)
S: 07 OK [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 details.

3.1. Enabling 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, 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 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 UID response data item, if requested by the client. While UID response data item is redundant when requested, it can simplify 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 UIDONLY extension is not required (but allowed) to also implement 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 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.

UID MOVE/UID COPY commands SHOULD return COPYUID response code, as specified in [\[RFC4315\]](#).

Use of UIDNOTSTICKY response code (see [\[RFC4315\]](#)) is not compatible with the UIDONLY extension. I.e. a server that advertises UIDONLY extension MUST NOT return 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 CONDSTORE and QRESYNC extensions

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

QRESYNC extension is compatible with the UIDONLY extension, but once UIDONLY is enabled, the fourth SELECT QRESYNC parameter ("Message Sequence Match Data", see Section 3.2.5.2 of [[RFC7162](#)]) MUST NOT be used. The server MUST return a tagged BAD response if such 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) Once UIDONLY is enabled, server MUST reject such commands with tagged BAD response. For example, 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 by [IMAP4](#) [[RFC3501](#)].

Except as noted otherwise, all alphabetic characters are case-insensitive. The use of upper or lower case 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> from [RFC3501]

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

6.1. Changes/additions to the IMAP4 capabilities registry

IMAP4 capabilities are registered by publishing a standards track or IESG approved Informational or Experimental RFC. The registry is currently located at:

<https://www.iana.org/assignments/imap4-capabilities>

IANA is requested to add definition of the UIDONLY extension to this registry with [RFCXXXX] as the reference.

IANA is also requested to add definition of the UIDREQUIRED response code to the "IMAP Response Codes" registry with [RFCXXXX] as the reference. The registry is currently located at:

<https://www.iana.org/assignments/imap-response-codes/imap-response-co>

7. Alternative solutions not taken

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

8. Acknowledgments

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9. Normative References

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UIDREQUIRED (response code)

[Section 3, Paragraph 4.2.1](#)

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