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**eletter**

*Release 0.5.0*

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## 1.1 Basic Composition

`eletter` can be used to construct a basic text e-mail using the `compose()` function like so:

```
from eletter import compose

msg = compose(
    subject="The subject of the e-mail",
    from_="sender@domain.com",
    to=["recipient@domain.com", "another.recipient@example.nil"],
    text="This is the body of the e-mail. Write what you want here!\n",
)
```

---

**Note:** Observe that the `from_` argument is spelled with an underscore. It has to be this way, because plain old `from` is a keyword in Python.

---

If you want to construct an HTML e-mail, use the `html` keyword instead of `text`:

```
from eletter import compose

msg = compose(
    subject="The subject of the e-mail",
    from_="sender@domain.com",
    to=["recipient@domain.com", "another.recipient@example.nil"],
    html=(
        "<p>This is the <strong>body</strong> of the <em>e</em>-mail."
        "  <span style='color: red;'>Write what you want here!</span></p>\n"
    ),
)
```

By specifying both `text` and `html`, you'll get an e-mail whose HTML part is displayed if the e-mail reader supports it and whose text part is displayed instead on lower-tech clients.

```
from eletter import compose

msg = compose(
    subject="The subject of the e-mail",
    from_="sender@domain.com",
    to=["recipient@domain.com", "another.recipient@example.nil"],
    text="This is displayed on plain text clients.\n",
```

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```
html="<p>This is displayed on graphical clients.<p>\n",  
)
```

## 1.2 Addresses

In the examples so far, e-mail addresses have just been specified as, well, addresses. However, addresses usually belong to people or organizations with names; we can include these names alongside the addresses by constructing *Address* objects from pairs of “display names” and e-mail addresses:

```
from eletter import Address, compose  
  
msg = compose(  
    subject="The subject of the e-mail",  
    from_=Address("Sender's name goes here", "sender@domain.com"),  
    to=[  
        Address("Joe Q. Recipient", "recipient@domain.com"),  
        Address("Jane Z. Another-Recipient", "another.recipient@example.nil"),  
    ],  
    text="This is the body of the e-mail. Write what you want here!\n",  
)
```

Sometimes addresses come in named groups. We can represent these with the *Group* class, which takes a name for the group and an iterable of address strings and/or *Address* objects:

```
from eletter import Address, Group, compose  
  
msg = compose(  
    subject="The subject of the e-mail",  
    from_="sender@domain.com",  
    to=[  
        Group(  
            "friends",  
            [  
                Address("Joe Q. Recipient", "recipient@domain.com"),  
                Address("Jane Z. Another-Recipient", "another.recipient@example.nil"),  
                "anonymous@nowhere.nil",  
            ],  
        ),  
        Address("Mr. Not-in-a-Group", "ungrouped@unkno.wn"),  
        Group(  
            "enemies",  
            [  
                "that.guy@over.there",  
                "knows.what.they.did@ancient.history",  
                Address("Anemones", "sea.flora@ocean.net"),  
            ],  
        ),  
    ],  
    text="This is the body of the e-mail. Write what you want here!\n",  
)
```



## 1.3 CC, BCC, etc.

Besides *From* and *To* addresses, `compose()` also accepts optional arguments for *CC*, *BCC*, *Reply-To*, and *Sender* addresses:

```
from eletter import Address, compose

msg = compose(
    from_=Address("Mme E.", "me@here.com"),
    to=["you@there.net", Address("Thaddeus Hem", "them@hither.yon")],
    cc=[Address("Cee Cee Cecil", "ccc@seesaws.cc"), "coco@nu.tz"],
    bcc=[
        "eletter@depository.nil",
        Address("Secret Cabal", "illuminati@new.world.order"),
        "mom@house.home",
    ],
    reply_to="replyee@some.where",
    sender="steven.ender@big.senders",
    subject="To: Everyone",
    text="Meeting tonight!  You know the place.  Bring pizza.\n",
)
```

**Note:** The `to`, `cc`, and `bcc` arguments always take lists or iterables of addresses. `from_` and `reply_to`, on the other hand, can be set to either a single address or an iterable of addresses. `sender` must always be a single address.

## 1.4 Attachments

Attachments come in two common types: text and binary. `eletter` provides a class for each, `TextAttachment` and `BytesAttachment`.

We can construct a `BytesAttachment` as follows:

```
from eletter import BytesAttachment

attachment = BytesAttachment(
    b'... binary data goes here ...',
    filename="name-of-attachment.dat"
)
```

This will create an `application/octet-stream` attachment with an “attachment” disposition (meaning that most clients will just display it as a clickable icon). To set the content type to something more informative, set the `content_type` parameter to the relevant MIME type. To have the attachment displayed inline (generally only an option for images & videos), set the `inline` parameter to `true`. Hence:

