

**Handling Message Disposition Notification with JMAP**  
**draft-ietf-jmap-mdn-04**

Abstract

This document specifies a data model for handling [RFC8098] MDN messages with a server using JMAP.

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## [1.](#) Introduction

JMAP ([\[RFC8620\]](#) - JSON Meta Application Protocol) is a generic protocol for synchronising data, such as mail, calendars or contacts, between a client and a server. It is optimised for mobile and web environments, and aims to provide a consistent interface to different data types.

MDN are defined in [\[RFC8098\]](#) and are used as "read receipts", "acknowledgements", or "receipt notifications".

A client can have to deal with MDN in different ways:

1. When receiving an email, an MDN can be sent to the sender. This specification defines an MDN/set method to cover this case.
2. When sending an email, an MDN can be requested. This must be done with the help of a header, and is already specified by [\[RFC8098\]](#) and can already be handled by [\[RFC8621\]](#) this way.
3. When receiving an MDN, the MDN could be related to an existing sent mail. This is already covered by [\[RFC8621\]](#) in the EmailSubmission object. Client could want to display detailed information about a received MDN. This specification defines a MDN/parse method to cover this case.



### **1.1. Notational conventions**

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

Type signatures, examples and property descriptions in this document follow the conventions established in [section 1.1 of \[RFC8620\]](#). Data types defined in the core specification are also used in this document.

Servers MUST support all properties specified for the new data types defined in this document.

### **1.2. Terminology**

The same terminology is used in this document as in the core JMAP specification.

### **1.3. Addition to the capabilities object**

Capabilities are announced as part of the standard JMAP Session resource; see [\[RFC8620\], section 2](#).

Support for the "MDN" data type and the "MDN/parse" method are represented by the capability "urn:ietf:params:jmap:mdn" being present in the "capabilities" property. The capability "urn:ietf:params:jmap:mdn" being present in the "accountCapabilities" property of an account represents support for creating and sending MDN messages via the "MDN/set" method. Servers that include the capability in one or more "accountCapabilities" properties MUST also include the property in the "capabilities" property.

The value of this "urn:ietf:params:jmap:mdn" property is an empty object in both the JMAP session "capabilities" property and an account's "accountCapabilities" property.

## **2. MDN**

An \*MDN\* object has the following properties:

- o forEmailId: "Id|null" Email Id of the received email this MDN is relative to.
- o subject: "String|null" Subject used as "Subject" header for this MDN.



- o `textBody`: "String|null" Human readable part of the MDN, as plain text.
- o `reportingUA`: "String|null" Name of the MUA creating this MDN. It is used to build the MDN Report part of the MDN.
- o `disposition`: "Disposition" Object containing the diverse MDN disposition options.
- o `mdnGateway`: "String|null" (server-set) Name of the gateway or MTA that translated a foreign (non-Internet) message disposition notification into this MDN.
- o `originalRecipient`: "String|null" (server-set) Original recipient address as specified by the sender of the message for which the MDN is being issued.
- o `finalRecipient`: "String" (server-set) Recipient for which the MDN is being issued.
- o `originalMessageId`: "String|null" (server-set) Message-ID (the [RFC5322](#) header field, not the JMAP Id) of the message for which the MDN is being issued.
- o `error`: "String[]|null" (server-set) Additional information in the form of text messages when the "error" disposition modifier appears.
- o `extensionFields`: "String[String]|null" (server-set) Object where keys are extension-field names and values are extension-field values.

A *\*Disposition\** object has the following properties:

- o `actionMode`: "String" This MUST be one of the following strings: "manual-action" / "automatic-action"
- o `sendingMode`: "String" This MUST be one of the following strings: "MDN-sent-manually" / "MDN-sent-automatically"
- o `type`: "String" This MUST be one of the following strings: "deleted" / "dispatched" / "displayed" / "processed"

See [RFC8098](#) for the exact meaning of these different fields.

### **2.1. MDN/set**

This is a standard `/set` method as described in [\[RFC8620\]](#) where only create is supported; any attempt to update/destroy MUST be rejected with a `"forbidden"` `SetError`.

The MDN/set method generates and sends an [\[RFC5322\]](#) message from an MDN object.

The client SHOULD NOT issue a MDN/set request if the message has the `"$MDNSent"` keyword set. In this case, the server MUST reject the submission with a standard `"alreadyExists"` `SetError`.

When sending the MDN, the server is in charge of generating the `"originalRecipient"`, `"finalRecipient"` and `"originalMessageId"` fields accordingly to the [\[RFC8098\]](#) specification.

After all items in the `"MDN/set"` invocation have been processed, a single implicit `"Email/set"` call MUST be made to set the `"$MDNSent"` keyword on `"Email"` objects referenced by `"MDN"` objects that have been successfully created (see [\[RFC3503\]](#) for more details). The response to this MUST be returned after the `"MDN/set"` response.

