

# messeji

Typeset multi-page chat histories, including from external JSON files.

v0.2.0

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<https://github.com/Tanikai/messeji>

**Kai Anter** <<https://www.anter.dev>>

## ABSTRACT

messēji is a Typst package for typesetting chat histories in a modern, minimal design, inspired by popular messengers. No manual copying to Typst required, just pass in a JSON file.

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# I INTRODUCTION

With *messēji*, typesetting long chat histories . Main features of *messēji* include:

- Support for quoted messages
- Image messages (with and without captions)
- Displaying timestamps between messages
- Simple data model to read from external files (JSON, YAML, ...) if you want to typeset very long chat histories
- Reacting to messages

Currently, it does not support:

- Group chats (only 1-on-1 chats)
- Displaying names / profile pictures next to the messages

These features are currently not planned to be implemented. However, if you need them, [create an issue](#) and I'll look into it (if I have the time).

## II USAGE

### II.a Import

Add the following import statement to the top of your document:

```
1 #import "@preview/messeji:0.2.0": messeji
```

typ

### II.b Message Structure

The messages have to be in the following structure (dictionary formatted as JSON):

```
1 {
2   // Optional, can be combined with image
3   "msg": "Actual Message",
4
5   // Optional, can be combined with msg
6   "image": "path_to_image.jpg",
7
8   // Required, true for right, false for left
9   "from_me": true,
10
11  // Optional, in ISO 8601 format
12  "date": "2026-12-25T09:41:00",
13
14  // Optional
15  "ref": "Previous message that is being quoted",
16
17  // Optional, only single emojis are tested / supported
18  "reaction": "♥"
19 }
```

json5

The order of the fields is not important. You can use other filetypes if you want to, but the key names have to be the same, and the `date` value has to be in ISO 8601 format.

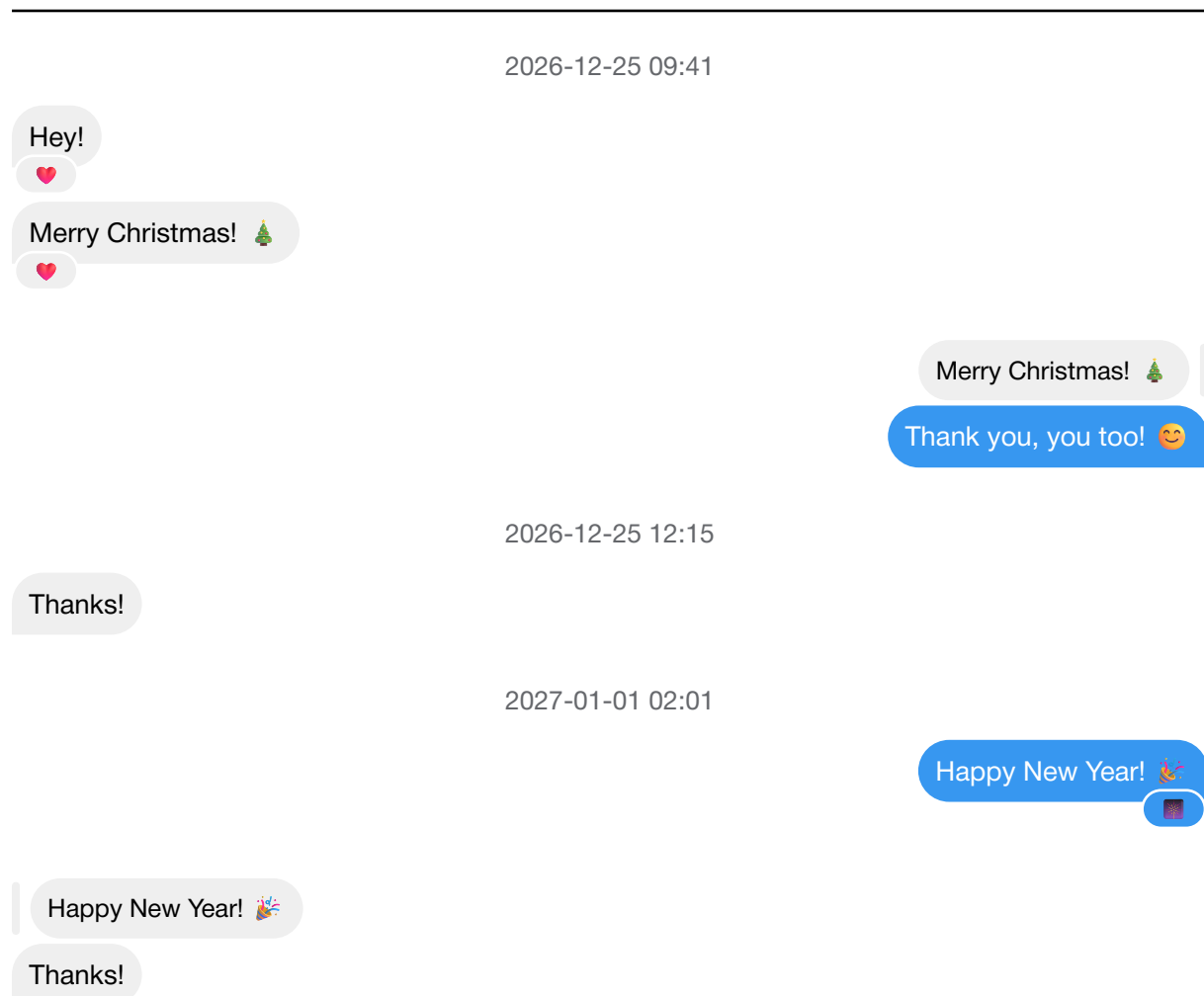
## II.c Basic example from JSON

```
1 #set text(font: "Helvetica Neue")  
2 #let parsed-data = json("output.example.json") // list of messages  
3 #messeji(chat-data: parsed-data)
```

