XEP-0514: Emoji Markup

Snit Guckfung
mailto:snit@cock.li
xmpp:snit@isekai.rocks

Sigrid Einarsson
mailto:techmetx11@disroot.org
xmpp:techmetx11@disroot.org

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This specification leverages Message Markup (XEP-0394) and Stateless file sharing (XEP-0447) (or Stateless Inline Media Sharing (XEP-0385)) to send custom emojis

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1 Introduction

Many legacy platforms allow users to create and send custom emojis in place of the ones supported by Unicode, allowing users a wider range of expression when chatting. This specification provides a way for users to send custom emojis using a custom Message Markup (XEP-0394) [1] element containing Stateless file sharing (XEP-0447) [2] or Stateless Inline Media Sharing (XEP-0385) [3] data.

2 Discovering Support

Implementations which support custom emoji markup MUST advertise 'urn:xmpp:markup:emoji:0' via Entity Capabilities (XEP-0115) [4] and Service Discovery (XEP-0030) [5].

3 Use Cases

To send a custom emoji, implementations use a custom <emoji /> element qualified with the 'urn:xmpp:markup:emoji:0' namespace inside a Message Markup (XEP-0394) [6] element as a child of a Message Markup (XEP-0394) [7] <markup /> element, with a media element (either Stateless file sharing (XEP-0447) [8] <file-sharing /> or Stateless Inline Media Sharing (XEP-0385) [9] <media-sharing />) as a sibling of the <markup /> element. The MUST contain a 'start' and 'end' range which marks the range of text to replace with the custom emoji. If the 'start' and 'end' contain the same index, the emoji MUST be inserted at that index without replacing any text. The <emoji /> MAY contain a 'name' attribute containing the name of the emoji, but it MUST include one or more Use of Cryptographic Hash Functions in XMPP (XEP-0300) [10] <hash /> elements to identify the specific emoji in one of the media elements.

Listing 1: User sends a custom emoji

```
<message from='romeo@montague.lit' to='juliet@shakespeare.lit' type='
    chat'>
     <body>To be, or not to be, that is the question  </body>
```

[1] XEP-0394: Message Markup <https://xmpp.org/extensions/xep-0394.html>.
[2] XEP-0447: Stateless file sharing <https://xmpp.org/extensions/xep-0447.html>.
[3] XEP-0385: Stateless Inline Media Sharing (SIMS) <https://xmpp.org/extensions/xep-0385.html>.
[4] XEP-0115: Entity Capabilities <https://xmpp.org/extensions/xep-0115.html>.
[5] XEP-0030: Service Discovery <https://xmpp.org/extensions/xep-0030.html>.
[6] XEP-0394: Message Markup <https://xmpp.org/extensions/xep-0394.html>.
[7] XEP-0394: Message Markup <https://xmpp.org/extensions/xep-0394.html>.
[8] XEP-0447: Stateless file sharing <https://xmpp.org/extensions/xep-0447.html>.
[9] XEP-0385: Stateless Inline Media Sharing (SIMS) <https://xmpp.org/extensions/xep-0385.html>.
[10] XEP-0300: Use of Cryptographic Hash Functions in XMPP <https://xmpp.org/extensions/xep-0300.html>.

```
    <markup xmlns='urn:xmpp:markup:0'>
        <span start='42' end='43'>
            <emoji xmlns='urn:xmpp:markup:emoji:0' name='pondering'>
                <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>
                    ENeyvkxcfv8dmL4HBrF3JU1OX1BfpNV3YbhlEb20ReU=</hash
                    >
            </emoji>
        </span>
    </markup>
    <file-sharing xmlns='urn:xmpp:sfs:0'>
        <file xmlns='urn:xmpp:file:metadata:0'>
            <media-type>image/png</media-type>
            <name>pondering</name>
            <size>6129</size>
            <width>64</width>
            <height>64</width>
            <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>
                ENeyvkxcfv8dmL4HBrF3JU1OX1BfpNV3YbhlEb20ReU=</hash>
            <hash xmlns='urn:xmpp:hashes:2' algo='id-blake2b256'>
                QdJufo3MnaEPCK/2Q8fCiX3FutiQej6uHg5HaCliheY=</hash>
        </file>
        <sources>
            <url-data xmlns='http://jabber.org/protocol/url-data'
                target='https://download.montague.lit/4a771ac1-f0b2-4
                a4a-9700-f2a26fa2bb67/pondering.png' />
        </sources>
    </file-sharing>
</message>
```

