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 Sieve Email Filtering: Snooze Extension

Abstract

This document describes the "snooze" extension to the Sieve email filtering language. The "snooze" extension gives Sieve the ability to postpone the delivery of an incoming email message into a target mailbox until a later point in time.

Status of This Memo

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1. Introduction

Users are not always ready, willing, or able to read and respond to email messages at the time of their arrival. Sometimes it is desirable to have messages appear in a mailbox at a more convenient time for the user to act upon them.

This document defines an extension to the [Sieve language](#) [RFC5228] that enables scripts to postpone the delivery of a message into a target mailbox until a later point in time.

2. Conventions Used in This Document

Conventions for notations are as in [Section 1.1](#) of [RFC5228], including use of the "Usage:" label for the definition of action and tagged arguments syntax.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and

"OPTIONAL" in this document are to be interpreted as described in BCP 14 [[RFC2119](#)] [[RFC8174](#)] when, and only when, they appear in all capitals, as shown here.

3. Capability Identifier

Sieve implementations that support this extension have an identifier of "snooze" for use with the capability mechanism.

4. Snooze Action

Usage: snooze *AWAKEN-OPTIONS <times: string-list>

The AWAKEN-OPTIONS argument is defined here in [ABNF](#) [[RFC4234](#)] syntax so that it can be modified by other extensions.

```
AWAKEN-OPTIONS = MAILBOX / WEEKDAYS / TZID
                  ; each option MUST NOT appear more than once
                  ; however, per Section 2.6.2 of RFC 5228,
                  ; the tagged arguments in AWAKEN-OPTIONS
                  ; may appear in any order
```

```
MAILBOX = ":mailbox" string
WEEKDAYS = ":weekdays" string-list
TZID     = ":tzid" string
```

The "snooze" action cancels the implicit keep and postpones delivery of the message into the specified mailbox at a later point in time.

The snooze action is semantically equivalent to a delayed fileinto action (see [Section 4.1](#) of [[RFC5228](#)]). The arguments of the snooze action specify when, where, and how the awakened message will be filed.

The process of actually snoozing the message is implementation specific and outside the scope of this document. However, implementations MUST ensure that the intended recipient has access to the message while snoozed.

To that end, a Sieve interpreter MAY implement the snooze action by delivering the message to a special "snoozed" mailbox within its mailstore. [IMAP](#) [[RFC3501](#)] and [JMAP](#) [[RFC8621](#)] servers MUST apply the "[Snoozed](#)" ([Section 8.3](#)) attribute to this mailbox. The message will reside in this special mailbox until the prescribed awaken time at which it will be moved into the specified target mailbox.

4.1. Mailbox Argument

The optional :mailbox argument is used to specify the target mailbox that the message will be filed into when it is awakened. It is

equivalent to the mailbox argument of the fileinto action (see [Section 4.1](#) of [[RFC5228](#)]).

If :mailbox is omitted, or if the specified mailbox doesn't exist at the time of awakening, the message will be filed into the user's main mailbox. For instance, in an implementation where an IMAP server is running scripts on behalf of the user at time of delivery, the user's "INBOX" would be the implicit target for awakening messages.

4.2. Weekdays Argument

The optional :weekdays argument specifies the set of days on which the specified set of awakening times apply. Each day of the week is expressed as an integer between "0" and "6". "0" is Sunday, "1" is Monday, etc. This syntax matches that of the "weekday" date-part argument to the date test extension (see [Section 4.2](#) of [[RFC5260](#)]).

If :weekdays is omitted, the set of awakening times applies to every day of the week.

4.3. Times and TZID Arguments

The required times argument, along with the optional :tzid argument, are used to specify when a snoozed message will be awakened. Each time is specified in "hh:mm:ss" format and is interpreted as the local time in the time zone specified by the :tzid argument.

The value of the :tzid argument MUST be a time zone identifier from the [IANA Time Zone Database](#) [[tzdb](#)]. If :tzid is omitted, the time zone of the Sieve interpreter is used.

