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**Sieve Extension: File Carbon Copy (Fcc)**  
**draft-ietf-extra-sieve-fcc-09**

Abstract

The Sieve Email Filtering Language provides a number of action commands, some of which can generate additional messages on behalf of the user. This document defines an extension to such commands to allow a copy of any generated message to be filed into a target mailbox.

This document updates [RFC5230](#) and [RFC5435](#) by adding a new tagged argument to the "vacation" and "enotify" actions respectively.

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## [1.](#) Introduction

The Sieve Email Filtering Language [[RFC5228](#)] provides a number of action commands, some of which can generate additional messages on behalf of the user. It is sometimes desirable for a Sieve user to maintain an archive of the messages generated by these commands.

This extension defines a new optional tagged argument ":fcc" to action commands that generate additional messages to allow a copy of the generated message to be filed into a target mailbox.



The capability string associated with this extension is "fcc".

Each new action that generates additional messages will need to specify how it interacts with :fcc. This document specifies the interaction of :fcc with the Vacation [[RFC5230](#)] and Notify [[RFC5435](#)] extensions.

## **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 \[1\] \[RFC2119\] \[RFC8174\]](#) when, and only when, they appear in all capitals, as shown here.

## **3. Tagged Argument ":fcc"**

This document specifies a new optional tagged argument ":fcc" that alters the behavior of action commands that generate additional messages on behalf of the user.

Usage: :fcc <mailbox: string>

The :fcc tagged argument instructs the Sieve interpreter to file a copy of the generated message into the mailbox provided in the subsequent argument. The semantics and treatment of the mailbox argument are defined to match those of the mailbox argument to the "fileinto" action specified in [Section 4.1 of \[RFC5228\]](#).

Specifically, use of an invalid mailbox name MAY be treated as an error or result in delivery to an implementation-defined mailbox, and if the specified mailbox doesn't exist, the implementation MAY treat it as an error, create the mailbox, or file the message into an implementation-defined mailbox.

### **3.1. Interaction with Fileinto Extensions**

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

When any "fileinto" extension arguments are used with ":fcc", the corresponding extension MUST be enabled, and the arguments are



defined to have the same syntax, semantics, and treatment as they do with "fileinto".

#### **3.1.1. Imap4flags Extension**

This document extends the definition of the ":flags" tagged argument (see [Section 5 of \[RFC5232\]](#)) so that it can optionally be used with the ":fcc" argument.

Usage: :fcc <mailbox: string> [:flags <list-of-flags: string-list>]

If the optional ":flags" argument is specified with ":fcc", it instructs the Sieve interpreter to set the IMAP4 flags provided in the subsequent argument when the generated message is filed into the target mailbox.

#### **3.1.2. Mailbox Extension**

This document extends the definition of the ":create" tagged argument (see [Section 3.2 of \[RFC5490\]](#)) so that it can optionally be used with the ":fcc" argument.

Usage: :fcc <mailbox: string> [:create]

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

#### **3.1.3. Special-Use Extension**

This document extends the definition of the ":specialuse" tagged argument (see Section 4 of [\[I-D.ietf-extra-sieve-special-use\]](#)) so that it can optionally be used with the ":fcc" argument.

Usage: :fcc <mailbox: string> [:specialuse <special-use-flag: string>]

If the optional ":specialuse" argument is specified with ":fcc", 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 generated message is filed into the special-use mailbox. Otherwise, the generated message is filed into the target mailbox.

If both the optional ":specialuse" and ":create" arguments are specified with ":fcc", the Sieve interpreter is instructed to create the target mailbox per Section 4.1 of [\[I-D.ietf-extra-sieve-special-use\]](#), if needed.



### **3.2. Collected Grammar**

For convenience, the "FCC" syntax element is defined here using ABNF [[RFC5234](#)] so that it can be augmented by other extensions.

Note that the following is the grammar of "FCC" after it has been lexically interpreted. No whitespace or comments appear below.

```
FCC          = ":fcc" string *FCC-OPTS
               ; per Section 2.6.2 of RFC5228,
               ; the tagged arguments in FCC may appear in any order

FCC-OPTS     = CREATE / IMAP-FLAGS / SPECIAL-USE
               ; each option MUST NOT appear more than once

CREATE       = ":create"
IMAP-FLAGS   = ":flags" string-list
SPECIAL-USE  = ":specialuse" string
```

### **4. Format of File Carbon Copied Messages**

Copies of messages filed into a mailbox via this extension are REQUIRED to be in Internet Message Format [[RFC5322](#)]. Some messages generated by Sieve actions might already conform to this format and MAY be filed without modification. Messages generated in other formats MUST be encapsulated using constructs from [[RFC5322](#)] and MIME ([[RFC2045](#)], [[RFC2046](#)], [[RFC2047](#)], [[RFC2231](#)]).