```
from eletter import BytesAttachment

attachment = BytesAttachment(
    b'... binary data goes here ...',
    filename="name-of-attachment.png",
    content_type="image/png",
    inline=True,
)
```

If your desired attachment exists as a file on your system, you can construct a *BytesAttachment* from the file directly with the *from\_file()* classmethod:

```
from eletter import BytesAttachment

attachment = BytesAttachment.from_file(
    "path/to/file.dat",
    content_type="application/x-custom",
    inline=True,
)
```

The basename of the given file will be used as the filename of the attachment. (If you want to use a different name, set the *filename* attribute on the attachment after creating it.) If *content\_type* is not given, the MIME type of the file will be guessed based on its file extension.

The *TextAttachment* class is analogous to *BytesAttachment*, except that it is constructed from a *str* instead of *bytes*, and the *content\_type* (which defaults to "text/plain") must be a *text* type.

Once you've created some attachment objects, they can be attached to an e-mail by passing them in a list as the *attachments* argument:

```
from eletter import BytesAttachment, TextAttachment, compose

spreadsheet = TextAttachment.from_file("income.csv")
image = BytesAttachment.from_file("cat.jpg")

msg = compose(
    subject="That data you wanted",
    from_="sender@domain.com",
    to=["recipient@domain.com"],
    text="Here's that data you wanted, sir. And also the ... other thing.\n",
    attachments=[spreadsheet, image],
)
```

## 1.5 Attaching E-mails to E-mails

On rare occasions, you may have an e-mail that you want to completely embed in a new e-mail as an attachment. With *eletter*, you can do this with the *EmailAttachment* class. It works the same as *BytesAttachment* and *TextAttachment*, except that the content must be an *email.message.EmailMessage* instance, and you can't set the *Content-Type* (which is always *message/rfc822*). Like the other attachment classes, *EmailAttachment* also has a *from\_file()* classmethod for constructing an instance from an e-mail in a file.

## 1.6 Date and Extra Headers

*compose()* takes two more parameters that we haven't mentioned yet. First is *date*, which lets you set the *Date* header in an e-mail to a given *datetime.datetime* instance. Second is *headers*, which lets you set arbitrary extra headers on an e-mail by passing in a *dict*. Each value in the *dict* must be either a string or (if you want to set multiple headers with the same name) an iterable of strings.

```
from datetime import datetime
from eletter import compose

msg = compose(
```

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```

subject="The subject of the e-mail",
from_="sender@domain.com",
to=["recipient@domain.com", "another.recipient@example.nil"],
text="This is the body of the e-mail. Write what you want here!\n",
date=datetime(2021, 3, 10, 17, 56, 36).astimezone(),
headers={
    "User-Agent": "My Mail Application v.1",
    "Priority": "urgent",
    "Comments": [
        "I like e-mail.",
        "But no one ever looks at e-mails' sources, so no one will ever know.",
    ]
},
)

```

## 1.7 *multipart/mixed* Messages

All the e-mails constructed so far, when viewed in an e-mail client, have their attachments listed at the bottom. What if we want to mix & match attachments and text, switching from text to an attachment and then back to text? `eletter` lets you do this by providing `TextBody` and `HTMLBody` classes that can be &-ed with attachments to produce *multipart/mixed* messages, like so:

```

from eletter import BytesAttachment, TextBody

part1 = TextBody("Look at the pretty kitty!\n")

snuffles = BytesAttachment.from_file("snuffles.jpeg", inline=True)

part2 = TextBody("Now look at this dog.\n")

rags = BytesAttachment.from_file("rags.jpeg", inline=True)

part3 = TextBody("Which one is cuter?\n")

mixed = part1 & snuffles & part2 & rags & part3

```

We can then convert `mixed` into an `EmailMessage` by calling its `compose()` method, which takes the same arguments as the `compose()` function, minus `text`, `html`, and `attachments`.

```

msg = mixed.compose(
    subject="The subject of the e-mail",
    from_="sender@domain.com",
    to=["recipient@domain.com", "another.recipient@example.nil"],
)

```

When the resulting e-mail is viewed in a client, you'll see three lines of text with images between them.

**Tip:** As a shortcut, you can combine a bare `str` with an `eletter` object using `|` or the other overloaded operators described below (& and ^), and that `str` will be automatically converted to a `TextBody`. The example above could thus be rewritten:

```

from eletter import BytesAttachment, TextBody

```

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```

snuffles = BytesAttachment.from_file("snuffles.jpeg", inline=True)

rags = BytesAttachment.from_file("rags.jpeg", inline=True)

mixed = (
    "Look at the pretty kitty!\n"
    & snuffles
    & "Now look at this dog.\n"
    & rags
    & "Which one is cuter?\n"
)

```

## 1.8 *multipart/alternative* Messages

Now that we know how to construct mixed messages, how do we use them to create messages with both mixed-HTML and mixed-text payloads where the client shows whichever mixed payload it can support? The answer is the `|` operator; using it to combine two `eletter` objects will give you a *multipart/alternative* object, representing an e-mail message with two different versions of the same content that the client will then pick between.

