

Internet Draft: SORT extension to IMAP Conditional STORE
Document: draft-melnikov-condstore-sort-00.txt
Expires: June 2006

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December 2005

SORT extension to IMAP Conditional STORE

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Abstract

This document specifies SORT extension to the IMAP Conditional STORE extension, which allows a client to request a sorted list of metadata (flag) changes.

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[1.](#) 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 [RFC 2119](#) [[KEYWORDS](#)].

In examples, lines beginning with "S:" are sent by the IMAP server, and lines beginning with "C:" are sent by the client. Line breaks may appear in example commands solely for editorial clarity; when present in the actual message they are represented by "CRLF".

Formal syntax is defined using ABNF [[ABNF](#)].

The terms "metadata" (or "metadata item") and "CONDSTORE enabling command" are defined in [[CONDSTORE](#)].

[2.](#) Introduction and Overview

This document defines a new SORT extension with a capability name "SORT=MODSEQ". This extension is upwards compatible with the SORT extension defined in [[SORT](#)]. Server implementations that support both the CONDSTORE and SORT extensions SHOULD also support the SORT=MODSEQ extension. The SORT=MODSEQ extension makes the following additions to the SORT extension:

- a) extends syntax of untagged SORT responses to include mod-sequence (see [section 3.2](#))
- b) adds a new MODSEQ sort criterion (see [section 3.1](#))

This document extends the list of "CONDSTORE enabling commands" defined in [[CONDSTORE](#)] to include the SORT command that includes the MODSEQ message data item.

The rest of this document describes the protocol changes more rigorously.

[3.](#) IMAP Protocol Changes

[3.1.](#) MODSEQ Sort Criterion

If client specifies a MODSEQ search (as per [section 3.4](#)) or sort criterion in the SORT command and the server returns a non-empty SORT result, the server MUST also append (to the end of the untagged SORT response) the highest mod-sequence for all messages being returned. See also [section 3.6](#).

Example (MODSEQ sort criterion):

```
C: A282 SORT (SUBJECT MODSEQ) UTF-8 SINCE 1-Feb-2001
S: * SORT 2 81 83 84 82 882 (MODSEQ 117)
S: A282 OK SORT completed
```

Example (MODSEQ search criterion):

```
C: A283 SORT (SUBJECT REVERSE DATE) UTF-8 MODSEQ 21
S: * SORT 6 3 4 5 2 (MODSEQ 125)
S: A283 OK SORT completed
```

Example (MODSEQ search criterion and MODSEQ SORT criterion,
but no messages matching the search criteria):

```
C: A284 SORT (MODSEQ) KOI8-R OR NOT MODSEQ 20010320162338
  SUBJECT "Privet"
S: * SORT
S: A284 OK Sort complete, nothing found
```

[3.2](#). Modified SORT untagged response

Data: zero or more numbers
 mod-sequence value (omitted if no match)

This document extends syntax of the untagged SORT response to include the highest mod-sequence for all messages being returned.

If client specifies a MODSEQ search [[CONDSTORE](#)] or sort criterion in a SORT (or UID SORT) command and the server returns a non-empty SORT result, the server MUST also append (to the end of the untagged SORT response) the highest mod-sequence for all messages being returned. See [section 3.1](#) for examples.

[4](#). Formal Syntax

The following syntax specification uses the Augmented Backus-Naur Form (ABNF) [[ABNF](#)] notation. Elements not defined here can be found in the formal syntax of the ABNF [[ABNF](#)], IMAP [[IMAP4](#)], [[CONDSTORE](#)] <<, and IMAP ABNF extensions [IMAPABNF] specifications>>.

Except as noted otherwise, all alphabetic characters are case-insensitive. The use of upper or lower case characters to define token

strings is for editorial clarity only. Implementations MUST accept these strings in a case-insensitive fashion.

capability =/ "SORT=MODSEQ"

search-key =/ search-modsequence
 ;; modifies original IMAP4 search-key
 ;;
 ;; This change applies to all command referencing
 ;; this non-terminal, in particular SORT.

<<This production duplicates the one specified in CONDSTORE, but the comment was updated that this also affects the SORT command.>>

sort-key =/ "MODSEQ"

mailbox-data =/ "SORT" [1*(SP nz-number) SP search-sort-mod-seq]

5. Security Considerations

It is believed that this extension doesn't raise any new security concerns that are not already discussed in [[IMAP4](#)], [[CONDSTORE](#)] or [[SORT](#)].

6. References

6.1. Normative References

[KEYWORDS] Bradner, "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#), Harvard University, March 1997.

[ABNF] Crocker, Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 4234](#), October 2005.

[IMAP4] Crispin, M., "Internet Message Access Protocol - Version 4rev1", [RFC 3501](#), University of Washington, March 2003.

[SORT] Crispin, M., Murchison, K., "Internet Message Access Protocol -- SORT AND THREAD EXTENSIONS", work in progress.

<<http://www.ietf.org/internet-drafts/draft-ietf-imapext-sort-xx.txt>>

[CONDSTORE] Melnikov, A. and S. Hole, "IMAP Extension for Conditional STORE operation", work in progress.

<<http://www.ietf.org/internet-drafts/draft-ietf-imapext-condstore-xx.txt>>

<<[IMAPABNF] Melnikov, A., "Collected extensions to IMAP4 ABNF", work in progress.>>

<<http://www.ietf.org/internet-drafts/draft-melnikov-imap-ext-abnf-xx.txt>>

7. IANA Considerations

IMAP4 capabilities are registered by publishing a standards track or IESG approved experimental RFC. The registry is currently located at:

<http://www.iana.org/assignments/imap4-capabilities>

This document defines the SORT=MODSEQ IMAP capability. IANA should add them to the registry accordingly.

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Acknowledgment

Funding for the RFC Editor function is currently provided by the Internet Society.

[Appendix A](#). Change History

Note that this appendix will be removed before publication.

[0.1](#). Change History