The general requirements for encapsulating the copies of messages to be filed are the following:

- o Date: The Date header field is REQUIRED and SHOULD be set to the date and time when the message was generated.
- o From: The From header field is REQUIRED and SHOULD be set to the email address of the owner of the Sieve script, unless explicitly overridden by rules for encapsulating a particular message type.
- o To: The To header field is OPTIONAL and MAY be set to the email address of the recipient of the generated message, if available.
- o Subject: The Subject header field is OPTIONAL and MAY be generated as follows: The subject is set to the characters "Fcc: " followed by the subject of the message being processed by the Sieve interpreter.





- o In-Reply-To: The In-Reply-To header field is OPTIONAL and MAY be set to the Message-ID of the message being processed by the Sieve interpreter.
- o Message Body: The body of the filed message is REQUIRED and is composed of one or more MIME-parts containing the generated message and any related metadata. The Content-Type header field(s) MUST be set to the appropriate MIME types. If any of the MIME-parts include 8-bit or binary data, the Content-Transfer-Encoding header field(s) MUST be set accordingly.

## **5. Interaction with the Vacation Action**

This document extends the "vacation" [[RFC5230](#)] action (see also "vacation-seconds" [[RFC6131](#)]) to optionally store a copy of the auto-reply messages into a target mailbox.

```
Usage:  vacation [FCC]
        [":days" number | ":seconds" number]
        [":subject" string]
        [":from" string]
        [":addresses" string-list]
        [":mime"]
        [":handle" string]
        <reason: string>
```

Example (with fileinto extensions):

```
require ["vacation", "fcc", "mailbox", "special-use", "imap4flags"];

vacation :days 7
        :from "hemingway@example.com" "Gone Fishin'"
        :specialuse "\\Sent" :create
        :fcc "INBOX.Sent" :flags ["\\Seen"];
```

Vacation auto-reply messages are MIME-compliant and can be filed into the target mailbox without modification.

## **6. Interaction with the Notify Action**

This document extends the "notify" [[RFC5435](#)] action to optionally store a copy of the notification messages into a target mailbox.



```
Usage:  notify [FCC]
        [":from" string]
        [":importance" <"1" / "2" / "3">]
        [":options" string-list]
        [":message" string]
        <method: string>
```

Example:

```
require ["enotify", "fcc"];

notify :fcc "INBOX.Sent"
       :message "You got mail!"
       "mailto:ken@example.com";
```

Messages generated using the "mailto" [\[RFC5436\]](#) notification method are MIME-compliant and can be filed into the target mailbox without modification.

Messages generated by other notification methods (e.g. "xmpp" [\[RFC5437\]](#)) MUST be encapsulated per [Section 4](#) before being filed. The body of the filed message MUST include the :message parameter and MAY include one or more of the :from, :importance, or :options parameters. The MIME-type(s) of the body part(s) used to encapsulate the parameters is an implementation decision.

An implementation MAY only support :fcc in conjunction with a subset of the notification methods it supports. An error occurs if :fcc is combined with a notification method that doesn't support it. Notification methods that support :fcc can be discovered at run-time using the mechanism described below ([Section 6.1](#)).

### **[6.1](#). Notification-Capability "fcc"**

This document defines a new notification-capability value "fcc" for use with the notify\_method\_capability test (see [Section 5 of RFC5435](#)). For the "fcc" notification-capability, the notify\_method\_capability test can match one of the following key-list values:

- yes A copy of the notification message sent using the method identified by the notification-uri can be filed into a target mailbox.
- no A copy of the notification message sent using the method identified by the notification-uri can not be filed into a target mailbox.



Note that the "fcc" `notify_method_capability` test does not require the `notification-uri` argument to specify anything other than a scheme.

Example:

```
require ["enotify", "fcc"];

if notify_method_capability "xmpp:" "fcc" "yes" {
    notify :fcc "INBOX.Sent"
        :message "You got mail"
        "xmpp:ken@example.com?message;subject=SIEVE";
} else {
    notify :fcc "INBOX.Sent"
        :message "You got mail!"
        "mailto:ken@example.com";
}
```

## **7. Compatibility with the Reject and Extended Reject Actions**

Implementations MUST NOT allow use of "fcc" with the "reject" and "ereject" [[RFC5429](#)] actions. Allowing "fcc" with these actions would violate the SMTP [[RFC5321](#)] principle that a message is either delivered or bounced back to the sender. Namely, the saved copy of the rejection message will contain the original message.

It is an error for a script to use the ":fcc" tagged argument with either "reject" or "ereject".

## **8. Compatibility with Other Actions**

The "fcc" extension is not compatible with any Sieve action that does not generate an additional message on behalf of the user. It is an error for a script to use the ":fcc" tagged argument with any such action.

Future extensions that define actions that generate additional messages on behalf of the user need to describe their compatibility with ":fcc", and how to MIME-encapsulate the message, if required.

## **9. 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".

### **[9.1.](#) Cyrus Server**

The open source Cyrus Server [\[2\]](#) 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 [\[3\]](#).