```

from eletter import BytesAttachment, HTMLBody, TextBody

text1 = TextBody("Look at the pretty kitty!\n")
text2 = TextBody("Now look at this dog.\n")
text3 = TextBody("Which one is cuter?\n")

html1 = HTMLBody("<p>Look at the <em>pretty kitty</em>!\n")
html2 = HTMLBody("<p>Now look at this <strong>dog</strong>.\n")
html3 = HTMLBody("<p>Which one is <span style='color: pink'>cuter</span>?\n")

snuffles = BytesAttachment.from_file("snuffles.jpeg", inline=True)
rags = BytesAttachment.from_file("rags.jpeg", inline=True)

mixed_text = text1 & snuffles & text2 & rags & text3
mixed_html = html1 & snuffles & html2 & rags & html3

alternative = mixed_text | mixed_html

```

The `alternative` object can then be converted to an e-mail with the same `compose()` method that mixed objects have.

**Tip:** In this specific example, we can save on e-mail size by instead creating a mixed message containing alternative parts, like so:

```

mixed = (text1 | html1) & snuffles & (text2 | html2) & rags & (text3 | html3)

```

**Tip:** The parts of a *multipart/alternative* message should generally be placed in increasing order of preference, which means that the text part should be on the left of the `|` and the HTML part should be on the right.

## 1.9 *multipart/related* Messages

Mixing plain text and attachments is all well and good, but when it comes to HTML, it'd be better if we could reference attachments directly in, say, an `<img>` tag's `src` attribute. We can do this in three steps:

1. Assign each attachment's `content_id` attribute a unique ID generated with `email.utils.make_msgid`.
2. Within the HTML document, refer to a given attachment via the URI `cid:{content_id[1:-1]}` — that is, “cid:” followed by the attachment's `content_id` with the leading & trailing angle brackets stripped off.
3. Combine the HTML body with the attachments using the `^` operator to make a *multipart/related* object. The HTML body should be on the left end of the operator chain!

Example:

```
from email.utils import make_msgid
from eletter import BytesAttachment, HTMLBody

snuffles_cid = make_msgid()
rags_cid = make_msgid()

html = HTMLBody(f"""
    <p>Look at the <em>pretty kitty</em>!

    <div class="align: center;">
        
    </div>

    <p>Now look at this <strong>dog</strong>.</p>

    <div class="align: center;">
        
    </div>

    <p>Which one is <span style="color: pink">cuter</span>?</p>
""")

snuffles = BytesAttachment.from_file("snuffles.jpeg", inline=True, content_
↳id=snuffles_cid)
rags = BytesAttachment.from_file("rags.jpeg", inline=True, content_id=rags_cid)