The combination of the weekdays and times form a chronological list of awaken times. When a message is snoozed, it is assigned the next future awaken time in the list. If a message is snoozed on a day with no awaken times, or after the last awaken time on a given day, the first awaken time on the next available day is used.

If the local time in the specified time zone occurs more than once (daylight saving to standard time transition), the first occurrence of the specified time value is used. If the local time in the specified time zone does not occur (standard to daylight saving time transition), the specified time value is interpreted using the UTC offset prior to the transition.

4.3.1. Awaken Times Examples

The following examples show, given the specified snooze action and a set of message arrival times, the corresponding times at which the message would be awakened and filed.

The following example shows awoken times rolling into the next day or week. Note that 2020-07-30 falls on a Thursday.

```
require "snooze";
snooze :weekdays ["1", "3", "5", "2", "4"]
      :tzid "Australia/Melbourne" ["12:00:00",
                                   "08:00:00", "16:00:00"];
```

Arrival (UTC)	Arrival (Melbourne)	Awaken (Melbourne)
2020-07-30T00:00:00Z	--07-30T10:00:00+10	--07-30T12:00:00+10
2020-07-30T04:00:00Z	--07-30T14:00:00+10	--07-30T16:00:00+10
2020-07-30T08:00:00Z	--07-30T18:00:00+10	--07-31T08:00:00+10
2020-07-31T12:00:00Z	--07-31T22:00:00+10	--08-03T08:00:00+10
2020-08-01T16:00:00Z	--08-02T02:00:00+10	--08-03T08:00:00+10

Table 1

The following example shows awoken times falling before, during, and after a daylight saving to standard time transition. Note that the transition occurs at 2020-11-01T02:00:00-04.

```
require "snooze";
snooze :tzid "America/New_York" "01:30:00";
```

Arrival (UTC)	Arrival (New York)	Awaken (New York)
2020-11-01T05:00:00Z	--11-01T01:00:00-04	--11-01T01:30:00-04
2020-11-01T06:00:00Z	--11-01T01:00:00-05	--11-02T01:30:00-05
2020-11-01T07:00:00Z	--11-01T02:00:00-05	--11-02T01:30:00-05

Table 2

The following example shows awoken times falling before, during, and after a standard to daylight saving time transition. Note that the transition occurs at 2021-03-14T02:00:00-05.

```
require "snooze";
snooze :tzid "America/New_York" "02:30:00";
```

Arrival (UTC)	Arrival (New York)	Awaken (New York)
2021-03-13T06:30:00Z	--03-13T01:30:00-05	--03-13T02:30:00-05
2021-03-14T06:30:00Z	--03-14T01:30:00-05	--03-14T03:30:00-04
2021-03-14T07:30:00Z	--03-14T03:30:00-04	--03-15T02:30:00-04

Table 3

4.4. Interaction with Extensions to the Fileinto Action

Some tagged arguments defined in extensions to the fileinto action can be used together with the snooze action. The sections below describe these interactions. Tagged arguments in future extensions to the fileinto action need to describe their interaction with the snooze extension, if any.

When any `fileinto` extension arguments are used with the `snooze` extension, the corresponding extension **MUST** be enabled, and the arguments are defined to have the same syntax, semantics, and treatment as they do with the `fileinto` action.

4.4.1. Imap4flags Extension

When the ["imap4flags"](#) [RFC5232] extension is enabled in a script, two additional tagged arguments are added to `"snooze"` that allow manipulating the set of flags on a snoozed message.

AWAKEN-OPTIONS /= ADDFLAGS / REMOVEFLAGS

ADDFLAGS = ":addflags" string-list

REMOVEFLAGS = ":removeflags" string-list

The optional `:addflags` and `:removeflags` arguments are used to specify which [IMAP](#) [RFC3501] flags should be added to and/or removed from the set of IMAP flags present on the snoozed message at the time of awakening. Note the set of IMAP flags present at the time of awakening may be the empty set.

