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## **Sieve: Internationalized Email**

### **Abstract**

This document defines an extension to the Sieve language called "eai" which adds full support for internationalized email.

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## 1. Introduction

Many parts of the Sieve mail filtering language [[SIEVE](#)] such as strings and comments are already designed primarily for use with the UTF-8 encoding [[UTF-8](#)] , thereby supporting all the international characters specified by the Unicode standard. Also, Sieve can already work with message header fields that contain UTF-8 characters, provided these are encoded using MIME encoded-word [[MIME3](#)]. However, the Sieve language was conceived before the Framework for Internationalized Email [[RFC6530](#)] was finished, which means that filtered email messages are still restricted to the conventional Internet Message Format [[IMAIL](#)], which mainly means that only the conventional US-ASCII email addresses can be used [[SMTP](#)]. This poses problems for using the Sieve language in a mail system where internationalized email is to be supported.

This document defines an extension to the Sieve language called "eai" which adds full support for internationalized email.

[FIXME: Any ideas for a better name for the extension?]

## 2. Conventions Used in This Document

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 [[KEYWORDS](#)] [[KEYWORDS-UPD](#)] when, and only when, they appear in all capitals, as shown here.

## 3. Headers

The "eai" extension presented in this document does not alter the handling of conventional Internet messages [[IMAIL](#)], which have content type "message/rfc822". For such conventional messages, it expects UTF-8 characters in header field values to be encoded using MIME encoded-words [[MIME3](#)]. In contrast, when the filtered message (or message part) has content type "message/global" [[RFC6532](#)], the header field value can contain UTF-8 characters directly and MIME encoded-words SHOULD NOT be interpreted.

Note that internationalized email header names are still restricted to ASCII characters only [[RFC6532](#)], which means that the Sieve tests in which header fields are evaluated will never match when the provided header name contains UTF-8 characters.

## 4. Addresses

Section 2.4.2.3 of [[SIEVE](#)] defines a constrained version of the US-ASCII email address format defined in [[IMAIL](#)], section 3 for use in the Sieve language. The address format defined in [[IMAIL](#)] is amended by [[RFC6532](#)], section 3.2, which adds internationalization support. The "eai" extension amends the Sieve language such that the changes in [[RFC6532](#)], section 3.2 also apply to the syntax of address values used in Sieve. Without the "eai" extension, only conventional addresses are recognized.

When the "eai" extension is active, the domain part of an email address used in Sieve MUST be evaluated as an U-Label as defined in [[RFC5890](#)], section 2.3.2.1. This means that both the domain and localpart of the email address are always evaluated as a string encoded in UTF-8.

[FIXME: Do we want to provide a special address part tag for evaluating the domain in A-label format instead?]

## 5. Modified commands

### 5.1. Test address

Refer to section [Section 4](#) for changes to the email address format.

[FIXME: Any other changes?]

## 5.2. Test header

Refer to section [Section 3](#) for changes to the email header field format.

[FIXME: Any other changes?]

## 5.3. Action redirect

The Sieve "redirect" action is used to send the message to another user at a supplied address. The only real change that the Sieve "eai" extension introduces for the "redirect" action is that the address parameter will support internationalized email address values. When such an internationalized address is used, it will need to use the SMTPUTF8 capability [[RFC6531](#)] in the SMTP session .

The "redirect" action may add headers to the message. When it amends a message that has "message/global" content type, it MUST use the header field format described in [[RFC6531](#)] when the Sieve "eai" extension is active. It SHOULD also do so when that extension is not active.

## 6. Modified extensions

### 6.1. Body Extension

The Sieve "body" extension [[SIEVE-BODY](#)] adds the "body" test. It tests for the occurrence of one or more strings in the body of an email message. Prior to matching content in a message body, transformations can be applied that filter and decode certain parts of the body. These transformations are selected by a body transform keyword parameter. If the body transform is ":content", the MIME parts that have the specified content types are matched against independently. If the :content specification matches a "message/rfc822" MIME part, only the header of the nested message will be searched for the key strings, treating the header as a single string; the contents of the nested message body parts are only searched if their content type matches the :content specification. The Sieve "eai" extension modifies the ":content" transform of the "body" test to handle a "message/global" part the same as a "message/rfc822" part, as described above.

