

Network Working Group	N. Freed	
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Sieve Email Filtering: Delivery Status Notifications and Deliver-By Extensions
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Abstract

This document describes the "envelope-dsn", "redirect-dsn", "envelope-deliverby", and "redirect-deliverby" extensions to the Sieve email filtering language. The "envelope-dsn" and "envelope-deliverby" extensions provide access to additional envelope information provided by the delivery status notification and deliver-by SMTP extensions. The "redirect-dsn" and "redirect-deliverby" extensions extend Sieve's redirect action to provide control over delivery status notification and deliver-by parameters, respectively.

Change History (to be removed prior to publication as an RFC)

Fixed several typos.

Changed name of extension from notary to envelope-dsn.

Added the redirect-dsn extension.

Updated references.

Added a note about the use of ADDRESS-PART arguments with the new envelope-part strings defined by the envelope-dsn extension.

Fleshed out the redirect-dsn extension.

Changed document title to agree with new extension names.

Added some examples.

Fixed more typos.

Changed dsn-envelope and dsn-redirect to envelope-dsn and redirect-dsn, respectively.

Added a redirect-dsn example.

Added the two deliver-by extensions.

1. Introduction

Sieve [[RFC5228](#)] ([Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language," January 2008.](#)) 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](#)] ([Crispin, M., "INTERNET MESSAGE ACCESS PROTOCOL - VERSION 4rev1," March 2003.](#)) servers, as it has no user-controlled loops or the ability to run external programs.

The base sieve specification defines the envelope extension and test to access information in the message envelope. Only information available in regular SMTP is provided; additional information added to the SMTP envelope by SMTP extensions cannot be accessed.

The "envelope-dsn" extension extends the envelope test to allow access to the additional envelope fields defined by the SMTP extension for delivery status notification specified in [RFC 3461 \(Moore, K., "Simple Mail Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#) [[RFC3461](#)]. The "envelope-deliverby" extension extends the envelope test to allow access to the additional envelope fields defined by the deliver-by SMTP extension defined in [\[RFC2852\] \(Newman, D., "Deliver By SMTP Service Extension," June 2000.\)](#).

The base sieve specification also defines the redirect action which sends the message to a different address. Redirect only allows specification of the new recipient address. The "redirect-dsn" extension extends redirect to allow specification of some fields defined by the delivery status notification SMTP extension. "redirect-

deliverby" in turn provides the ability to set a time limit for delivery as specified in [RFC 2852 \(Newman, D., "Deliver By SMTP Service Extension," June 2000.\)](#) [RFC2852].

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 [\[RFC2119\] \(Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.\)](#).

The terms used to describe the various components of the Sieve language are taken from Section 1.1 of [\[RFC5228\] \(Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language," January 2008.\)](#).

This document uses the ABNF notation specified in [\[RFC5234\] \(Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF," January 2008.\)](#), and refers to the ABNF productions notify-esmtp-value defined in Section 4.1 of [\[RFC3461\] \(Moore, K., "Simple Mail Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#).

3. Capability Identifier

The capability strings associated with the extensions defined in this document are "envelope-dsn", "redirect-dsn", "envelope-deliverby", and "redirect-deliverby".

4. Envelope-dsn Extension

The "envelope-dsn" extension does not define any new tests or actions, rather, it adds four values to the list of possible (case-insensitive) envelope-part strings defined in Section 5.4 of [\[RFC5228\] \(Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language," January 2008.\)](#):

notify Match the list of notification conditions, or NOTIFY values, associated with the TO address used in the SMTP RCPT TO command that resulted in this message getting delivered to this user. More than one notification condition can be in effect at once; each condition that is in effect is tested separately and any match causes the test to succeed. The syntax and semantics of the NOTIFY parameter are defined in [RFC 3461 \(Moore, K., "Simple Mail](#)

[Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#) [RFC3461] section 4.1.