If the `"setflag"` and/or `"addflag"` actions have been used to store IMAP flags in the `imap4flags` internal variable, the Sieve interpreter **MUST** use the current value of the internal variable as the set of flags to associate with the message when storing it into the `"snoozed"` mailbox.

This document doesn't dictate how the Sieve interpreter will set the IMAP flags. In particular, the Sieve interpreter may work as an IMAP client or may have direct access to the mailstore.

The general requirements for flag handling specified in [Section 2](#) of [RFC5232] **MUST** be followed.

4.4.1.1. Example

The following example leverages the [Date](#) [RFC5260], [Relational](#) [RFC5231], and [Imap4flags](#) [RFC5232] extensions to snooze messages received after business hours until the following work day. Note that the message is marked as important when it is snoozed, and will be marked as unread when it is awakened.

```
require ["snooze", "imap4flags", "date", "relational"];

if anyof(header :is "from" "boss@example.com",
        currentdate :is "weekday" "0",
        currentdate :is "weekday" "6",
        currentdate :value "ge" "hour" "17") {
    setflag "\\Important";
    snooze :removeflags "\\Seen"
        :weekdays ["1". "2", "3", "4", "5"]
        :tzid "American/New_York", "09:00";
}
```

4.4.2. Mailbox Extension

This document extends the definition of the [":create"](#) [RFC5490] tagged argument so that it can be used with the snooze action.

AWAKEN-OPTIONS /= CREATE

CREATE = ":create"
; MUST NOT be appear unless MAILBOX also appears

If the optional ":create" argument is specified with snooze, it instructs the Sieve interpreter to create the target mailbox, if needed, before attempting to file the awakened message into the target mailbox.

4.4.3. Special-Use Extension

This document extends the definition of the [":specialuse"](#) [RFC8579] tagged argument so that it can be used with the snooze action.

AWAKEN-OPTIONS /= SPECIAL-USE

SPECIAL-USE = ":specialuse" string

If the optional ":specialuse" argument is specified with snooze, it instructs the Sieve interpreter to check whether a mailbox exists with the specific special-use flag assigned to it. If such a mailbox exists, the awakened message is filed into the special-use mailbox. Otherwise, the awakened message is filed into the target mailbox.

If both the optional ":specialuse" and ":create" arguments are specified with snooze, the Sieve interpreter is instructed to create the target mailbox per [Section 4.1](#) of [RFC8579], if needed.

4.4.4. MailboxID Extension

This document extends the definition of the [":mailboxid"](#) [RFC9042] tagged argument so that it can be used with the snooze action.

AWAKEN-OPTIONS /= MAILBOXID

MAILBOXID = ":mailboxid" string

If the optional ":mailboxid" argument is specified with snooze, it instructs the Sieve interpreter to check whether a mailbox exists in the user's [personal namespace](#) [RFC2342] with the specified [MAILBOXID](#) [RFC8474]. If such a mailbox exists, the awakened message is filed into that mailbox. Otherwise, the awakened message is filed into the target mailbox.

It is an error to specify both ":mailboxid" and ":specialuse" in the same snooze action.

5. Implementation Status

< RFC Editor: before publication please remove this section and the reference to [[RFC7942](#)] >

This section records the status of known implementations of the protocol defined by this specification at the time of posting of this Internet-Draft, and is based on a proposal described in [[RFC7942](#)]. The description of implementations in this section is intended to assist the IETF in its decision processes in progressing drafts to RFCs. Please note that the listing of any individual implementation here does not imply endorsement by the IETF. Furthermore, no effort has been spent to verify the information presented here that was supplied by IETF contributors. This is not intended as, and must not be construed to be, a catalog of available implementations or their features. Readers are advised to note that other implementations may exist.

According to [[RFC7942](#)], "this will allow reviewers and working groups to assign due consideration to documents that have the benefit of running code, which may serve as evidence of valuable experimentation and feedback that have made the implemented protocols more mature. It is up to the individual working groups to use this information as they see fit".

