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64bit body part and message sizes in IMAP4

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Abstract

This document defines an IMAPv4rev1 extension that extends the existing IMAPv4rev1 32 Bit message and body part sizes to 63 bit. Both the base IMAP specification ([RFC 3501](#)) and several extensions are updated.

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[1.](#) Introduction

IMAP [[RFC3501](#)] only allows body parts or message sizes which are 32 bit. This document introduces an IMAP extension that allows for message and body part sizes to be 63 bit. 63-bit values were chosen instead of 64-bit values in order to make implementations on various platforms (such as Java) easier.

The client wishing to use this extension MUST issue ENABLE 64BIT. Refer [[RFC5161](#)] for the usage of ENABLE command.

2. Requirements Notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

In examples, "C:" and "S:" indicate lines sent by the client and server respectively. If a single "C:" or "S:" label applies to multiple lines, then the line breaks between those lines are for editorial clarity only and are not part of the actual protocol exchange.

3. 64bit Extension

An IMAP server that supports the 64bit extension advertises this by including the name 64BIT in its CAPABILITY list in the authenticated state. The server may also advertise this extension before the user has logged in. If this capability is omitted, no information is conveyed about the server's status of supporting this extension.

IMAP server should respond with BAD response for the 64bit message size messages sent by the IMAP client unless it issues "ENABLE 64BIT" and the server responds with untagged ENABLED response that contains 64BIT in the current connection.

4. IMAP Protocol Changes

This document updates various fields in IMAP [\[RFC3501\]](#) to allow for 63 bit message sizes and body part sizes. It also updates the following IMAP extensions: QUOTA [\[RFC2087\]](#), BINARY [\[RFC3516\]](#), URL-PARTIAL [\[RFC5550\]](#) and APPENDLIMIT [\[RFC7889\]](#). This document also updates the IMAP URL specification [\[RFC5092\]](#) to allow use of such message sizes and offsets in URL.

These changes are described in more details below.

4.1. Changes to IMAP APPENDLIMIT extension

When an IMAP server implements both 64BIT and APPENDLIMIT [\[RFC7889\]](#) extensions, number64 values (see [Section 6](#)) are allowed after the "APPENDLIMIT=" capability and "APPENDLIMIT" status data item.

4.2. Changes to IMAP BINARY extension

When an IMAP server implements both 64BIT and BINARY [\[RFC3516\]](#) extensions, number64 values (see [Section 6](#)) are allowed in "literal8" and "partial" ABNF non terminals.

4.3. Changes to IMAP URL-PARTIAL extension and IMAP URL

When an IMAP server implements both 64BIT and URL-PARTIAL [[RFC5550](#)] extensions, number64 values (see [Section 6](#)) are allowed in the "partial-range" ABNF non terminal. The "partial-range" ABNF non terminal is defined in [[RFC5092](#)], so it also affects what is allowed in IMAP URLs.

4.4. Changes to IMAP QUOTA extension

When an IMAP server implements both 64BIT and QUOTA [[RFC2087](#)] extensions, number64 values (see [Section 6](#)) are allowed in resource usage and resource limit values.

5. Examples

```
C: t1 CAPABILITY
S: * CAPABILITY IMAP4rev1 ID 64BIT
S: t1 OK foo
C: t2 ENABLE 64BIT
S: * ENABLED 64BIT
S: t2 OK foo
```

6. 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 [[RFC3501](#)] or [[RFC4466](#)].

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.

[[Would it be helpful to split up ABNF by extension?]]

body-extension =/ number64

body-fld-lines = number64

body-fld-octets = number64

```
capability =/ "APPENDLIMIT" ["=" number64]
           ;; capability is defined in RFC 3501.
           ;; APPENDLIMIT capability is defined in RFC 7889.
```


fetch-att =/ "BODY" section [partial] /
 "BODY.PEEK" section [partial] /
 ; When BINARY extension is supported:
 "BINARY" [".PEEK"] section-binary [partial]

literal = "{" number64 ["+"] "}" CRLF *CHAR8
 ; number64 represents the number of CHAR8s.
 ; NOTE: "+" can only present when LITERAL+/LITERAL-
 ; is also advertised

literal8 = "~{" number64 ["+"] "}" CRLF *OCTET
 ;; Updating [RFC 4466](#) version.
 ;; A string that might contain NULs.
 ;; <number> represents the number of OCTETs
 ;; in the response string.
 ;; The "+" is only allowed when both LITERAL+/LITERAL-
 ;; and BINARY extensions are supported by the server
 ;; [[RFC7888](#)]

msg-att-static =/"[RFC822](#).SIZE" SP number64

number64 = 1*DIGIT
 ; Unsigned 63-bit integer
 ; (0 <= n <= 9,223,372,036,854,775,807)

nz-number64 = digit-nz *DIGIT
 ; Unsigned 63-bit integer
 ; (0 < n <= 9,223,372,036,854,775,807)

partial-range = number64 [". " nz-number64]
 ; Updates definition from [RFC 5092](#) (IMAP URL).
 ; This also affect URL-PARTIAL ([RFC 5550](#)).

partial = "<" number64 [". " nz-number64 ">"
 ; Partial FETCH request. 0-based offset of
 ; the first octet, followed by the number of octets
 ; in the fragment.

quota_resource = atom SP resource-usage SP resource-limit
 ; Updates definition in [RFC 2087](#).

setquota_resource = atom SP resource-limit
 ; Updates definition in [RFC 2087](#).

resource-limit = number64

resource-usage = number64


```
search-key      =/ "LARGER" SP number64 / "SMALLER" SP number64

status-att-val =/ "APPENDLIMIT" SP (number64 / nil)
                ;; status-att-val is defined in RFC 4466
                ;; APPENDLIMIT status data item is defined in RFC 7889.

CHAR8           = <defined in RFC 3501>
```

7. Security Considerations

This document doesn't raise any new security concerns not already raised by [[RFC3501](#)].

8. IANA Considerations

IANA is asked to add "64BIT" to the IMAP Capabilities registry, using this document as its reference.

9. Acknowledgments

Thank you to Stephan Bosch for pointing out which IMAP extensions were not covered in earlier versions of this document.

10. Normative References

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