The code snippet above assumes the following structure from the JSON file:

```
1 [  
2   {  
3     "date": "2026-12-25T09:41:00",  
4     "msg": "Merry Christmas! 🎄",  
5     "from_me": false  
6   },  
7   {  
8     "msg": "Thank you, you too! 😊",  
9     "ref": "Merry Christmas! 🎄",  
10    "from_me": true  
11  },  
12  //...  
13 ]
```

It then produces the following chat:



---

## II.d Basic example directly in Typst

```
1 #let my-messages = (
2   (
3     date: "2024-01-01T12:00:00",
4     msg: "This is defined directly in the Typst file.",
5     from_me: false,
6   ),
7   (
8     msg: "Nice!",
9     from_me: true,
10  ),
11 )
12 #messeji(chat-data: my-messages)
```

typ

Produces the following chat:

---

2024-01-01 12:00

This is defined directly in the Typst file.

Nice!

---

## II.e Messages with Images

As typst does not support directory walking<sup>1</sup>, loading messages with images from a JSON file is a bit more complicated. Additionally, Typst packages cannot access the working directory of your project, which means that you have to define the function that loads the images, and pass them to `messeji` as parameters. However, there is still a way to do this automatically.

In short, you just have to add a single function to your Typst document that handles loading the images from your directory. The general workflow looks like this:

1. Save all images in the same directory (e.g., `img`)
2. Import and use the `get-image-names` function from `messeji` to get all image names that are defined in your message list. It returns the image names in a dictionary, and still has to be filled with the loaded images.
3. Pass the image names to your own `load-images` function (see below) to load them into Typst.
4. Pass the loaded images to `messeji`.

In detail, add the following code to your document:

```
1  #import "@preview/messeji...": messeji, get-image-names // import image
   name function typ
2
3  // this function has to be defined in your own document, as it accesses files
4  // located in your project directory (with the `image()` function).
5  #let load-images(
6    directory, // with trailing slash!
7    image-names,
8  ) = {
9    for img-name in image-names.keys() {
10      image-names.insert(img-name, image(directory + img-name, fit: "contain"))
11    }
12    return image-names
13  }
14
15  #let chat-with-images = json("image.example.json") // Load chat data from
   JSON file
16
17  #let image-names = get-image-names(chat-with-images) // Load image names from
   loaded chat data
18
19  #let loaded-images = load-images("img/", image-names) // Load actual images
   into Typst
20
21  #messeji(
22    chat-data: chat-with-images,
23    images: loaded-images,
24  )
```

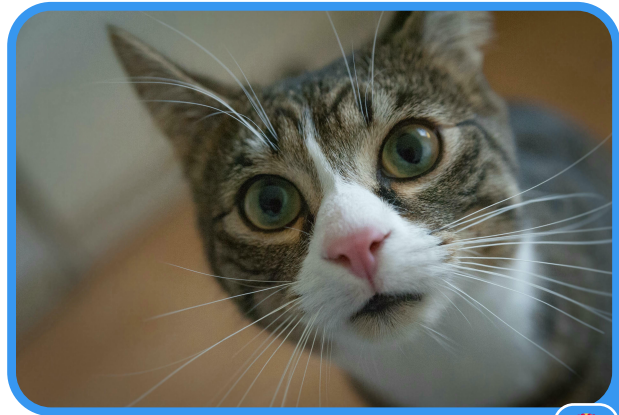
This produces the following chat:

---

<sup>1</sup><https://forum.typst.app/t/is-there-a-way-to-retrieve-the-current-file-name-list-files-etc-within-typst/155/3>

