

Workgroup: Network Working Group  
Internet-Draft:  
draft-ietf-jmap-smime-sender-extensions-00  
Published: 19 August 2021  
Intended Status: Informational  
Expires: 20 February 2022  
Authors: A. Melnikov  
Isode Ltd  
**JMAP extension for S/MIME signing and encryption**

## **Abstract**

This document specifies an extension to JMAP for sending S/MIME signed and S/MIME encrypted messages.

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### 1. Introduction

[[RFC8621](#)] is a JSON based application protocol for synchronising email data between a client and a server.

This document describes an extension to JMAP for sending S/MIME signed and encrypted messages . It allows JMAP server to sign/encrypt messages on user's behalf.

### 2. 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 [[RFC2119](#)].

### 3. Addition to the capabilities object

The capabilities object is returned as part of the standard JMAP Session object; see the JMAP spec. Servers supporting `_this_` specification MUST add a property called `"urn:ietf:params:jmap:smime-advanced"` to the capabilities object.

The value of this property is an empty object in both the JMAP session `_capabilities_` property and an account's `_accountCapabilities_` property.

### 4. Extension to Email/set for S/MIME signing and/or encryption

o `smimeSign`: "Boolean" (default: false). If included and has the value "true", this requests the JMAP server to create an S/MIME signed message from the message constructed according to other specified arguments (the "original message"). This is done by encapsulating the original message either inside `application/pkcs7-mime` or `multipart/signed` container. If multiple addresses are present in one of these header fields, or there is more than one Sender/From header field, the server SHOULD reject the Email/set as invalid

o `smimeEncrypt`: "Boolean" (default: false). If included and has the value "true", this requests the JMAP server to create an S/

MIME encrypted message from the constructed message. This is done by encapsulating the message inside application/pkcs7-mime media type. The message MUST be encrypted to the sender and all To/Cc/Bcc recipients. This extension assumes that there is some kind of per user or organizational addressbook, that can be used to lookup public keys of recipients. If lookup of a particular public key fails, or results in an expired or revoked certificate, the Email/set operation MUST fail. If both "smimeSign" and "smimeEncrypt" are set to true, the message is first signed and then the signed version is encrypted (in that order). [\[RFC8621\]](#) defines Email/set method for creating new email messages. This document defines the following additional request arguments that can be used to create S/MIME signed and/or encrypted messages: The signature's private key/certificate is associated with the email address in the Sender header field, if present; otherwise, it is associated with the email address in the From header field, if present.; otherwise, it MUST take the first address in the last Sender/From header field. (Note that this extension doesn't allow management of private keys/certificates. How private keys are managed or configured for a particular user is out of scope for this document.)

[[How to control header protection?]]

```

[[ "Email/set", {
  "accountId": "ue150411c",
  "create": {
    "k192": {
      "mailboxIds": {
        "2ea1ca41b38e": true
      },
      "keywords": {
        "$seen": true,
        "$draft": true
      },
      "from": [{
        "name": "Joe Bloggs",
        "email": "joe@example.com"
      }],
      "subject": "World domination",
      "receivedAt": "2021-07-07T01:03:11Z",
      "sentAt": "2021-07-10T11:03:11+10:00",
      "smimeSign": true,
      "smimeEncrypt": true,
      "bodyStructure": {
        "type": "text/plain",
        "partId": "bd48",
        "header:Content-Language": "en"
      },
      "bodyValues": {
        "bd48": {
          "value": "I have the most brilliant plan. Let me tell
            you all about it.",
          "isTruncated": false
        }
      }
    }
  }
}, "0" ]]

```

This will result in the following response:

```

[[ "Email/set", {
  "accountId": "ue150411c",
  "oldState": "780823",
  "newState": "780839",
  "created": {
    "k192": {
      "id": "Mf40b5f831efa7233b9eb1c7f",
      "blobId": "Gf40b5f831efa7233b9eb1c7f8f97d84eeeeee64f7",
      "threadId": "Td957e72e89f516dc",
      "size": 5096
    }
  }
}]

```

```
    }  
  },  
  ...  
}, "0" ]]
```

Figure 1: Example 1:

## 5. IANA Considerations

### 5.1. JMAP capability registration for "smime-advanced"

IANA is requested to register the "smime" JMAP Capability as follows:

Capability Name: "urn:ietf:params:jmap:smime-advanced"

Specification document: this document

Intended use: common

Change Controller: IETF

Security and privacy considerations: this document, [Section 6](#)

## 6. Security Considerations

This JMAP extension assumes trust between the user and the JMAP server for purposes of signing and encrypting messages on user's behalf.

This JMAP extension also relies on access to user's (or organization's) addressbook which contain up-to-date certificates for recipients.

This JMAP extension doesn't support management of user's private keys and corresponding certificates.

## 7. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <<https://www.rfc-editor.org/info/rfc2119>>.
- [RFC8550] Schaad, J., Ramsdell, B., and S. Turner, "Secure/Multipurpose Internet Mail Extensions (S/MIME) Version 4.0 Certificate Handling", RFC 8550, DOI 10.17487/RFC8550, April 2019, <<https://www.rfc-editor.org/info/rfc8550>>.
- [RFC8551] Schaad, J., Ramsdell, B., and S. Turner, "Secure/Multipurpose Internet Mail Extensions (S/MIME) Version 4.0 Message Specification", RFC 8551, DOI 10.17487/RFC8551, April 2019, <<https://www.rfc-editor.org/info/rfc8551>>.

**[RFC8620]**

Jenkins, N. and C. Newman, "The JSON Meta Application Protocol (JMAP)", RFC 8620, DOI 10.17487/RFC8620, July 2019, <<https://www.rfc-editor.org/info/rfc8620>>.

**[RFC8621]**

Jenkins, N. and C. Newman, "The JSON Meta Application Protocol (JMAP) for Mail", RFC 8621, DOI 10.17487/RFC8621, August 2019, <<https://www.rfc-editor.org/info/rfc8621>>.

**Author's Address**

Alexey Melnikov  
Isode Ltd  
14 Castle Mews  
Hampton  
TW12 2NP  
United Kingdom

Email: [Alexey.Melnikov@isode.com](mailto:Alexey.Melnikov@isode.com)