related = html ^ snuffles ^ rags
```

**Tip:** You can remember the fact that *multipart/related* objects use `^` by association with *Content-ID*s, which are enclosed in `<...>`, which look like a sideways `^`!

Like mixed & alternative objects, *related* can then be converted to an e-mail with the `compose()` method. If you want, you can even use `|` to combine it with a mixed-text message before composing.

## 1.10 Sending E-mails

Once you've constructed your e-mail and turned it into an `EmailMessage` object, you can send it using Python's `smtplib`, `imaplib`, or `mailbox` modules or using a compatible third-party library. Actually doing this is beyond the scope of this tutorial & library, but may I suggest `outgoing`, by yours truly?

## 1.11 Decomposing Emails

New in version 0.5.0.

If you have an `email.message.EmailMessage` instance (either composed using `eletter` or acquired elsewhere) and you want to convert it into an `eletter` structure to make it easier to work with, `eletter` provides a `decompose()` function for doing just that. Calling `decompose()` on an `EmailMessage` produces an `Eletter` instance that has attributes for all of the fields accepted by the `compose()` method plus a `content` field containing an `eletter` class.

---

**Tip:** If you want to decompose a message that is a plain `email.message.Message` instance but not an `EmailMessage` instance, you need to first convert it into an `EmailMessage` before passing it to `decompose()` or `decompose_simplify()`. This can be done with the `message2email()` function from the `mailbits` package.

---

If you want to decompose a message even further, you can call the `decompose_simple()` function on an `EmailMessage` or call the `simplify()` method of an `Eletter` to produce a `SimpleEletter` instance. In place of a `content` attribute, a `SimpleEletter` has `text`, `html`, and `attachments` attributes giving the original message's text and HTML bodies plus any attachments.

Once you've decomposed and/or simplified a message, you can examine its parts and do whatever you want with that information. You can also manually modify the `Eletter/SimpleEletter`'s various attributes and then call its `compose()` method (which takes no arguments) to recompose the instance into a modified `EmailMessage`. Note that the attributes are of stricter types than what is accepted by the corresponding arguments to the `compose()` function. In particular, addresses must be specified as `Address` instances, not as strings<sup>1</sup>, the `from_` and `reply_to` attributes must always be lists, and the values of the `headers` attribute must always be lists.

---

**Note:** Most `EmailMessage` instances can be decomposed into `Eletter` instances; those that can't use `Content-Types` not supported by `eletter`, i.e., `message` types other than `message/rfc822` or `multipart` types other than `multipart/alternative`, `multipart/mixed`, and `multipart/related`.

On the other hand, considerably fewer `EmailMessage` instances can be simplified into `SimpleEletter` instances. Messages that cannot be simplified include messages without plain text or HTML parts, mixed messages that alternate between plain text & HTML without supplying both types for every body part, `multipart/related` messages with more than one part, `multipart/mixed` messages containing `multipart/alternative` parts that do not consist of a plain text body plus an HTML body, and other unusual things. Trying to simplify such messages will produce `SimplificationErrors`.

One category of messages can be simplified, but not without loss of information, and so they are not simplified by default: namely, `multipart/mixed` messages that alternate between bodies and attachments rather than placing all attachments at the end of the message. By default, trying to simplify such a message produces a `MixedContentError`; however, if the `unmix` argument to `decompose_simple()` or `Eletter.simplify()` is set to `True`, such messages will instead be simplified by separating the attachments from the bodies,

---

<sup>1</sup> An e-mail address without a display name can be represented as an `Address` object by setting the display name to the empty string: `Address("", "user@domain.nil")`.

which are then concatenated with no indication of where the attachments were located in the text.

---





## 2.1 The `compose()` Function

```
eletter.compose(*, to: Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]],  
                from_: Optional[Union[str, email.headerregistry.Address, email.headerregistry.Group,  
                Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]]]  
                = None, subject: Optional[str] = None, text: Optional[str] = None, html: Op-  
                tional[str] = None, cc: Optional[Iterable[Union[str, email.headerregistry.Address,  
                email.headerregistry.Group]]] = None, bcc: Optional[Iterable[Union[str,  
                email.headerregistry.Address, email.headerregistry.Group]]] = None, reply_to:  
                Optional[Union[str, email.headerregistry.Address, email.headerregistry.Group, It-  
                erable[Union[str, email.headerregistry.Address, email.headerregistry.Group]]]  
                = None, sender: Optional[Union[str, email.headerregistry.Address]] = None, date:  
                Optional[datetime.datetime] = None, headers: Optional[Mapping[str, Union[str,  
                Iterable[str]]]] = None, attachments: Optional[Iterable[eletter.classes.Attachment]] =  
                None) → email.message.EmailMessage
```

Construct an `EmailMessage` instance from a subject, *From* address, *To* addresses, and a plain text and/or HTML body, optionally accompanied by attachments and other headers.

All parameters other than `to` and at least one of `text` and `html` are optional.

Changed in version 0.2.0: `from_` and `reply_to` may now be passed lists of addresses.

Changed in version 0.4.0: `from_` may now be `None` or omitted.

Changed in version 0.4.0: All arguments are now keyword-only.

Changed in version 0.5.0: `subject` may now be `None` or omitted.

### Parameters

- **subject** (*str*) – The e-mail’s *Subject* line
- **to** (*iterable of addresses*) – The e-mail’s *To* line
- **from\_** (*address or iterable of addresses*) – The e-mail’s *From* line. Note that this argument is spelled with an underscore, as “from” is a keyword in Python.
- **text** (*str*) – The contents of a *text/plain* body for the e-mail. At least one of `text` and `html` must be specified.
- **html** (*str*) – The contents of a *text/html* body for the e-mail. At least one of `text` and `html` must be specified.
- **cc** (*iterable of addresses*) – The e-mail’s *CC* line
- **bcc** (*iterable of addresses*) – The e-mail’s *BCC* line

- **reply\_to** (*address or iterable of addresses*) – The e-mail’s *Reply-To* line
- **sender** (*address*) – The e-mail’s *Sender* line. The address must be a string or *Address*, not a *Group*.
- **date** (*datetime*) – The e-mail’s *Date* line
- **attachments** (*iterable of attachments*) – A collection of *attachments* to append to the e-mail
- **headers** (*mapping*) – A collection of additional headers to add to the e-mail. A header value may be either a single string or an iterable of strings to add multiple headers with the same name. If you wish to set an otherwise-unsupported address header like *Resent-From* to a list of addresses, use the *format\_addresses()* function to first convert the addresses to a string.

**Return type** `email.message.EmailMessage`

**Raises** `ValueError` – if neither `text` nor `html` is set

## 2.2 Addresses

Addresses in `eletter` can be specified in three ways:

- As an `"address@domain.com"` string giving just a bare e-mail address
- As an `eletter.Address("Display Name", "address@domain.com")` instance pairing a person’s name with an e-mail address
- As an `eletter.Group("Group Name", iterable_of_addresses)` instance specifying a group of addresses (strings or `Address` instances)

---

**Note:** `eletter.Address` and `eletter.Group` are actually just subclasses of `Address` and `Group` from `email.headerregistry` with slightly more convenient constructors. You can also use the standard library types directly, if you want to.

---

