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N. Freed
Sun Microsystems

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Sieve Email Filtering: Environment Extension

Status of This Memo

Abstract

This document describes the "environment" extension to the Sieve email filtering language. The "environment" extension gives a Sieve script access to information about the Sieve interpreter itself, where it is running, and about any transport connection currently involved in transferring the message.

1. Introduction

Sieve [RFC5228] is a language for filtering email messages at or around the time of final delivery. It is designed to be implementable on either a mail client or mail server. It is suitable for running on a mail server where users may not be allowed to execute arbitrary programs, such as on black box Internet Message Access Protocol [RFC3501] servers, as it has no user-controlled loops or the ability to run external programs.

Although Sieve is intended to be independent of access protocol, mail architecture, and operating system, in some cases it is useful to allow scripts to access information about their execution context. The "environment" extension provides a new environment test that can be used to implement scripts that behave differently when moved from one system to another, when messages arrive from different remote sources or when otherwise operated in different contexts.

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 [RFC2119].

The terms used to describe the various components of the Sieve language are taken from Section 1.1 of [RFC5228].

This document refers to the ABNF productions IPv4-address-literal, IPv6-address-literal, and General-address-literal defined in Section 4.1.3 of [RFC2821].

The location item makes use of standard terms for email service components. Additional information and background on these terms can be found in [EMAIL-ARCH].

3. Capability Identifiers

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

4. Environment Test

```
Usage:   environment [COMPARATOR] [MATCH-TYPE]
                     <name: string>
                     <key-list: string-list>
```

The environment test retrieves the item of environment information specified by the name string and matches it to the values specified in the key-list argument. The test succeeds if a match occurs. The type of match defaults to ":is" and the default comparator is "i;ascii-casemap".

The current message is not a direct source of information for the environment test; the item of information specified by the name string is extracted from the script's operating environment and the key-list argument comes from the script.

The environment test MUST fail unconditionally if the specified information item does not exist. A script MUST NOT fail with an error if the item does not exist. This allows scripts to be written that handle nonexistent items gracefully. In particular, the test:

```
  if environment :contains "item" "" { ... }
```

only succeeds if "item" is known to the implementation, and always succeeds if it is.

The "relational" extension [RFC5231] adds a match type called ":count". The count of an environment test is 0 if the environment information returned is the empty string, or 1 otherwise.

Environment items can be standardized or vendor-defined. An IANA registry is defined for both types of items. Extensions designed for interoperable use SHOULD be defined in standards track or experimental RFCs.

4.1. Initial Standard Environment Items

The initial set of standardized environment items is as follows:

"domain" => The primary DNS domain associated with the Sieve execution context, usually but not always a proper suffix of the host name.

"host" => The fully-qualified domain name of the host where the Sieve script is executing.

"location"
=> Sieve evaluation can be performed at various different points as messages are processed. This item provides additional information about the type of service that is evaluating the script. Possible values are "MTA", meaning the Sieve is being evaluated by a Message Transfer Agent, "MDA", meaning evaluation is being performed by a Mail Delivery Agent, "MUA", meaning evaluation is being performed by a Mail User Agent, and "MS", meaning evaluation is being performed by a Message Store. Additional information and background on these terms can be found in [EMAIL-ARCH].

"name" => The product name associated with the Sieve interpreter.

"phase" => The point relative to final delivery where the Sieve script is being evaluated. Possible values are "pre", "during", and "post", referring respectively to processing before, during, and after final delivery has taken place.

"remote-host"
=> Host name of remote SMTP/LMTP/Submission client expressed as a Fully Qualified Domain Name (FQDN), if applicable and available. The empty string will be returned if for some reason this information cannot be obtained for the current client.

"remote-ip"
=> IP address of remote SMTP/LMTP/Submission client, if applicable and available. IPv4, IPv6, and other types of addresses are respectively represented in the formats defined by the IPv4-address-literal, IPv6-address-literal, and General-address-literal productions defined in Section 4.1.3 of [RFC2821].

"version" => The product version associated with the Sieve interpreter. The meaning of the product version string is product-specific and should always be considered in the context of the product name given by the "name" item.

