



XMPP

XEP-0424: Message Retraction

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This specification defines a method for indicating that a message should be retracted.

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1 Introduction

A chat participant might want to retract a message which they've already sent out, for example if they've mistakenly sent it to the wrong recipient or groupchat.

Due to the federated and extensible nature of XMPP it's not possible to remove a message with full certainty and a retraction can only be considered an **unenforceable request** for such removal. Clients which don't support message retraction are not obligated to enforce the request and people could have seen or copied the message contents already.

2 Discovering support

If a client implements message retractions, it MUST specify the 'urn:xmpp:message-retract:0' feature in its service discovery information features as specified in [Service Discovery \(XEP-0030\)](#)¹ and the Entity Capabilities profile specified in [Entity Capabilities \(XEP-0115\)](#)².

Similarly, a server that is aware of message retractions and will therefore ensure that they're archived for later retrieval (e.g. via [Message Archive Management \(XEP-0313\)](#)³), MUST also advertise the 'urn:xmpp:message-retract:0' feature.

Listing 1: Client requests information about a chat partner's client

```
<iq type='get'
  from='romeo@montague.example/orchard'
  to='juliet@capulet.example/balcony'
  id='info1'>
  <query xmlns='http://jabber.org/protocol/disco#info' />
</iq>
```

Listing 2: Partner's client advertises support for retraction

```
<iq type='result'
  to='romeo@montague.example/orchard'
  from='juliet@capulet.example/balcony'
  id='info1'>
  <query xmlns='http://jabber.org/protocol/disco#info'>
  ...
    <feature var='urn:xmpp:message-retract:0' />
  ...
  </query>
</iq>
```

¹XEP-0030: Service Discovery <<https://xmpp.org/extensions/xep-0030.html>>.

²XEP-0115: Entity Capabilities <<https://xmpp.org/extensions/xep-0115.html>>.

³XEP-0313: Message Archive Management <<https://xmpp.org/extensions/xep-0313.html>>.

3 Use Case

Consider a situation where a user sends a message to the wrong recipient:

Listing 3: The user's client sends a message to the wrong recipient

```
<message type='chat' to='lord@capulet.example' id='wrong-recipient-1'>
  <body>Have not saints lips, and holy palmers too?</body>
  <origin-id xmlns='urn:xmpp:sid:0' id='origin-id-1' />
</message>
```

The message author notices that the message was sent to the wrong recipient and indicates to their client that the message should be retracted.

The client sends out a retraction message which uses [Message Fastening \(XEP-0422\)](#)⁴ to indicate that it applies to the wrongly sent message by referring to its [Unique and Stable Stanza IDs \(XEP-0359\)](#)⁵ origin ID.

Listing 4: The client sends out a retraction message

```
<message type='chat' to='lord@capulet.example' id='retract-message-1'>
  <apply-to id="origin-id-1" xmlns="urn:xmpp:fasten:0">
    <retract xmlns='urn:xmpp:message-retract:0' />
  </apply-to>
  <fallback xmlns="urn:xmpp:fallback:0" />
  <body>This person attempted to retract a previous message, but it's_s_
    unsupported_by_your_client.</body>
  <<store xmlns="urn:xmpp:hints" />
</message>
```

It's RECOMMENDED that you include a [Fallback Indication \(XEP-0428\)](#)⁶ tag with fallback text in the <body/>, so that older clients can still indicate the intent to retract and so that older servers will archive the retraction. Additionally, you MAY include a [Message Processing Hints \(XEP-0334\)](#)⁷ <store/> hint, to indicate that the stanza needs to be archived.

4 Tombstones

It might be desirable to remove the retracted message from a [Message Archive Management \(XEP-0313\)](#)⁸ service, while still recording the fact that it once existed, in order to aid clients in synchronizing their archives. To do this, the archiving service MAY replace the retracted message contents with a 'tombstone'.

⁴XEP-0422: Message Fastening <<https://xmpp.org/extensions/xep-0422.html>>.

⁵XEP-0359: Unique and Stable Stanza IDs <<https://xmpp.org/extensions/xep-0359.html>>.

⁶XEP-0428: Fallback Indication <<https://xmpp.org/extensions/xep-0428.html>>.

⁷XEP-0334: Message Processing Hints <<https://xmpp.org/extensions/xep-0334.html>>.

⁸XEP-0313: Message Archive Management <<https://xmpp.org/extensions/xep-0313.html>>.

A service which supports tombstones MUST advertise the 'urn:xmpp:message-retract:0#tombstone' feature in its Service Discovery responses.

Listing 5: Client requests service discovery information from the server

```
<iq type='get'
  from='romeo@montague.example/orchard'
  to='romeo@montague.example'
  id='info1'>
  <query xmlns='http://jabber.org/protocol/disco#info' />
</iq>
```

Listing 6: The server advertises support for tombstone retraction

```
<iq type='result'
  to='romeo@montague.example/orchard'
  from='romeo@montague.example'
  id='info1'>
  <query xmlns='http://jabber.org/protocol/disco#info'>
  ...
  <feature var='urn:xmpp:message-retract:0#tombstone' />
  ...
  </query>
</iq>
```

When replacing the original message with a tombstone, the original contents (i.e. the <body/> and any related elements which might leak information about the original message) get replaced with a <retracted/> element which MUST include the <origin-id/>, so that clients can match it to the subsequent retraction (which MUST also be stored in the archive).