Listing 2: User sends multiple custom emojis in a message

```
<message from='romeo@montague.lit' to='juliet@shakespeare.lit' type='
    chat'>
    <body>Look at this funny image I found! :laughing: I wonder what
        it means? :pondering:</body>
    <markup xmlns='urn:xmpp:markup:0'>
        <span start='34' end='44'>
            <emoji xmlns='urn:xmpp:markup:emoji:0' name='laughing'>
                <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>
                    jMbLbIw1lfDhNVrE1wtB8C1R94OXKbyq/i8DUmHiHs8=</hash
                    >
                <hash xmlns='urn:xmpp:hashes:2' algo='id-blake2b256'>
                    a5wIaBMtKT+Rs4TSc0C4ciWb5bmA3GCBv3xIUBxpKGA=</hash
                    >
            </emoji>
        </span>
        <span start='69' end='80'>
            <emoji xmlns='urn:xmpp:markup:emoji:0' name='pondering'>
                <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>
                    ENeyvkxcfv8dmL4HBrF3JU1OX1BfpNV3YbhlEb20ReU=</hash
```

```
                    >
                <hash xmlns='urn:xmpp:hashes:2' algo='id-blake2b256'>
                    QdJufo3MnaEPCK/2Q8fCiX3FutiQej6uHg5HaCliheY=</hash
                    >
            </emoji>
        </span>
    </markup>
    <file-sharing xmlns='urn:xmpp:sfs:0' id='emoji1'>
        <file xmlns='urn:xmpp:file:metadata:0'>
            <media-type>image/png</media-type>
            <name>laughing</name>
            <size>8391</size>
            <width>64</width>
            <height>64</width>
            <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>
                jMbLbIw1lfDhNVrE1wtB8C1R94OXKbyq/i8DUmHiHs8=</hash>
            <hash xmlns='urn:xmpp:hashes:2' algo='id-blake2b256'>
                a5wIaBMtKT+Rs4TSc0C4ciWb5bmA3GCBv3xIUBxpKGA=</hash>
        </file>
        <sources>
            <url-data xmlns='http://jabber.org/protocol/url-data'
                target='https://download.montague.lit/d51e8d71-98a3-4
                dd7-be64-cb4c778c90d2/laughing.png' />
        </sources>
    </file-sharing>
    <file-sharing xmlns='urn:xmpp:sfs:0' id='emoji2'>
        <file xmlns='urn:xmpp:file:metadata:0'>
            <media-type>image/png</media-type>
            <name>pondering</name>
            <size>6129</size>
            <width>64</width>
            <height>64</width>
            <hash xmlns='urn:xmpp:hashes:2' algo='sha3-256'>
                ENeyvkxcfv8dmL4HBrF3JU1OX1BfpNV3YbhlEb20ReU=</hash>
            <hash xmlns='urn:xmpp:hashes:2' algo='id-blake2b256'>
                QdJufo3MnaEPCK/2Q8fCiX3FutiQej6uHg5HaCliheY=</hash>
        </file>
        <sources>
            <url-data xmlns='http://jabber.org/protocol/url-data'
                target='https://download.montague.lit/16c8bc69-f4b2
                -4772-8db3-74fca5e2a275/pondering.png' />
        </sources>
    </file-sharing>
</message>
```

4 Business Rules

Many custom emojis can be adequately represented in terms of an existing Unicode emoji. Clients might find it useful to allow users to optionally specify a replacement emoji, which will improve the experience of users of clients which do not support custom emojis, with the name/shortcode of the emoji used only as a fallback. However, this specification makes no recommendation on the fallback text an implementation opts to use.
Implementations SHOULD expect to handle animated emojis, such as GIFs or animated PNGs. This could include either playing the animation or displaying the first frame.
Implementations might receive a file type which they do not or cannot support, in which case they MAY opt to ignore the emoji markup altogether.

5 Implementation Notes

Implementations MAY use sticker packs in Stickers (XEP-0449) [11] for emojis too

6 Accessibility Considerations

Implementations SHOULD provide a proper fallback for custom emojis, as well as including the 'name' attribute. This helps both users of unsupported clients as well as users who may not be able to view the emoji properly.
Implementations MAY post-process the file for color deficiency, epilepsy, or other accessiblity reasons. This could include slowing down playback or changing the saturation.

7 Security Considerations

Emojis are just media files. All the usual security risks of allowing users to send arbitrary media apply.

8 IANA Considerations

None.

[11] XEP-0449: Stickers <https://xmpp.org/extensions/xep-0449.html>.

9 XMPP Registrar Considerations

This specification defines the 'urn:xmpp:markup:emoji:0' namespace.

10 XML Schema

TODO.