



XMPP

XEP-0444: Message Reactions

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This specification defines a way for adding reactions to a message.

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1 Introduction

Message reactions allow to express an opinion or feeling towards a message in a quick and light-weight way. Reactions are described in the form of emojis and can enhance communication especially when chatting with multiple parties. Other possible uses include voting and checking to-do list items.

Reactions are typically displayed in a summarizing fashion visually attached to the message they belong to.

Related work has been done in [Message Attaching \(XEP-0367\)](#)¹. However, it can't be used for reactions, as it would cause difficulties with non-supporting clients, is not tailored to emojis and does not specify removal of reactions. To solve these issues, this XEP introduces a separate XML element for reactions.

2 Discovering support

If a client implements message reactions, it MUST specify the 'urn:xmpp:reactions:0' feature in its service discovery information features as specified in [Service Discovery \(XEP-0030\)](#)² and the Entity Capabilities profile specified in [Entity Capabilities \(XEP-0115\)](#)³.

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

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

Listing 2: Partner's client advertises support for reactions

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

¹XEP-0367: Message Attaching <<https://xmpp.org/extensions/xep-0367.html>>.

²XEP-0030: Service Discovery <<https://xmpp.org/extensions/xep-0030.html>>.

³XEP-0115: Entity Capabilities <<https://xmpp.org/extensions/xep-0115.html>>.

3 Use Cases

3.1 Sending reactions to a message

When a user chooses to react to a message with a certain emoji, the client sends a <message> stanza containing a <reactions> element. The chosen emoji is included in a <reaction> element within the <reactions> element. The message is referred to by including its id or in MUCs its stanza-id as defined in [Unique and Stable Stanza IDs \(XEP-0359\)](#)⁴ in the 'id' attribute of the reactions element.

Listing 3: Romeo sends a message

```
<message to='juliet@capulet.net/balcony' id='744f6e18-a57a-11e9-a656-4889e7820c76' type='chat'>
  <body>Hello, world!</body>
</message>
```

Listing 4: Juliet sends a 🍷 reaction to the message

```
<message to='romeo@capulet.net/orchard' id='7fdd29fa-a57a-11e9-b04a-4889e7820c76' type='chat'>
  <reactions id='744f6e18-a57a-11e9-a656-4889e7820c76' xmlns='urn:xmpp:reactions:0'>
    <reaction> </reaction>
  </reactions>
  <store xmlns="urn:xmpp:hints"/>
</message>
```

3.2 Updating reactions to a message

If the user chooses to remove reactions from or add reactions to a message they have already reacted to, the client sends a <message> with all <reaction> elements that are (still or newly) applicable to that message.

Listing 5: Juliet adds a 🍷 reaction to the message

```
<message to='romeo@capulet.net/orchard' id='96d73204-a57a-11e9-88b8-4889e7820c76' type='chat'>
  <reactions id='744f6e18-a57a-11e9-a656-4889e7820c76' xmlns='urn:xmpp:reactions:0'>
    <reaction> </reaction>
    <reaction> </reaction>
  </reactions>
  <store xmlns="urn:xmpp:hints"/>
</message>
```

⁴XEP-0359: Unique and Stable Stanza IDs <<https://xmpp.org/extensions/xep-0359.html>>.

In order to remove all reactions from a message, an empty <reactions> element is sent.

Listing 6: Juliet removes all reactions from the message

```
<message to='romeo@capulet.net/orchard' id='973c9d2e-a57a-11e9-af82-4889e7820c76' type='chat'>
  <reactions id='744f6e18-a57a-11e9-a656-4889e7820c76' xmlns='urn:xmpp:reactions:0' />
  <store xmlns="urn:xmpp:hints" />
</message>
```

4 Business Rules

Messages MUST NOT contain more than one <reactions> element

A message containing a <reactions> element SHOULD be of type 'chat' or 'groupchat'.

A <reaction> element SHOULD only contain Unicode codepoints that can be displayed as a single emoji, as specified in the latest revision of the [Unicode® Technical Standard #51](#) ⁵. Receiving entities MAY ignore <reaction> elements that do not comply with this specification.