### **[9.2.](#) Oracle Communications Messaging Server**

The Oracle Communications Messaging Server [\[4\]](#) is a highly scalable, reliable, and available messaging platform. This production level product supports the :fcc extension in conjunction with both the notify and vacation extensions. The implementation meets all the requirements given in this document. The product also supports the imap4flags extension so the :flags may be used in conjunction :fcc.

## **[10.](#) Security Considerations**

In addition to the security considerations in [\[RFC5228\]](#), [\[RFC5230\]](#), [\[RFC5435\]](#), and [\[RFC6131\]](#), it should be noted that filing copies of generated messages may cause the Sieve script owner to exceed their allocated storage (quota) on the mail system, thereby preventing delivery of future messages destined for the owner.

## **[11.](#) Privacy Considerations**

In addition to the privacy considerations in [\[RFC5228\]](#), [\[RFC5230\]](#), [\[RFC5435\]](#), and [\[RFC6131\]](#), it should be noted that a copy of a generated message filed into a shared or public mailbox (as opposed to





a private mailbox) could expose private information about the Sieve script owner to third parties. For instance, users that have access to the shared/public mailbox might discover that the Sieve script owner is on holiday or might discover the owner's physical location.

## **12. IANA Considerations**

### **12.1. Registration of Sieve Extension**

To: [iana@iana.org](mailto:iana@iana.org)

Subject: Registration of new Sieve extension

Capability name: fcc

Description: Adds the ":fcc" parameter to Sieve action commands that generate additional messages.

RFC number: RFC XXXX

Contact address: The Sieve discussion list <[sieve@ietf.org](mailto:sieve@ietf.org)>

### **12.2. Registration of Notification-Capability Parameter**

To: [iana@iana.org](mailto:iana@iana.org)

Subject: Registration of a new notification-capability parameter

Capability name: fcc

Description: Returns whether a copy of the notification message sent using the method identified by the notification-uri parameter to the notify\_method\_capability test can be filed into a target mailbox.

Syntax: Can contain one of two values: "yes" or "no". Values MUST be in lowercase.

Permanent and readily available reference(s): This RFC

Contact information: The Sieve discussion list <[ietf-mta-filters@imc.org](mailto:ietf-mta-filters@imc.org)>

## **13. Acknowledgments**

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



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### **14.3. URIs**

- [1] <https://tools.ietf.org/html/bcp14>
- [2] <http://www.cyrusimap.org/>
- [3] <http://www.cmu.edu/computing/>
- [4] <https://www.oracle.com/industries/communications/enterprise/products/messaging-server/index.html>

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

Changes since [draft-ietf-extra-sieve-fcc-08](#):

- o Introduced additional security and privacy considerations.
- o Reintroduced text describing incompatibility with [e]reject.
- o Reverted to [RFC 5228](#) fileinto language regarding invalid/non-existent FCC mailbox.
- o Editorial changes from IESG review.
- o Editorial changes from Gen-ART review.

Changes since [draft-ietf-extra-sieve-fcc-07](#):

- o Added comments regarding FCC ABNF per Alexey Melnikov.
- o Reordered arguments in the "vacation" example to show ":fcc" appearing amongst FCC-OPTS.

Changes since [draft-ietf-extra-sieve-fcc-06](#):

- o Reorganized sections.
- o Switched to using proper ABNF for FCC and fileinto extensions.
- o Fcc into INBOX if specified target mailbox doesn't exist.
- o Editorial changes from Alexey Melnikov.





- o Other minor editorial changes.

Changes since [draft-ietf-extra-sieve-fcc-05](#):

- o Editorial changes from Jiankang Yao.

Changes since [draft-ietf-extra-sieve-fcc-04](#):

- o Editorial changes from Ned Freed.
- o Added information on Oracle implementation.

Changes since [draft-ietf-extra-sieve-fcc-03](#):

- o Fixed typo in ABNF.

Changes since [draft-ietf-extra-sieve-fcc-02](#):

- o Updated Keywords boilerplate.
- o Noted that :fcc mailbox argument and any fileinto extension arguments used with :fcc have the same syntax and semantics as they have with fileinto.
- o Removed section on [e]Reject.
- o Added "fcc" notification-capability.
- o Added Implementation Status section.
- o Editorial changes from Ned Freed.

Changes since [draft-ietf-extra-sieve-fcc-01](#):

- o Added text discussing how to handle generated messages that are not in MIME format.
- o Adjusted ABNF so that tagged arguments that supplement :fcc no longer appear as positional.

Changes since [draft-ietf-extra-sieve-fcc-00](#):

- o Updated abstract with text from Ned.
- o Added support for :fcc to notify extension.
- o Prohibit use of :fcc with reject and ereject extensions.



- o Added registration of the extension with IANA.
- o Added Acknowledgments.
- o Minor editorial changes.

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