5.1. Cyrus Server

The open source [Cyrus Server](#) project is a highly scalable enterprise mail system which supports Sieve email filtering at the point of final delivery. This production level Sieve implementation supports all of the requirements described in this document. This implementation is freely distributable under a BSD style license from [Computing Services at Carnegie Mellon University](#).

6. Security Considerations

Security considerations are discussed in [[RFC5228](#)], [[RFC5232](#)], [[RFC8579](#)], and [[RFC9042](#)].

It is believed that this extension doesn't introduce any additional security concerns.

7. Privacy Considerations

It is believed that this extension doesn't introduce any privacy considerations beyond those in [[RFC5228](#)].

8. IANA Considerations

8.1. Registration of Sieve Extension

This document defines the following new Sieve extension to be added to the registry defined in [Section 6.2](#) of [[RFC5228](#)] and located here: <https://www.iana.org/assignments/sieve-extensions/sieve-extensions.xhtml#sieve-extensions>

IANA are requested to add a capability to the Sieve Extensions registry:

To: iana@iana.org

Subject: Registration of new Sieve extension

Capability name: snooze

Description: Adds the "snooze" action command to postpone delivery of a message into a target mailbox until a later point in time.

RFC number: RFC XXXX

Contact address: The Sieve discussion list <sieve@ietf.org>

8.2. Registration of Sieve Action

This document defines the following new Sieve action to be added to the registry defined in [Section 3.1](#) of [[I-D.ietf-extra-sieve-action-registry](#)].

IANA are requested to add an action to the Sieve Action registry:

Name: snooze

Description: Postpone delivery of a message into a target mailbox until a later point in time.

References: RFC XXXX, [[RFC5232](#)], [[RFC5490](#)], [[RFC8579](#)], [[RFC9042](#)]

Capabilities: "snooze", "imap4flags", "mailbox", "special-use", "mailboxid".

Interactions: Is not compatible with the reject or ereject actions.

Cancels Implicit Keep?: Y

Use with IMAP Events?: Y

Comments: Requires a special "snoozed" mailbox in the mailstore.

8.3. Registration of IMAP Mailbox Name Attribute

This document defines the following new IMAP mailbox name attribute to be added to the registry defined in [Section 6.2](#) of [[RFC8457](#)] and located here: <https://www.iana.org/assignments/imap-mailbox-name-attributes/imap-mailbox-name-attributes.xhtml#imap-mailbox-name-attributes>

IANA are requested to add an attribute to the IMAP Mailbox Name Attribute registry:

To: iana@iana.org

Subject: Registration of new IMAP Mailbox Name Attribute

Attribute name: Snoozed

Description: Messages that have been snoozed.

Reference: RFC XXXX

9. Acknowledgments

The authors would like to thank the following individuals for contributing their ideas and support for writing this specification: Ned Freed, Barry Leiba, and Alexey Melnikov.

10. References

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Appendix A. Change History (To be removed by RFC Editor before publication)

Changes since draft-ietf-extra-sieve-snooze-05:

- *Don't require implementations to use a "snoozed" mailbox.

Changes since draft-ietf-extra-sieve-snooze-04:

- *Miscellaneous editorial changes.

Changes since draft-ietf-extra-sieve-snooze-03:

- *Added "snooze" to the Sieve Actions Registry.

Changes since draft-ietf-extra-sieve-snooze-02:

- *Updated :mailboxid reference to RFC9042.

- *Added an informative reference to RFC8621.

- *Miscellaneous editorial changes.

Changes since draft-ietf-extra-sieve-snooze-01:

- *Miscellaneous editorial changes.

Changes since draft-ietf-extra-sieve-snooze-00:

- *Disallow both :mailboxid and :specialuse in the same snooze action.

- *Updated :mailboxid reference to draft-ietf-extra-sieve-mailboxid

- *Specified that snooze cancels implicit keep.

- *Specified that implementations MUST use a "snoozed" mailbox.

- *Added registration of \Snoozed Special-Use Attribute.

- *Added example of manipulating IMAP flags at both snooze time and awoken time.

- *Miscellaneous editorial changes.

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