```
class eletter.Address (display_name: str, address: str)
    A combination of a person’s name and their e-mail address
```

```
class eletter.Group (display_name: str, addresses: Iterable[Union[str,
                    email.headerregistry.Address]])
    New in version 0.2.0.
    An e-mail address group
```

## 2.3 MailItem Classes

```
class eletter.MailItem
    New in version 0.3.0.
    Base class for all eletter message components
```

```
compose (*, to: Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]],
          from_: Optional[Union[str, email.headerregistry.Address, email.headerregistry.Group, Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]]] = None,
          subject: Optional[str] = None, cc: Optional[Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]]] = None,
          bcc: Optional[Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]]] = None,
          reply_to: Optional[Union[str, email.headerregistry.Address, email.headerregistry.Group, Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]]] = None,
          sender: Optional[Union[str, email.headerregistry.Address]] = None,
          date: Optional[datetime.datetime] = None,
          headers: Optional[Mapping[str, Union[str, Iterable[str]]]] = None) → email.message.EmailMessage
```

Convert the `MailItem` into an `EmailMessage` with the item's contents as the payload and with the given subject, `From` address, `To` addresses, and optional other headers.

All parameters other than `to` are optional.

Changed in version 0.4.0: `from_` may now be `None` or omitted.

Changed in version 0.4.0: All arguments are now keyword-only.

Changed in version 0.5.0: `subject` may now be `None` or omitted.

#### Parameters

- **subject** (*str*) – The e-mail's *Subject* line
- **to** (*iterable of addresses*) – The e-mail's *To* line
- **from\_** (*address or iterable of addresses*) – The e-mail's *From* line. Note that this argument is spelled with an underscore, as “from” is a keyword in Python.
- **cc** (*iterable of addresses*) – The e-mail's *CC* line
- **bcc** (*iterable of addresses*) – The e-mail's *BCC* line
- **reply\_to** (*address or iterable of addresses*) – The e-mail's *Reply-To* line
- **sender** (*address*) – The e-mail's *Sender* line. The address must be a string or *Address*, not a *Group*.
- **date** (*datetime*) – The e-mail's *Date* line
- **headers** (*mapping*) – A collection of additional headers to add to the e-mail. A header value may be either a single string or an iterable of strings to add multiple headers with the same name. If you wish to set an otherwise-unsupported address header like *Resent-From* to a list of addresses, use the `format_addresses()` function to first convert the addresses to a string.

**Return type** `email.message.EmailMessage`

### 2.3.1 Attachments

**class** eletter.**Attachment**

Base class for the attachment classes

**class** eletter.**BytesAttachment** (*content: bytes, filename: Optional[str], \*, content\_id: Optional[str] = None, content\_type: str = NOTHING, inline: bool = False*)

A binary e-mail attachment. *content\_type* defaults to "application/octet-stream".

**content:** **bytes**

The body of the attachment

**content\_id:** **Optional[str]**

New in version 0.3.0.

*Content-ID* header value for the item

**content\_type:** **str**

The *Content-Type* of the attachment

**filename:** **Optional[str]**

The filename of the attachment

Changed in version 0.5.0: filename can now be *None*.

**classmethod** **from\_file** (*path: Union[bytes, str, os.PathLike[bytes], os.PathLike[str]], content\_type: Optional[str] = None, inline: bool = False, content\_id: Optional[str] = None*) → *BytesAttachment*

New in version 0.2.0.

Construct a *BytesAttachment* from the contents of the file at *path*. The filename of the attachment will be set to the basename of *path*. If *content\_type* is *None*, the *Content-Type* is guessed based on *path*'s file extension.

Changed in version 0.3.0: *inline* and *content\_id* arguments added

**inline:** **bool**

Whether the attachment should be displayed inline in clients

**class** eletter.**EmailAttachment** (*content: email.message.EmailMessage, filename: Optional[str], \*, content\_id: Optional[str] = None, inline: bool = False*)

New in version 0.2.0.

A *message/rfc822* e-mail attachment

**content:** **email.message.EmailMessage**

The body of the attachment

**content\_id:** **Optional[str]**

New in version 0.3.0.

*Content-ID* header value for the item

**filename:** **Optional[str]**

The filename of the attachment

Changed in version 0.5.0: filename can now be *None*.

**classmethod** **from\_file** (*path: Union[bytes, str, os.PathLike[bytes], os.PathLike[str]], inline: bool = False, content\_id: Optional[str] = None*) → *EmailAttachment*

Construct an *EmailAttachment* from the contents of the file at *path*. The filename of the attachment will be set to the basename of *path*.

**inline:** `bool`

Whether the attachment should be displayed inline in clients

**class** `eletter.TextAttachment` (*content: str, filename: Optional[str], \*, content\_id: Optional[str] = None, content\_type: str = NOTHING, inline: bool = False*)

A textual e-mail attachment. `content_type` defaults to "text/plain" and must have a maintype of `text`.

**content:** `str`

The body of the attachment

**content\_id:** `Optional[str]`

New in version 0.3.0.

*Content-ID* header value for the item

**content\_type:** `str`

The *Content-Type* of the attachment

**filename:** `Optional[str]`

The filename of the attachment

Changed in version 0.5.0: `filename` can now be `None`.

**classmethod** `from_file` (*path: Union[bytes, str, os.PathLike[bytes], os.PathLike[str]], content\_type: Optional[str] = None, encoding: Optional[str] = None, errors: Optional[str] = None, inline: bool = False, content\_id: Optional[str] = None*) → *TextAttachment*

New in version 0.2.0.

Construct a *TextAttachment* from the contents of the file at `path`. The filename of the attachment will be set to the basename of `path`. If `content_type` is `None`, the *Content-Type* is guessed based on `path`'s file extension. `encoding` and `errors` are used when opening the file and have no relation to the *Content-Type*.

Changed in version 0.3.0: `inline` and `content_id` arguments added

**inline:** `bool`

Whether the attachment should be displayed inline in clients

## 2.3.2 Body Classes

**class** `eletter.HTMLBody` (*content: str, \*, content\_id: Optional[str] = None*)

New in version 0.3.0.

A *text/html* e-mail body

**content:** `str`

The HTML source of the body

**content\_id:** `Optional[str]`

New in version 0.3.0.

*Content-ID* header value for the item

**class** `eletter.TextBody` (*content: str, \*, content\_id: Optional[str] = None*)

New in version 0.3.0.

A *text/plain* e-mail body

**content:** `str`

The plain text body

**content\_id:** `Optional[str]`

New in version 0.3.0.

*Content-ID* header value for the item

### 2.3.3 Multipart Classes

**class** `eletter.Multipart`

New in version 0.3.0.

Base class for all multipart classes. All such classes are mutable sequences of *MailItems* supporting the usual methods (construction from an iterable, `subscription`, `append()`, `pop()`, etc.).

**class** `eletter.Alternative` (*content=NOTHING*, \*, *content\_id: Optional[str] = None*)

New in version 0.3.0.

A *multipart/alternative* e-mail payload. E-mails clients will display the resulting payload by choosing whichever part they support best.

An *Alternative* instance can be created by combining two or more *MailItems* with the `|` operator:

```
text = TextBody("This is displayed on plain text clients.\n")
html = HTMLBody("<p>This is displayed on graphical clients.<p>\n")

alternative = text | html
```

Likewise, additional *MailItems* can be added to an *Alternative* instance with the `|=` operator:

```
# Same as above:
alternative = Alternative()
alternative |= TextBody("This is displayed on plain text clients.\n")
alternative |= HTMLBody("<p>This is displayed on graphical clients.<p>\n")
```

Using `|` to combine a *MailItem* with a *str* automatically converts the *str* to a *TextBody*:

```
# Same as above:

text = "This is displayed on plain text clients.\n"
html = HTMLBody("<p>This is displayed on graphical clients.<p>\n")

alternative = text | html

assert alternative.contents == [
    TextBody("This is displayed on plain text clients.\n"),
    HTMLBody("<p>This is displayed on graphical clients.<p>\n"),
]
```

When combining two *Alternative* instances with `|` or `|=`, the contents are “flattened”:

```
# Same as above:
txtalt = Alternative([
    TextBody("This is displayed on plain text clients.\n")
])
htmlalt = Alternative([
    HTMLBody("<p>This is displayed on graphical clients.<p>\n")
])
alternative = txtalt | htmlalt
assert alternative.contents == [
```

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```

    TextBody("This is displayed on plain text clients.\n"),
    HTMLBody("<p>This is displayed on graphical clients.<p>\n"),
]

```

Changed in version 0.4.0: Using `|` to combine a *MailItem* with a *str* now automatically converts the *str* to a *TextBody*

**content:** `List[eletter.classes.MailItem]`  
The *MailItems* contained within the instance

**content\_id:** `Optional[str]`  
New in version 0.3.0.

*Content-ID* header value for the item

**class** `eletter.Mixed` (*content=NOTHING*, \*, *content\_id: Optional[str] = None*)  
New in version 0.3.0.

A *multipart/mixed* e-mail payload. E-mails clients will display the resulting payload one part after another, with attachments displayed inline if their *inline* attribute is set.