A receiving client SHOULD show reactions attached to the message they where in response to. Reactions MAY be displayed in a summarized fashion.

A <reactions> element MUST NOT contain the same reaction more than once. A receiving entity SHOULD ignore duplicate reactions inside a <reactions> element.

The sending entity SHOULD add a <store/> hint, as defined in [Message Processing Hints \(XEP-0334\)](#) ⁶, if the message being reacted to does not carry a <no-store/> hint.

If a message is updated using [Last Message Correction \(XEP-0308\)](#) ⁷, the 'id' attribute of the <reactions> element SHOULD reference the original message id. A receiving entity SHOULD accept messages with a <reactions> element referencing a message correction and SHOULD handle such element as if it was using the message id of the original message.

4.1 Acceptable reactions

In direct conversations, a reaction MUST only be accepted if the senders bare JID matches the bare JID of any of the two involved parties.

In MUCs and MUC PMs, the recipient SHOULD ensure that the real bare JID of the sending occupant did not already send a reaction to that message to accept it as a new reaction, e.g. by keeping track of leave/join presences since the message was send. This implies that in semi-anonymous MUCs it MAY be impossible to attach reactions to a message received from the history. A reaction MAY still be a valid reaction update (as per the next paragraph) if it was not accepted as a new reaction.

⁵Unicode® Technical Standard #51 <<http://www.unicode.org/reports/tr51/>>.

⁶XEP-0334: Message Processing Hints <<https://xmpp.org/extensions/xep-0334.html>>.

⁷XEP-0308: Last Message Correction <<https://xmpp.org/extensions/xep-0308.html>>.

A reaction MUST only be considered an update if it originates from the same sender as a previous reaction message. In direct conversations, this means the bare JID MUST match the original bare JID. In MUCs and MUC PMs the senders full JID MAY not match the original full JID, but the recipient MUST ensure that the real bare JID of the sending occupant is the same as the real bare JID of the previous reaction message, e.g. by keeping track of leave/join presences.

If a message containing a <reactions> element arrives delayed, which means it carries a <delay/> element, as defined in [Delayed Delivery \(XEP-0203\)](#)⁸ it SHOULD only be accepted, if no newer reaction from the same sender was already accepted.

4.2 Using the correct ID

For messages of type 'groupchat', the stanza's 'id' attribute MUST NOT be used for reactions. Instead, in group chat situations, the ID assigned to the stanza by the group chat itself must be used. This is discovered in a <stanza-id> element with a 'by' attribute that matches the bare JID of the group chat, as defined in [Unique and Stable Stanza IDs \(XEP-0359\)](#)⁹.

This implies that group chat messages without a [Unique and Stable Stanza IDs \(XEP-0359\)](#)¹⁰ stanza-id cannot be reacted to.

For other message types the sender should use the 'id' from a [Unique and Stable Stanza IDs \(XEP-0359\)](#)¹¹ <origin-id> if present, or the value of the 'id' attribute on the <message> otherwise.

5 IANA Considerations

This document requires no interaction with the [Internet Assigned Numbers Authority \(IANA\)](#)¹².

⁸XEP-0203: Delayed Delivery <<https://xmpp.org/extensions/xep-0203.html>>.

⁹XEP-0359: Unique and Stable Stanza IDs <<https://xmpp.org/extensions/xep-0359.html>>.

¹⁰XEP-0359: Unique and Stable Stanza IDs <<https://xmpp.org/extensions/xep-0359.html>>.

¹¹XEP-0359: Unique and Stable Stanza IDs <<https://xmpp.org/extensions/xep-0359.html>>.

¹²The Internet Assigned Numbers Authority (IANA) is the central coordinator for the assignment of unique parameter values for Internet protocols, such as port numbers and URI schemes. For further information, see <<http://www.iana.org/>>.

6 XMPP Registrar Considerations

6.1 Protocol Namespaces

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

- urn:xmpp:reactions:0

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/>>.