Implementations SHOULD support as many of the items on this initial list as possible. Additional standardized items can only be defined in standards-track or experimental RFCs.

4.2. Vendor-defined Environment Items

Environment item names beginning with "vnd." represent vendor-defined extensions. Such extensions are not defined by Internet standards or RFCs, but are still registered with IANA in order to prevent conflicts.

4.3. IANA Registration of Environment Items

A registry of environment items is provided by IANA. Item names may be registered on a first-come, first-served basis.

Groups of items defined in a standards track or experimental RFC MAY choose to use a common name prefix of the form "name.", where "name" is a string that identifies the group of related items.

Items not defined in a standards track or experimental RFC MUST have a name that begins with the "vnd." prefix, and this prefix is followed by the name of the vendor or product, such as "vnd.acme.rocket-sled-status".

4.3.1. Template for Environment Registrations

The following template is to be used for registering new Sieve environment item names with IANA.

```
To: iana@iana.org
Subject: Registration of new Sieve environment item

Item name: [the string for use in the 'environment' test]
Description:     [a brief description of the semantics of the
                  value the item returns]

RFC number:      [for extensions published as RFCs]
Contact address: [email and/or physical address to contact for
                  additional information]
```

Multiple items and descriptions MAY be specified in a single registration request. Both standardized and vendor-defined items use this form.

5. Security Considerations

The environment extension may be used to obtain information about the system the Sieve implementation is running on. This information in turn may reveal details about service provider or enterprise infrastructure.

An implementation can use any technique to determine the remote-host environment item defined in this specification, and the trustworthiness of the result will vary. One common method will be to perform a PTR DNS lookup on the client IP address. This information may come from an untrusted source. For example, the test:

```
if environment :matches "remote-host" "*.example.com" { ... }
```

is not a good way to test whether the message came from "outside" because anyone who can create a PTR record can create one that refers to whatever domain they choose.

All of the security considerations given in the base Sieve specification also apply to this extension.

6. 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: environment
Description:     The "environment" extension provides a new
                 environment test that can be used to implement
                 scripts that behave differently when moved
                 from one system to another or otherwise
                 operated in different contexts.
RFC number:      RFC 5183
Contact address: Sieve discussion list <ietf-mta-filters@imc.org>
```

This specification also defines a new IANA registry for Sieve environment item names. The specifics of this registry are given in Section 4.3. The initial contents of the registry are given in the following section.

6.1. Initial Environment Item Registrations

The following template specifies the initial IANA registrations for the environment items defined in this document:

To: iana@iana.org
Subject: Registration of new Sieve environment items

Capability name: domain
Description: The primary DNS domain associated with the Sieve execution context, usually but not always a proper suffix of the host name.

Capability name: host
Description: The fully-qualified domain name of the host where the Sieve script is executing.

Capability name: location
Description: Type of service executing the Sieve script.

Capability name: name
Description: The product name associated with the Sieve interpreter.

Capability name: phase
Description: Point relative to final delivery at which the Sieve script is being evaluated.

Capability name: remote-host
Description: Host name of remote SMTP client, if applicable and available.

Capability name: remote-ip
Description: IP address of remote SMTP client, if applicable and available.

Capability name: version
Description: The product version associated with the Sieve interpreter.

RFC number: RFC 5183
Contact address: Sieve discussion list <ietf-mta-filters@imc.org>

7. References

7.1. Normative references

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC2821] Klensin, J., "Simple Mail Transfer Protocol", RFC 2821, April 2001.

[RFC5228] Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language", RFC 5228, January 2008.

[RFC5231] Segmuller, W. and B. Leiba, "Sieve Email Filtering: Relational Extension", RFC 5231, January 2008.

7.2. Informative references

[EMAIL-ARCH] Crocker, D., "Internet Mail Architecture", Work in Progress, February 2008.

[RFC3501] Crispin, M., "INTERNET MESSAGE ACCESS PROTOCOL - VERSION 4rev1", RFC 3501, March 2003.

Appendix A. Acknowledgements

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Author's Address

Ned Freed
Sun Microsystems
3401 Centrelake Drive, Suite 410
Ontario, CA 92761-1205
USA

Phone: +1 909 457 4293
EMail: ned.freed@mrochek.com

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