A *Mixed* instance can be created by combining two or more *MailItems* with the `&` operator:

```

text = TextBody("Look at the pretty kitty!\n")
image = BytesAttachment.from_file("snuffles.jpeg", inline=True)
sig = TextBody("Sincerely, Me\n")

mixed = text & image & sig

```

Likewise, additional *MailItems* can be added to a *Mixed* instance with the `&=` operator:

```

# Same as above:
mixed = Mixed()
mixed &= TextBody("Look at the pretty kitty!\n")
mixed &= BytesAttachment.from_file("snuffles.jpeg", inline=True)
mixed &= TextBody("Sincerely, Me\n")

```

Using `&` to combine a *MailItem* with a *str* automatically converts the *str* to a *TextBody*:

```

# Same as above:
image = BytesAttachment.from_file("snuffles.jpeg", inline=True)

mixed = "Look at the pretty kitty!\n" & image & "Sincerely, Me\n"

assert mixed.contents == [
    TextBody("Look at the pretty kitty!\n"),
    BytesAttachment.from_file("snuffles.jpeg", inline=True),
    TextBody("Sincerely, Me\n"),
]

```

When combining two *Mixed* instances with `&` or `&=`, the contents are “flattened”:

```

part1 = Mixed()
part1 &= TextBody("Look at the pretty kitty!\n")
part1 &= BytesAttachment.from_file("snuffles.jpeg", inline=True)

part2 = Mixed()
part2 &= TextBody("Now look at this dog.\n")

```

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```

part2 &= BytesAttachment.from_file("rags.jpeg", inline=True)
part2 &= TextBody("Which one is cuter?\n")

mixed = part1 & part2

assert mixed.contents == [
    TextBody("Look at the pretty kitty!\n"),
    BytesAttachment.from_file("snuffles.jpeg", inline=True),
    TextBody("Now look at this dog.\n"),
    BytesAttachment.from_file("rags.jpeg", inline=True),
    TextBody("Which one is cuter?\n"),
]

```

Changed in version 0.4.0: Using `&` to combine a *MailItem* with a `str` now automatically converts the `str` to a *TextBody*

**content:** `List[eletter.classes.MailItem]`

The *MailItems* contained within the instance

**content\_id:** `Optional[str]`

New in version 0.3.0.

*Content-ID* header value for the item

**class** `eletter.Related` (*content=NOTHING, start: Optional[str] = None, \*, content\_id: Optional[str] = None*)

New in version 0.3.0.

A *multipart/related* e-mail payload. E-mail clients will display the part indicated by the *start* parameter, or the first part if *start* is not set. This part may refer to other parts (e.g., images or CSS stylesheets) by their *Content-ID* headers, which can be generated using `email.utils.make_msgid`.

**Note:** *Content-ID* headers begin & end with angle brackets (`<...>`), which need to be stripped off before including the ID in the starting part.

A *Related* instance can be created by combining two or more *MailItems* with the `^` operator:

```

from email.utils import make_msgid

img_cid = make_msgid()

html = HTMLBody(
    "<p>Look at the pretty kitty!</p>"
    f''
    "<p>Isn't he <em>darling</em>?</p>"
)

image = BytesAttachment.from_file("snuffles.jpeg", content_id=img_cid)

related = html ^ image

```

Likewise, additional *MailItems* can be added to a *Related* instance with the `^=` operator:

```

# Same as above:

img_cid = make_msgid()

```

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```

related = Related()

related ^= HTMLBody(
    "<p>Look at the pretty kitty!</p>"
    f''
    "<p>Isn't he <em>darling</em>?</p>"
)

related ^= BytesAttachment.from_file("snuffles.jpeg", content_id=img_cid)

```

Using `^` to combine a *MailItem* with a *str* automatically converts the *str* to a *TextBody*, though this is generally not all that useful, as you'll usually want to create *Related* instances from *HTMLBodys* instead.