Currently the possible notification condition values are "NEVER", "SUCCESS", "FAILURE" and "DELAY". Note that the value "NEVER" cannot be combined with any other value.

orcpt Match the original recipient, or ORCPT, value in decoded form associated with the TO address used in the SMTP RCPT TO command that resulted in this message getting delivered to this user. The syntax and semantics of the ORCPT parameter are defined in Section 2.2 of [RFC 3461 \(Moore, K., "Simple Mail Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#) [RFC3461].

ret Match the return of content, or RET, value given in the SMTP MAIL FROM command. The syntax and semantics of the RET parameter are defined in [RFC 3461 \(Moore, K., "Simple Mail Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#) [RFC3461] section 4.3. Currently the possible return of content values are "FULL" and "HDRS".

envid Match the envelope identifier, or ENVID, value in decoded form given in the SMTP MAIL FROM command. The syntax and semantics of the ENVID parameter are defined in Section 4.4 of [RFC 3461 \(Moore, K., "Simple Mail Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#) [RFC3461].

All of these tests fail unconditionally if the specified envelope parameter does not exist for the current message or recipient. The envelope test's ADDRESS-PART argument assumes the string being tested has the syntax of an email address. None of the new envelope parts defined here have address syntax, accordingly, it is an error to specify an ADDRESS-PART argument in conjunction with these new envelope parts.

The "relational" extension [\[RFC5231\] \(Segmuller, W. and B. Leiba, "Sieve Email Filtering: Relational Extension," January 2008.\)](#) adds a match type called ":count". The count of an envelope test with an envelope-part of "orcpt", "ret", and "envid" is 1 if the corresponding SMTP parameter is present and 0 otherwise. The count of an envelope test with an envelope-part of "notify" is equal to the number of notification conditions specified and 0 if the NOTIFY parameter is not present.

4.1. Examples

The fact that the NOTIFY envelope parameter is multivalued and the notify envelope-part turns this into a list of values makes it easy to check to see if a given value is present without having to worry about other values:

```
require ["envelope", "envelope-dsn"];

# Check whether SUCCESS notifications were requested,
# irrespective of any other requests that were made
if envelope "notify" "SUCCESS"
{
    # do whatever
}
```

Checking to see if a given request is the only one present is a little trickier, however:

```
require ["envelope", "envelope-dsn", "relational",
        "comparator-i;ascii-numeric"];

# Check whether only FAILURE notifications were requested
if allof ( envelope "notify" "FAILURE",
           envelope :comparator "i;ascii-numeric"
               :count "eq" "notify" "1"
         )
{
    # do whatever
}
```

The orcpt envelope-part always contains an address type indicator prefix in addition to an address, which must be taken into account in any tests:

```
require ["envelope", "envelope-dsn"];

# See if the orcpt is an RFC822 address in the example.com
# domain
if envelope :matches "orcpt" "rfc822;*@example.com"
{
    # do whatever
}
```

5. Envelope-deliverby Extension

The "envelope-deliverby" extension does not define any new tests or actions, rather, it adds three values to the list of possible (case-insensitive) envelope-part strings defined in Section 5.4 of [\[RFC5228\] \(Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language," January 2008.\)](#):

bytime Match the initial integer part of the deliver-by extension's BY parameter specified in the SMTP MAIL FROM command.

bymde Match a string computed from the by-mode part of the deliver-by extension's BY parameter. The possible values are "notify" and "return", which correspond to the BY parameter mode specifier characters "N" and "R" respectively.

bytrace Match the trace modifier computed from the by-trace modifier on the deliver-by extension's BY parameter. The possible values are "trace" and "" (the empty string). These values correspond to the presence or absence of the by-trace "T" modifier respectively.

All of these tests fail unconditionally if the BY SMTP MAIL FROM parameter does not exist for the current message or recipient. The envelope test's ADDRESS-PART argument assumes the string being tested has the syntax of an email address. None of the new envelope parts defined here have address syntax, accordingly, it is an error to specify an ADDRESS-PART argument in conjunction with these new envelope parts.

