Network Working Group

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Sieve -- Regular Expression Extension

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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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Meta-information on this draft 0.

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>. Subscription requests can be sent to <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**

0.2.1 since -05

Added open issue regarding localization/internationalization.

Added that implementations SHOULD reject regexes not supported by this extension.

Editorial changes.

0.2.2 since -04

Editorial changes.

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?

1. Introduction

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

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:

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 hypen (-) indicates a range of consecutive characters. Negated bracket expression. Match any one
	character NOT in the enclosed list. A hypen (-) 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 [SIEVE].
Items to be	e 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
? * + {n,m}	Match zero or one instances. Match zero or more instances. Match one or more instances. Match any number of instances between n and m (inclusive). {n} matches exactly n instances. {n,} matches n or more instances.

++		-+
Expression		
1	Anchoring - Items to match positions	
^	Match the beginning of the line or string. Match the end of the line or string.	
İ	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. Acknowledgments

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

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Appendix A. References

[KEYWORDS] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", Harvard University, <u>RFC 2119</u>, March, 1997.

[SIEVE] Showalter, T., "Sieve: A Mail Filtering Language", Mira; point, Inc., RFC 3028, January 2001.

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

<u>Appendix B</u>. Full Copyright Statement

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