

Lemonade Working Group
Internet-Draft
Expires: January 16, 2005

L. Nerenberg
Orthanc Systems
S. Hole
ACI Worldwide
B. Leiba
IBM T.J. Watson Research Center
July 18, 2004

IMAP4 Channel Transport Mechanism
draft-ietf-lemonade-imap-channel-02

Status of this Memo

By submitting this Internet-Draft, I certify that any applicable patent or other IPR claims of which I am aware have been disclosed, and any of which I become aware will be disclosed, in accordance with [RFC 3668](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on January 16, 2005.

Copyright Notice

Copyright (C) The Internet Society (2004). All Rights Reserved.

Abstract

Internet-Draft

IMAP4 Channel Transport Mechanism

July 2004

Table of Contents

1.	Conventions Used in this Document	3
2.	Protocol Framework	3
2.1	CAPABILITY Identification	3
2.2	CHANNEL Command	3
2.3	UID CHANNEL Command	4
2.4	CHANNEL Response	4
2.5	CHANNELSCHEMES Command	4
2.6	CHANNELSCHEMES Response	5
3.	Command Sequencing	5
4.	Formal Protocol Syntax	5
5.	Security Considerations	6
6.	Normative References	6
	Authors' Addresses	7
A.	IANA Considerations	7
B.	Administrivia	7
C.	Document Revision History	8
C.1	Changes in draft -02	8
D.	Outstanding Issues	8
	Intellectual Property and Copyright Statements	9

Internet-Draft IMAP4 Channel Transport Mechanism

July 2004

[1.](#) Conventions Used in this Document

The key words "MUST," "MUST NOT," "SHOULD," "SHOULD NOT," and "MAY" in this document are to be interpreted as described in [\[KEYWORD\]](#).

In examples, "C:" and "S:" preface lines sent by the client and the server respectively.

[2.](#) Protocol Framework

This memo defines the following extensions to [\[IMAP4\]](#).

[2.1](#) CAPABILITY Identification

IMAP4 servers that support this extension MUST advertise the "CHANNEL" capability.

[2.2](#) CHANNEL Command

The CHANNEL command requests that message data be retrieved through an external scheme. Clients may issue a request specifying a partially-qualified URI, in which case the server will determine the final connection end-point. What constitutes a partially-qualified URI is implementation defined.

The syntax of the CHANNEL command is:

```
tag CHANNEL channel-uri-list channel-set
```

<channel-uri-list> is a list of URIs and schemes specifying how the client desires to retrieve the message data. If <channel-uri-list> contains more than one element the server SHOULD return the message data using the first element in the list it is capable of using.

<channel-set> is a list of message-number/body-section pairs

describing the content to be retrieved. The message number specifies the sequence number of the message to act on.

The CHANNEL command is only valid in the selected state.

Example:

```
C: 0 CHANNEL (rtsp ftp://marvin@example.net/incoming/)  
    (1 2)(3 1)(3 9.1)
```

asks for [section 2](#) of message 1 and sections [1](#) and [9.1](#) of message 3. The preferred retrieval scheme is RTSP. If RTSP isn't available the IMAP server should attempt to transfer the requested data to the FTP

server at example.com.

In either case the server will fill in the connection end-point information.

[2.3](#) UID CHANNEL Command

The UID CHANNEL command is identical to the CHANNEL command with the exception that the message numbers in the sequence sets refer to unique identifiers instead of message sequence numbers.

[2.4](#) CHANNEL Response

An untagged CHANNEL response is returned for each message-number/body-section pair specified by the corresponding CHANNEL command:

* message-number CHANNEL section-spec URI

The ordering of these responses is arbitrary. The message number and <section-spec> in the response mirror those in the corresponding request, therefore responses to UID CHANNEL commands report the message UID rather than the message sequence number.

The server MUST NOT issue an untagged CHANNEL response containing a URI until such time as that URI is available for the client to dereference. The lifetime of the URI is implementation defined.

For example, the responses to the example command in the previous

section might look like:

```
S: * 1 CHANNEL 2 rtsp://frobozz.example.com/144124
S: * 3 CHANNEL 1
    ftp://marvin@example.com/incoming/abzzqfw11423
S: * 3 CHANNEL 9.1 NIL
S: 0 OK done
```

The NIL response to the [section 9.1](#) request indicates that the part could not be retrieved via any of the requested schemes. For example, this could be caused by the inability to convert or represent the content via the requested schemes, or because a resource was unavailable.

[2.5](#) CHANNELSCHEMES Command

The CHANNELSCHEMES command queries the server for the list of schemes it supports.

The syntax of the CHANNELSCHEMES command is:

tag CHANNELSCHEMES

[2.6](#) CHANNELSCHEMES Response

A tagged CHANNELSCHEMES response is returned in response to a CHANNELSCHEMES command.