The "relational" extension [\[RFC5231\] \(Segmuller, W. and B. Leiba, "Sieve Email Filtering: Relational Extension," January 2008.\)](#) adds a match type called ":count". The count of an envelope test with an envelope-part of "bytime", "bymode", and "bytrace" is 1 if the BY parameter is present and 0 otherwise.

It should be noted that the deliver-by by-time is decremented as the message passes through the transport infrastructure. Accordingly, it is not possible to tell what the message originator set the value to, only the amount of time remaining at the moment the sieve is run.

5.1. Example

As noted above, this extension does not provide access to the originator's initial by-time setting for the simple reason that this information is not part of the envelope. It can, however, be used to check and see if the message was delivered within the allotted time.

```
require ["envelope", "envelope-deliverby", "relational",
        "comparator-i;ascii-numeric"];

# Check to see if this message didn't make it in the time allotted by
# the originator.
if envelope :value "eq" :comparator "i;ascii-numeric" "bytime" "0"
{
    # do whatever
}
```

6. redirect-dsn extension

The "redirect-dsn" extension does not define any new tests or actions, rather, it adds two new arguments, NOTIFY and RET, to the redirect action defined in Section 4.2 of [\[RFC5228\] \(Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language," January 2008.\)](#). This updates the usage description for redirect to:

```
[
Usage:  redirect [:notify "value"] [:ret "FULL"|"HDRS"]
        <address: string>
```

The syntax for the NOTIFY and RET arguments are:

```
NOTIFY = ":notify" notify-value
notify-value = DQUOTE notify-esmtp-value DQUOTE

RET = ":ret" ret-value
ret-value = DQUOTE ("FULL" / "HDRS") DQUOTE
```

The notify-esmtp-value production is defined in Section 4.1 of [\[RFC3461\] \(Moore, K., "Simple Mail Transfer Protocol \(SMTP\) Service Extension for Delivery Status Notifications \(DSNs\)," January 2003.\)](#). When these arguments are specified, they set the corresponding NOTIFY ESMTP RCPT TO and RET ESMTP MAIL FROM parameters, respectively. These arguments are only honored if the delivery status notification (DSN) ESMTP extension is available. When the DSN extension is not available, these arguments MUST be ignored and MUST NOT cause an error.

6.1. Example

One possible use of :notify on redirect is to combine the copy extension [\[RFC3894\]](#) (Degener, J., "Sieve Extension: Copying Without Side Effects," October 2004.) with the ability to suppress nondelivery notifications to generate a private copy of selected messages with no side effects or error notifications:

```
require ["copy", "redirect-dsn"];

# Make a private copy of messages from user@example.com
if address "from" "user@example.com"
{
    redirect :copy :notify "NEVER" "elsewhere@example.com";
}
```

7. redirect-deliverby extension

The "redirect-deliverby" extension does not define any new tests or actions, rather, it adds three new arguments, BYTIME, BYMODE, and BYTRACE, to the redirect action defined in Section 4.2 of [\[RFC5228\]](#) (Guenther, P. and T. Showalter, "Sieve: An Email Filtering Language," January 2008.). This updates the usage description for redirect to:

```
[
Usage:    redirect [:bytime <limit: number>
                  [:bymode "notify"|"return"] [:bytrace]]
          <address: string>
```

:bytime specifies the number of seconds within which the message should be delivered. :bymode specifies whether a notification should be sent or the message simply returned if the time limit is exceeded. The default is "return" if :bymode is not specified. See The semantics of delivery time limits are specified and discussed at length in [\[RFC2852\]](#) (Newman, D., "Deliver By SMTP Service Extension," June 2000.).

It is an error to specify :bymode and :bytrace without :bytime.

When these arguments are specified, they are used to construct the corresponding BY ESMTP MAIL FROM parameter. The :bytime value becomes the by-time, the :bymode becomes the by-mode value, and :bytrace sets the by-trace modifier. If the deliver-by extension is unavailable, the handling of reredirected message MUST conform to the semantics specified in [\[RFC2852\]](#) (Newman, D., "Deliver By SMTP Service Extension," June 2000.) section 4.1.4 for relaying to a server that does not support the deliver-by SMTP extension.