### 6.2. Convert Extension

[FIXME: Investigate RFC6558]

[FIXME: Define a conversion for downgrade?]

### 6.3. Editheader Extension

The Sieve "editheader" extension adds the "addheader" and "deleteheader" actions. The "addheader" action adds a header field to the filtered message and the "deleteheader" action can delete header fields. The "eai" extension presented in this document does not alter the processing of conventional Internet messages [[IMAIL](#)] with these actions. Specifically, if the specified field value does not match the [[IMAIL](#)] "unstructured" nonterminal syntax element, the implementation MUST either flag an error or encode the field using the encodings described in [[MIME3](#)] or [[MIMEPARAM](#)] to be compliant with [[IMAIL](#)]. In contrast, when the filtered message has content type "message/global" [[RFC6532](#)], the "addheader" action MUST NOT use the encodings described in [[MIME3](#)] or [[MIMEPARAM](#)]. Instead, it MUST write header values in UTF-8 encoding [[UTF-8](#)].

### 6.4. Envelope Extension

Refer to section [Section 4](#) for changes to the email address format.

[FIXME: Any other changes?]

### 6.5. Enotify Extension

The Sieve "enotify" extension [[SIEVE-NOTIFY](#)] provides generic support for sending instant notifications. Using the specific "mailto" notification method [[SIEVE-NOTIFY-MAILTO](#)], notifications can be sent as an email message.

The "mailto" method is defined to use "mailto" URIs as specified in [[URI-MAILTO](#)], which is now obsolete. The Sieve "eai" extension updates the Sieve "mailto" notification method to use the updated "mailto" URI format instead [[IRI-MAILTO](#)], which adds better internationalization and compatibility with Internationalized Resource Identifiers [[IRI](#)].

[FIXME: Unfortunately, even the last mailto URI specification predates RFC653x, which means that no support is available for internationalized email addresses. Do we need to update the mailto URI specification, or am I missing an RFC?]

If one of the targets of the "mailto" notification method is an internationalized e-mail address, the produced notification message MUST be a "message/global" message, as specified by [[RFC6532](#)].

### 6.6. Reject and Extended Reject Extensions

The Sieve "reject" and "ereject" extensions [[SIEVE-REJECT](#)] respectively add the "reject" and "ereject" actions. These actions both cancel the implicit keep and refuse delivery of a message. One

of the options for notifying the sender about the failure is sending back a Delivery Status Notification [[DSN](#)]. The format and rules for such notifications are updated by the Framework for Internationalized Email [[RFC6530](#)] in [[RFC6533](#)]. When the Sieve "eai" extension is also active, any DSN messages sent by the "reject" and "ereject" actions MUST additionally adhere to [[RFC6533](#)].

[FIXME: When the rejection message is shown in SMTP/LMTP reply, can we rely upon SMTPUTF8 to send UTF-8 messages there as well, thereby making the difference between reject and ereject mostly insignificant?]

#### **6.7. Mime Extension**

[FIXME: Investigate RFC5703]

#### **6.8. Replace Extension**

[FIXME: Investigate RFC5703]

#### **6.9. Enclose Extension**

[FIXME: Investigate RFC5703]

#### **6.10. Other Extensions?**

[FIXME: Any other extensions that need to be addressed?]

### **7. Downgrading**

[FIXME: any words about downgrading and Sieve? RFC6530, RFC6858]

### **8. Mailing lists**

[FIXME: Any mailing list EAI considerations in Sieve? RFC6783]

### **9. Examples**

[FIXME: provide some]

### **10. Acknowledgements**

[TBD; Reviews and comments are welcome.]

### **11. IANA Considerations**

[FIXME: extension definitions]

### **12. Security Considerations**

[FIXME: provide some]

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