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## Sieve Email Filtering -- Regular Expression Extension

[<draft-murchison-sieve-regex-08.txt>](#)

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### Abstract

In some cases, it is desirable to have a string matching mechanism which is more powerful than a simple exact match, a substring match or a glob-style wildcard match. The regular expression matching mechanism defined in this draft should allow users to isolate just about any string or address in a message header or envelope.

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## 0. Meta-information on this draft

This information is intended to facilitate discussion. It will be removed when this document leaves the Internet-Draft stage.

### 0.1. Discussion

This draft is intended to be an extension to the Sieve mail filtering language, available from the RFC repository as <ftp://ftp.ietf.org/rfc/rfc3028.txt>.

This draft and the Sieve language itself are being discussed on the MTA Filters mailing list at [ietf-mta-filters@imc.org](mailto:ietf-mta-filters@imc.org). Subscription requests can be sent to [ietf-mta-filters-request@imc.org](mailto:ietf-mta-filters-request@imc.org) (send an email message with the word "subscribe" in the body). More information on the mailing list along with a WWW archive of back messages is available at <http://www.imc.org/ietf-mta-filters/>.

### 0.2. Noted Changes Since -07

Updated boilerplate.

### 0.3. Open Issues

The major open issue with this draft is what to do, if anything, about localization/internationalization. Are [POSIX.2] collating sequences and character equivalents sufficient? Should we reference the unicode technical specification? Should we punt and publish the document as experimental?

Should we allow shorthands such as `\b` (word boundary) and `\w` (word character)?

Should we allow backreferences (useful for matching double words, etc.)?

Should we integrate with variables, so that \$1, \$2, ... correspond to the first, second, ... groups within the regex?

## 1. Introduction

This is an extension to the Sieve language defined by [[SIEVE](#)] for comparing strings to regular expressions.

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Conventions for notations are as in [[SIEVE](#)] [section 1.1](#), including use of [[KEYWORDS](#)].

## 2. Capability Identifier

The capability string associated with the extension defined in this document is "regex".

## 3. Regex Match Type

Commands that support matching may take the optional tagged argument ":regex" to specify that a regular expression match should be performed. The ":regex" match type is subject to the same rules and restrictions as the standard match types defined in [[SIEVE](#)]. For convenience, the "MATCH-TYPE" syntax element defined in [[SIEVE](#)] is augmented here as follows:

```
MATCH-TYPE =/ ":regex"
```

Example:

```
require "regex";

# Try to catch unsolicited email.
if anyof (
  # if a message is not to me (with optional +detail),
  not address :regex ["to", "cc", "bcc"]
```

```

"me(\\+.*)?@company\\.com",

# or the subject is all uppercase (no lowercase)
header :regex :comparator "i;octet" "subject"
"^[^[:lower:]]+$" ) {

discard;      # junk it
}

```

The ":regex" match type is compatible with both the "i;octet" and "i;ascii-casemap" comparators and may be used with them.

Implementations MUST support extended regular expressions (EREs) as defined by [POSIX.2]. Any regular expression not defined by [POSIX.2], as well as [POSIX.2] basic regular expressions, word boundaries and backreferences are not supported by this extension. Implementations SHOULD reject regular expressions that are unsupported by this specification as a syntax error.

The following table provides a brief summary of the regular expressions that MUST be supported. This table is presented here only as a guideline. [POSIX.2] should be used as the definitive reference.

Expression	Pattern
Items to match a single character	
.	Match any single character except newline.
[ ]	Bracket expression. Match any one of the enclosed characters. A hyphen (-) indicates a range of consecutive characters.
[^ ]	Negated bracket expression. Match any one character NOT in the enclosed list. A hyphen (-) indicates a range of consecutive characters.
\\	Escape the following special character (match the literal character). Undefined for other characters.
	NOTE: Unlike [POSIX.2], a double-backslash is

	required as per section 2.4.2 of <a href="#">[SIEVE]</a> .
Items to be used within a bracket expression (localization)	
[: :]	Character class (alnum, alpha, blank, cntrl, digit, graph, lower, print, punct, space, upper, xdigit).
[= =]	Character equivalents.
[. .]	Collating sequence.
Quantifiers - Items to count the preceding regular expression	
?	Match zero or one instances.
*	Match zero or more instances.
+	Match one or more instances.
{n,m}	Match any number of instances between n and m (inclusive). {n} matches exactly n instances. {n,} matches n or more instances.
Anchoring - Items to match positions	
^	Match the beginning of the line or string.
\$	Match the end of the line or string.

Expression	Pattern
Other constructs	
	Alternation. Match either of the separated regular expressions.
( )	Group the enclosed regular expression(s).

#### 4. Security Considerations

Security considerations are discussed in [\[SIEVE\]](#). It is believed that this extension doesn't introduce any additional security

concerns.

However, a poor implementation COULD introduce security problems ranging from degradation of performance to denial of service. If an implementation uses a third-party regular expression library, that library should be checked for potentially problematic regular expressions, such as "(.\*)\*".

## 5. IANA Considerations

The following template specifies the IANA registration of the Sieve extension specified in this document:

To: iana@iana.org  
Subject: Registration of new Sieve extension

Capability name: regex  
Capability keyword: regex  
Capability arguments: N/A  
Standards Track/IESG-approved experimental RFC number: this RFC  
Person and email address to contact for further information:

Kenneth Murchison  
ken@oceana.com

This information should be added to the list of sieve extensions given on <http://www.iana.org/assignments/sieve-extensions>.

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### Normative References

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

[SIEVE] Showalter, T., "Sieve: A Mail Filtering Language", [RFC](#)

[3028](#), January 2001.

[POSIX.2], "Portable Operating System Interface (POSIX). Part 2, Shell and utilities", National Institute of Standards and Technology (U.S.).

## [7](#). Acknowledgments

Thanks to Tim Showalter, Alexey Melnikov, Tony Hansen, Phil Pennock, Jutta Degener and Ned Freed for their help with this document.

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