The syntax of the CHANNELSCHEMES response is:

tag CHANNELSCHEMES channelschemes-data

[3.](#) Command Sequencing

There is no way to distinguish between a response to a CHANNEL command and a UID CHANNEL command, therefore clients MUST NOT issue a UID CHANNEL command while a CHANNEL command is in progress. Conversely, clients MUST NOT issue a CHANNEL command while a UID

CHANNEL command is in progress. These restrictions are in addition to the normal sequencing rules that apply to UID-style commands.

Servers MUST NOT send an EXPUNGE response while responding to a CHANNEL command, however a server MAY send an EXPUNGE response during a UID CHANNEL command.

4. Formal Protocol Syntax

The following syntax specification uses the augmented Backus-Naur Form (ABNF) notation as defined in [[ABNF](#)], and incorporates by reference the Core Rules from that document. This syntax extends the grammar specified in [[IMAP4](#)].

The following tokens are incorporated from [[URI](#)]: absoluteURI, scheme.

channel	=	"CHANNEL" SP channel-uri-list SP channel-set
channelschemes	=	"CHANNELSCHEMES"
channelschemes-data	=	astring / "(" astring 1*(SP astring) ")" ; <astring> encodes a <scheme>
channel-data	=	nz-number SP "CHANNEL" SP section-spec SP astring ; <astring> encodes an <absoluteURI>
channel-set	=	1*("(" nz-number SP section-spec ")") ; <nz-number> refers to the message sequence

; number or unique identifier.

channel-uri-list = "(" channel-uri
 *(SP channel-uri) ")"

channel-uri = astring
 ; <absoluteURI> / <scheme>
 ; represented as an IMAP <astring>

command-auth =/ channelschemes

command-select =/ channel

response-data = "*" SP (resp-cond-state / resp-cond-by /
 mailbox-data / message-data /
 capability-data / channel-data) CRLF
 ; adds <channel-data> to <response-data>

uid =/ channel

5. Security Considerations

It is assumed that the IMAP server and its cooperating client share an authorization (and authentication) namespace.

6 Normative References

- [ABNF] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 2234](#), November 1997.
- [IMAP4] Crispin, M., "INTERNET MESSAGE ACCESS PROTOCOL - VERSION 4rev1", [RFC 3501](#), March 2003.

Nerenberg, et al. Expires January 16, 2005 [Page 6]

Internet-Draft IMAP4 Channel Transport Mechanism July 2004

- [KEYWORD] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [URI] Berners-Lee, T., Fielding, R. and L. Masinter, "Uniform Resource Identifiers (URI): Generic Syntax", [RFC 2396](#), August 1998.

Authors' Addresses

Lyndon Nerenberg
Orthanc Systems
304 - 1755 Robson Street
Vancouver, BC V6G 3B7
CA

EMail: lyndon+rfc-imap-channel@orthanc.ca

Steve Hole
ACI Worldwide
Suite 1807
10088 - 102 Avenue
Edmonton, Alberta T5J 2Z1
CA

Phone: +1 780 424 4922
Fax: +1 780 424 4925
E-Mail: steve.hole@messagingdirect.com

Barry Leiba
IBM T.J. Watson Research Center
30 Saw Mill River Road
Hawthorne, NY 10532
US

Phone: +1 914 784 7941
E-Mail: leiba@watson.ibm.com

[Appendix A](#). IANA Considerations

IANA is requested to update the IMAP capabilities registry to add the CHANNEL capability defined by this memo.

[Appendix B](#). Administrivia

[This appendix will not appear in the final document.]

Discussion concerning this draft should be directed to the <lemonade@ietf.org> mailing list.

[Appendix C](#). Document Revision History

[This appendix will not appear in the final document.]

[Appendix C.1](#) Changes in draft -02

1. Revert text to that from [draft-nerenberg-imap-channel-01](#), which again forms the baseline document for the specification. The usage and implementation guide will be split out into another memo separate from the specification itself.
2. Revert to the simple string "channel" for the capability. The old scheme (channel=foo,bar) required parsable capabilities. A new command (CHANNELSCHEMES) is proposed for discovering the supported scheme list.
3. The grammar has been cleaned up and synced with [RFC3501](#).
4. References to schemes in the protocol no longer include the trailing ":" in the scheme name (e.g. we now use "ftp" rather than "ftp:"). The grammar is now unambiguous with reference to the use of <scheme> and <absoluteURI> (a scheme name cannot contain a ":", and an <absoluteURI> requires one). Both types are now encoded as <astring>.
5. Document reformatted to meet the latest RFC Editor's requirements.
6. Added a CHANNELSCHEMES command, used to discover the schemes supported by the server.

[Appendix D](#). Outstanding Issues

[This appendix will not appear in the final document.]

1. The Security Considerations section needs to be expanded.
2. Examples need a separate section.

Internet-Draft IMAP4 Channel Transport Mechanism

July 2004

Intellectual Property Statement

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at ietf-ipr@ietf.org.

Disclaimer of Validity

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Copyright Statement

Copyright (C) The Internet Society (2004). This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

Acknowledgment

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