2025-04-02 12:15

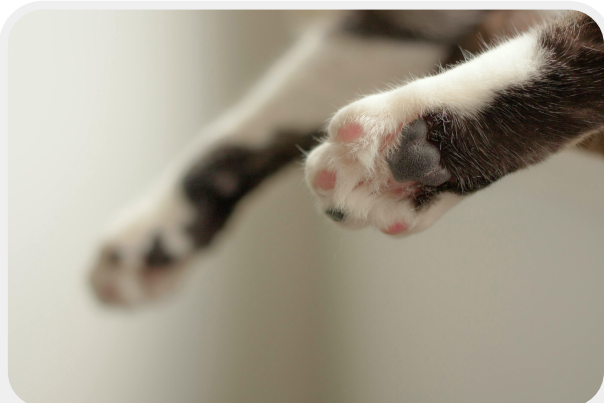
Hey!



Look at this cute cat!

Cute right?

Wow, very cute!



Look at these cute toebeans!

(Image)

Cute!

---

## III CUSTOMIZATION

### III.a Themes

You can customize the text colors, backgrounds, and font sizes. Currently, the default theme has the following keys and values:

```
1 #let default-theme = (
```

typ

```

2   timestamp-color: rgb("#65676b"),
3   timestamp-size: 0.9em,
4   date-changed-color: luma(0%),
5   date-changed-size: 1.5em,
6   me-right: (
7     color: luma(100%),
8     background-color: rgb("#3797f0"),
9     quote-color: luma(0%),
10    quote-background-color: rgb("#efefef"),
11  ),
12  other-left: (
13    color: luma(0%),
14    background-color: rgb("#efefef"),
15    quote-color: luma(0%),
16    quote-background-color: rgb("#efefef"),
17  ),
18  reaction-stroke-color: luma(100%),
19  bubble-inset: 0.6em,
20  bubble-radius: 1.5em,
21  bubble-tail: true,
22  image-width: 50%,
23 )

```

If you want to change the theme, you just have to override the keys that you need. Everything else that is undefined will be taken from the default theme:

```

1  #let custom-theme = (
2    me-right: (
3      background-color: green
4    )
5  )
6  #messeji(
7    chat-data: parsed-data,
8    theme: custom-theme
9  )

```

Produces the following output:

---

2026-12-25 09:41

Hey!



Merry Christmas! 🎄



Merry Christmas! 🎄

Thank you, you too! 😊

2026-12-25 12:15

Thanks!

2027-01-01 02:01

Happy New Year! 🎉

Happy New Year! 🎉

Thanks!

### III.b Custom timestamp and date-change format

By default, every time a message has a `date` value, timestamps are displayed in the format `YYYY-MM-DD HH:DD`. However, you can customize it by passing a format string to `timestamp-format` ([Click here for Typst documentation](#)).

If you want to highlight that a new day started, you can use `date-changed-format`. By default, this is deactivated by setting it to `""`.

```

1 #messeji(
2   chat-data: parsed-data,
3   date-changed-format: "[year]/[month]/[day]",
4   timestamp-format: "[hour]:[minute]",
5 )

```

2026/12/25

09:41

Hey!

♥️

Merry Christmas! 🎄

♥️

Merry Christmas! 🎄

Thank you, you too! 😊



12:15

Thanks!

2027/01/01

02:01

Happy New Year! 🎉



Happy New Year! 🎉

Thanks!

---

## IV FUNCTION REFERENCE

- [chat-bubble\(\)](#)
- [get-image-names\(\)](#)
- [messeji\(\)](#)

### chat-bubble

Renders a chat bubble.

#### Parameters

```
chat-bubble(  
  theme: dictionary ,  
  message: string ,  
  quote: string ,  
  reaction: string ,  
  msg-align: "left" "right" ,  
  image: image  
)
```

**theme**    dictionary

theme to use

**message**    string

message that should be displayed.

**quote**    `string`

Optional quote of message

Default: ""

**reaction**    `string`

Optional reaction to message

Default: ""

**msg-align**    `"left" or "right"`

Alignment of message

Default: `"left"`

**image**    `image`

Optional image of message

Default: `none`

## get-image-names

Helper function to list image names that are present in the chat.

### Parameters

`get-image-names(chat-data: list) -> dictionary`

**chat-data**    `list`

Array of images.

## messeji

Main function to render chat history.

## Parameters

```
messeji(  
  chat-data: array,  
  date-changed-format: string,  
  timestamp-format: string,  
  images: dictionary,  
  theme: dictionary  
)
```

**chat-data** array

List of messages

Default: []

**date-changed-format** string

Date format when the day changes.

Default: none

**timestamp-format** string

Timestamp format every time a message contains a date value.

Default: "[year]-[month]-[day] [hour]:[minute]"

**images** dictionary

Image dictionary. Key is filename, value is loaded image.

Default: ( : )

**theme** dictionary

Theme dictionary. If value is not set, the default value is used.

Default: ( : )