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IMAP Regular Expressions SEARCH Extension

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A version of this draft document is intended for submission to the RFC editor as a Proposed Standard for the Internet Community. Discussion and suggestions for improvement are requested.

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[1.](#) Abstract

This memo describes a regular-expression search facility for the [IMAP] protocol.

A server advertises support for this facility by the capability name REGEX.

[2.](#) Conventions Used in this Document

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 [RFC 2119](#) [[KEYWORDS](#)].

[3.](#) Comments

Public comments can be sent to the IETF IMAP Extensions mailing list, <ietf-imapext@imc.org>. To subscribe, send a message to <ietf-imapext-request@imc.org> with the word SUBSCRIBE as the body. Private comments should be sent to the author.

[4.](#) Open Issues

- Should the regular expression syntax be specified in a simple form, as is done here, or should it be a reference to a published, more complex form, such as POSIX 1003.2?

- Should ^ and \$ be used for token, line, or a message part (such as a header field)?

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- Should REGEX come after the search key?
- The current Formal Syntax allows for silliness such as SEARCH REGEXP REGEXP CC "gork"

5. REGEX Modifier to SEARCH (and UID SEARCH) Criteria

This extension adds an additional optional REGEXP modifier to all SEARCH criteria which take strings. When this modifier is present, the search criteria string is interpreted as a regular expression, as described in [section 7](#).

If the string supplied with the search criteria does not contain a valid regular expression, the server MUST return a BAD response.

If the search criteria does not take a string, the server MUST return a BAD response.

6. Formal Syntax Changes

This section described the changes to the Formal Syntax of the IMAP protocol, using [\[ABNF\]](#):

```
search-key =/ REGEX SP search-key
            ; modifies existing IMAP search-key so
            ; that string values in search-key are treated
            ; as regular expressions for pattern matching
```

7. Regular Expression Details

The regular expression syntax described in this section is a subset of that used in many applications and systems. It is however very simple and does not include the logical operators AND and OR.

Searches using regular expressions are always substring matches except when the regular expression contains the characters '^' or '\$'.

Character	Function
-----	-----

<any except those listed in this table>	Matches itself
.	Matches any character
a*	Matches zero or more 'a's
a+	Matches one or more 'a's
[ab]	Matches 'a' or 'b'
[a-c]	Matches 'a', 'b' or 'c'
[^ab]	Matches any character except 'a' or 'b'

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^	Matches beginning of a token
\$	Matches end of a token
\	Next character matches itself

Examples

String	Matches	Doesn't Match
-----	-----	-----
hello	xhelloy	heello
h.llo	hello	helio
h.*o	hello	helloa
h[a-f]llo	hello	hgllo
^he.*	hello	ehello
.*lo\$	hello	helloo
hel+o	hello	helo

8. Examples

This example finds messages that have "MAKE*MONEY*FAST" in the subject, but not "MAKE!MONEY!FAST":

```
C: Z SEARCH REGEX SUBJECT "MAKE[ _\-\*]+MONEY[ _\-\*]+FAST"
S: * SEARCH 2 22 98 2048
S: Z OK SEARCH Completed
```

This example uses an invalid regular expression:

```
C: Y SEARCH REGEX TO ".["
S: Y BAD Invalid regular expression syntax
```

This example uses REGEX with a search criteria that does not take a string:

```
C: X SEARCH REGEX LARGER 10000
```

S: X BAD Cannot use regular expressions with the LARGER criteria

This example searches for messages without the \ANSWERED flag where the envelope from matches the regular expression "mump.*wump" and the text matches the substring "a[0-9]*" (note that the text criteria is not a regular expression):

```
C: W SEARCH UNANSWERED REGEX FROM "mump.*wump" TEXT "a[0-9]*"
S: * SEARCH 3
S: W OK SEARCH Completed
```

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9. References

[ABNF] Crocker, Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 2234](#), Internet Mail Consortium, Demon Internet Ltd., November 1997. <<ftp://ftp.isi.edu/in-notes/rfc2234.txt>>

[IMAP4] Crispin, "Internet Message Access Protocol - Version 4rev1", [RFC 2060](#), University of Washington, December 1996.

[KEYWORDS] Bradner, "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#), Harvard University, March 1997. <<ftp://ftp.isi.edu/in-notes/rfc2119.txt>>

10. Security Considerations

This extension does not alter the security semantics of IMAP.

11. Acknowledgments

The table in [section 7](#) is based on the one in [RFC 1835](#).

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