The <retracted/> element SHOULD also include a 'stamp' attribute indicating the time at which the retraction took place.

As with other XEP-0313 archived messages, the [Delayed Delivery \(XEP-0203\)](#)⁹ <delay/> element is used to indicate when the original message was received.

Listing 7: Retracted message tombstone in a MAM result

```
<message id='aeb213' to='lord@capulet.example/chamber'>
  <result xmlns='urn:xmpp:mam:2' queryid='f27' id='stanza-id-1'>
    <forwarded xmlns='urn:xmpp:forward:0'>
      <delay xmlns='urn:xmpp:delay' stamp='2019-09-20T23:08:25Z' />
      <message type="groupchat" from="romeo@montague.example" to="
        lord@capulet.example" id="wrong-recipient-1">
        <retracted stamp='2019-09-20T23:09:32Z' xmlns='
          urn:xmpp:message-retract:0'>
          <origin-id xmlns='urn:xmpp:sid:0' id='origin-id-1' />
        </retracted>
      </message>
    </forwarded>
  </result>
</message>
```

⁹XEP-0203: Delayed Delivery <<https://xmpp.org/extensions/xep-0203.html>>.

```
    </message>  
  </forwarded>  
</result>  
</message>
```

5 Business Rules

A receiving client can choose to remove the retracted message from whatever display is used for messages, from any stored history, or choose to display the fact that a message has been retracted in another way.

A MUC or other service that supports message retraction SHOULD prevent further distribution of the message by the service (e.g., by not replaying the message to new occupants joining the room, omitting the message from history archive requests where possible, or replacing the original message with a 'tombstone').

Some clients may have been offline while the retraction was issued. The archiving service therefore MUST store the retraction message, regardless of whether the original message is deleted or replaced with a tombstone. These clients will then become aware of the retraction as soon as they catch up with the archive.

A client MAY inform the user that a no-longer displayed message did previously exist and has been removed.

Clients MUST set the XEP-0359 'origin id' attribute on sent messages to make them suitable for message retraction.

The Sender MUST NOT send a retraction request for a message with non-messaging payloads. For example, a sender MUST NOT send a retraction for a roster item exchange request or a file transfer part.

A retraction (that's not part of a [Message Moderation \(XEP-0425\)](#)¹⁰ operation) MUST only be processed when both the original message and the retraction request are received from the same bare-JID (in a one-on-one conversation) or full-JID (in a non-anonymous MUC from [Multi-User Chat \(XEP-0045\)](#)¹¹).

When used in a semi-anonymous MUC, the recipient client MUST check that a message retraction was sent by the author of the retracted message by checking the occupant id from [Anonymous unique occupant identifiers for MUCs \(XEP-0421\)](#)¹².

6 Security Considerations

There can never be a guarantee that a retracted message was never seen or otherwise distributed, and it is encouraged for clients and services when possible to inform users that no such guarantee exists.

¹⁰XEP-0425: Message Moderation <<https://xmpp.org/extensions/xep-0425.html>>.

¹¹XEP-0045: Multi-User Chat <<https://xmpp.org/extensions/xep-0045.html>>.

¹²XEP-0421: Anonymous unique occupant identifiers for MUCs <<https://xmpp.org/extensions/xep-0421.html>>.

To prevent message spoofing, it's very important that the JID or occupant id of message retractions are checked (as explained in the [Business Rules](#) section).

7 IANA Considerations

None.

8 XMPP Registrar Considerations

8.1 Protocol Namespaces

The [XMPP Registrar](#) ¹³ includes 'urn:xmpp:message-retract:0' in its registry of protocol namespaces (see <https://xmpp.org/registrar/namespaces.html>).

- urn:xmpp:message-retract:0

8.2 Protocol Versioning

If the protocol defined in this specification undergoes a revision that is not fully backwards-compatible with an older version, the XMPP Registrar shall increment the protocol version number found at the end of the XML namespaces defined herein, as described in Section 4 of XEP-0053.

9 XML Schema

```
<?xml version='1.0' encoding='UTF-8'?>
<xs:schema
  xmlns:xs='http://www.w3.org/2001/XMLSchema'
  targetNamespace='urn:xmpp:message-retract:0'
  xmlns='urn:xmpp:message-retract:0'
  elementFormDefault='qualified'>
  <xs:element name='retract'></xs:element>
  <xs:element name='retracted'>
    <xs:complexType>
```

¹³The XMPP Registrar maintains a list of reserved protocol namespaces as well as registries of parameters used in the context of XMPP extension protocols approved by the XMPP Standards Foundation. For further information, see <https://xmpp.org/registrar/>.


```
<xs:simpleContent>
  <xs:extension base='xs:string'>
    <xs:attribute name='by' type='xs:string' use='required' />
    <xs:attribute name='from' type='xs:string' use='optional' />
    <xs:attribute name='stamp' type='xs:dateTime' use='required'
      />
  </xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
</xs:schema>
```