7.1. Example

The obvious use of "redirect-deliverby" is to specify a limit on delivery attempts for a redirected message:

```
require ["copy", "redirect-deliverby"];

# Send a copy to my cell phone, time out after 10 minutes
if address "from" "user@example.com"
{
    redirect :copy :bytime 600 "cellphone@example.com";
}
```

8. Security Considerations

The envelope-dsn and envelope-deliverby extensions provide access to additional message envelope information. This is not believed to raise any additional security issues beyond those for the Sieve "envelope" test.

The redirect-dsn extension allows specification of the delivery status notification's NOTIFY parameter which can cause the generation of notification messages that might otherwise not be generated, especially if notification in the event of successful delivery is required. Sites which limit the ability to request success notifications will also need to restrict the ability to request them using the redirect-dsn extension.

Similarly, the redirect-deliverby extension is used to control how long the transport infrastructure will continue to attempt to deliver a message before giving up, which could result in the generation of additional notification messages. While the underlying Deliver-By extension does have a minimum by-time limit, sites may wish to impose additional limits on the minimum by-time allowed in a redirect action. All of the security considerations given in the base Sieve specification also apply to this extension.

9. 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 extensions

Capability name: envelope-dsn
Description: The "envelope-dsn" extension extends the envelope test to allow checking of information associated with the DSN ESMTP extension defined in RFC 3461.
RFC number: RFC XXXX
Contact address: Sieve discussion list <ietf-mta-filters@imc.org>

Capability name: envelope-deliverby
Description: The "envelope-deliverby" extension extends the envelope test to allow checking of information associated with the Deliver-By ESMTP extension defined in RFC 2852.
RFC number: RFC XXXX
Contact address: Sieve discussion list <ietf-mta-filters@imc.org>

Capability name: redirect-dsn
Description: The "redirect-dsn" extension extends the redirect action to allow specification of the NOTIFY and RET ESMTP parameters associated with the DSN SMTP extension defined in RFC 3461.
RFC number: RFC XXXX
Contact address: Sieve discussion list <ietf-mta-filters@imc.org>

Capability name: redirect-deliverby
Description: The "redirect-deliverby" extension extends the redirect action to allow specification of the BY ESMTP parameter associated with the Deliver-By SMTP extension defined in RFC 2852.
RFC number: RFC XXXX
Contact address: Sieve discussion list <ietf-mta-filters@imc.org>

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

10. References

10.1. Normative references

[RFC2119]

	Bradner, S. , " Key words for use in RFCs to Indicate Requirement Levels ," BCP 14, RFC 2119, March 1997 (TXT , HTML , XML).
[RFC2852]	Newman, D., " Deliver By SMTP Service Extension ," RFC 2852, June 2000 (TXT).
[RFC3461]	Moore, K., " Simple Mail Transfer Protocol (SMTP) Service Extension for Delivery Status Notifications (DSNs) ," RFC 3461, January 2003 (TXT).
[RFC5228]	Guenther, P. and T. Showalter, " Sieve: An Email Filtering Language ," RFC 5228, January 2008 (TXT).
[RFC5231]	Segmuller, W. and B. Leiba, " Sieve Email Filtering: Relational Extension ," RFC 5231, January 2008 (TXT).
[RFC5234]	Crocker, D. and P. Overell, " Augmented BNF for Syntax Specifications: ABNF ," STD 68, RFC 5234, January 2008 (TXT).

10.2. Informative references

[RFC3501]	Crispin, M., " INTERNET MESSAGE ACCESS PROTOCOL - VERSION 4rev1 ," RFC 3501, March 2003 (TXT).
[RFC3894]	Degener, J., " Sieve Extension: Copying Without Side Effects ," RFC 3894, October 2004 (TXT).

Appendix A. Acknowledgements

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Author's Address

	Ned Freed
	Sun Microsystems
	800 Royal Oaks
	Monrovia, CA 91016-6347
	USA
Phone:	+1 909 457 4293
Email:	ned.freed@mrochek.com