### **2.2. MDN/parse**

This method allows a client to parse blobs as [\[RFC5322\]](#) messages to get MDN objects. This can be used to parse and get detailed information about blobs referenced in the `"mdnBlobIds"` of the `EmailSubmission` object, or any email the client could expect to be an MDN.

The `"forEmailId"` property can be null or missing if the `"originalMessageId"` property is missing or not referencing an existing email.

The MDN/parse method takes the following arguments:

- o `accountId`: `"Id"` The id of the account to use.
- o `blobIds`: `"Id[]"` The ids of the blobs to parse.

The response has the following arguments:

- o `accountId`: `"Id"` The id of the account used for the call.
- o `parsed`: `"Id[MDN]|null"` A map of blob id to parsed MDN representation for each successfully parsed blob, or null if none.





- o notParsable: "Id[]|null" A list of ids given that corresponded to blobs that could not be parsed as MDNs, or null if none.
- o notFound: "Id[]|null" A list of blob ids given that could not be found, or null if none.

### 3. Samples

#### 3.1. Sending an MDN for a received email

A client can use the following request to send an MDN back to the sender:

```
[[ "MDN/set", {
  "accountId": "ue150411c",
  "create": {
    "k1546": {
      "forEmailId": "Md45b47b4877521042cec0938",
      "subject": "Read receipt for: World domination",
      "textBody": "This receipt shows that the email has been
        displayed on your recipient's computer. There is no
        guaranty it has been read or understood.",
      "reportingUA": "linagora.com; OpenPaaS",
      "disposition": {
        "actionMode": "manual-action",
        "sendingMode": "MDN-sent-manually",
        "type": "displayed"
      }
    }
  }
}, "0" ]]
```

If the email id matches an existing email without the "\$MDNSent" keyword, the server can answer:

```
[[ "MDN/set", {
  "accountId": "ue150411c",
  "oldState": "012421s6-8nrq-4ps4-n0p4-9330r951ns21",
  "newState": "355421f6-8aed-4cf4-a0c4-7377e951af36",
  "created": {
    "k1546": {
      "finalRecipient": "rfc822; john@example.com",
      "originalMessageId": "<1521557867.2614.0.camel@apache.org>"
    }
  }
}, "0" ],
```



### 3.2. Asking for MDN when sending an email

This is done with the [[RFC8621](#)] "Email/set" "create" method.

```
[[ "Email/set", {
  "accountId": "ue150411c",
  "create": {
    "k1546": {
      "mailboxIds": {
        "2ealca41b38e": true
      },
      "keywords": {
        "$seen": true,
        "$draft": true
      },
      "from": [{
        "name": "Joe Bloggs",
        "email": "joe@example.com"
      }],
      "to": [{
        "name": "John",
        "email": "john@example.com"
      }],
      "header:Disposition-Notification-To": "joe@example.com",
      "subject": "World domination",
      ...
    }
  }
}, "0" ]]
```

Note the specified "Disposition-Notification-To" header indicating where to send MDN back (usually the sender of the email).

### 3.3. Parsing a received MDN

The client issues a parse request:

```
[[ "MDN/parse", {
  "accountId": "ue150411c",
  "blobIds": [ "0f9f65ab-dc7b-4146-850f-6e4881093965" ]
}, "0" ]]
```

The server responds:



```
[["MDN/parse", {
  "accountId": "ue150411c",
  "parsed": {
    "0f9f65ab-dc7b-4146-850f-6e4881093965": {
      "forEmailId": "Md45b47b4877521042cec0938",
      "subject": "Read receipt for: World domination",
      "textBody": "This receipt shows that the email has been
        displayed on your recipient's computer. There is no
        guaranty it has been read or understood.",
      "reportingUA": "linagora.com; OpenPaaS",
      "disposition": {
        "actionMode": "manual-action",
        "sendingMode": "MDN-sent-manually",
        "type": "displayed"
      }
    },
    "finalRecipient": "rfc822; john@example.com",
    "originalMessageId": "<1521557867.2614.0.camel@apache.org>"
  }
}], "0" ]]
```

## [4.](#) IANA Considerations

### [4.1.](#) JMAP Capability Registration for "mdn"

IANA will register the "mdn" JMAP Capability as follows:

Capability Name: "urn:ietf:params:jmap:mdn"

Specification document: this document

Intended use: common

Change Controller: IETF

Security and privacy considerations: this document, [section 5](#).

## [5.](#) Security considerations

The same considerations regarding MDN (see [[RFC8098](#)] and [[RFC3503](#)]) apply to this document.

## [6.](#) References

## 6.1. Normative References

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## 6.2. Informative References

- [RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in [RFC 2119](#) Key Words", [BCP 14](#), [RFC 8174](#), DOI 10.17487/RFC8174, May 2017, <<https://www.rfc-editor.org/info/rfc8174>>.

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