When combining two *Related* instances with `^` or `^=`, the contents are “flattened”:

```

# Same as above:

img_cid = make_msgid()

htmlrel = Related([
    HTMLBody(
        "<p>Look at the pretty kitty!</p>"
        f''
        "<p>Isn't he <em>darling</em>?</p>"
    )
])

imgrel = Related([
    BytesAttachment.from_file("snuffles.jpeg", content_id=img_cid)
])

related = htmlrel ^ imgrel

assert related.contents == [
    HTMLBody(
        "<p>Look at the pretty kitty!</p>"
        f''
        "<p>Isn't he <em>darling</em>?</p>"
    ),
    BytesAttachment.from_file("snuffles.jpeg", content_id=img_cid),
]

```

Changed in version 0.4.0: Using `^` to combine a *MailItem* with a *str* now automatically converts the *str* to a *TextBody*

**content:** **List** [**eletter.classes.MailItem**]

The *MailItems* contained within the instance

**content\_id:** **Optional** [**str**]

New in version 0.3.0.

*Content-ID* header value for the item

**get\_root** () → **eletter.classes.MailItem**

New in version 0.5.0.

Retrieves the root part, i.e., the part whose `content_id` equals `start`, or the first part if `start` is not set.

**Raises** `ValueError` – if the instance is empty or no part has a `content_id` equaling `start`

**start:** `Optional[str]`

The `Content-ID` of the part to display (defaults to the first part)

## 2.4 Decomposition

`eletter.decompose(msg: email.message.EmailMessage) → eletter.decompose.Eletter`

New in version 0.5.0.

Decompose an `EmailMessage` into an `Eletter` instance containing a `MailItem` and a collection of headers. Only structures that can be represented by `eletter` classes are supported.

All message parts that are not `text/plain`, `text/html`, `multipart/*`, or `message/*` are treated as attachments. Attachments without filenames or an explicit “attachment” `Content-Disposition` are treated as inline.

Any information specific to how the message is encoded is discarded (namely, “charset” parameters on `text/*` parts, `Content-Transfer-Encoding` headers, and `MIME-Version` headers).

Headers on message sub-parts that do not have representations on `MailItems` are discarded (namely, everything other than `Content-Type`, `Content-Disposition`, and `Content-ID`).

### Raises

- `TypeError` – if any sub-part of `msg` is not an `EmailMessage` instance
- `DecompositionError` – if `msg` contains a part with an unrepresentable `Content-Type`

`eletter.decompose_simple(msg: email.message.EmailMessage, unmix: bool = False) → eletter.decompose.SimpleEletter`

New in version 0.5.0.

Decompose an `EmailMessage` into a `SimpleEletter` instance consisting of a text body and/or HTML body, some number of attachments, and a collection of headers. The `EmailMessage` is first decomposed with `decompose()` and then simplified by calling `Eletter.simplify()`.

By default, a `multipart/mixed` message can only be simplified if all of the attachments come after all of the message bodies; set `unmix` to `True` to separate the attachments from the bodies regardless of what order they come in.

### Raises

- `TypeError` – if any sub-part of `msg` is not an `EmailMessage` instance
- `DecompositionError` – if `msg` contains a part with an unrepresentable `Content-Type`
- `SimplificationError` – if `msg` cannot be simplified

**class** `eletter.Eletter`

New in version 0.5.0.

A decomposed e-mail message

**content:** `eletter.classes.MailItem`

The message’s body

**subject:** `Optional[str]`

The message’s subject line, if any

**from\_:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *From* addresses

**to:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *To* addresses

**cc:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *CC* addresses

**bcc:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *BCC* addresses

**reply\_to:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *Reply-To* addresses

**sender:** `Optional[email.headerregistry.Address]`  
 The message's *Sender* address, if any

**date:** `Optional[datetime.datetime]`  
 The message's *Date* header, if set

**headers:** `Dict[str, List[str]]`  
 Any additional headers on the message. The header names are lowercase.

**compose** () → `email.message.EmailMessage`  
 Convert the *Eletter* back into an *EmailMessage*

**simplify** (*unmix*: `bool = False`) → `eletter.decompose.SimpleEletter`  
 Simplify the *Eletter* into a *SimpleEletter*, breaking down *Eletter.content* into a text body, HTML body, and a list of attachments.

By default, a *multipart/mixed* message can only be simplified if all of the attachments come after all of the message bodies; set *unmix* to `True` to separate the attachments from the bodies regardless of what order they come in.

Raises *SimplificationError* – if `msg` cannot be simplified

**class** `eletter.SimpleEletter`

New in version 0.5.0.

A decomposed simple e-mail message, consisting of a text body and/or HTML body plus some number of attachments and headers

**text:** `Optional[str]`  
 The message's text body, if any

**html:** `Optional[str]`  
 The message's HTML body, if any

**attachments:** `List[eletter.classes.Attachment]`  
 Attachments on the message

**subject:** `Optional[str]`  
 The message's subject line, if any

**from\_:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *From* addresses

**to:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *To* addresses

**cc:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *CC* addresses

**bcc:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *BCC* addresses

**reply\_to:** `List[Union[email.headerregistry.Address, email.headerregistry.Group]]`  
 The message's *Reply-To* addresses

**sender:** `Optional[email.headerregistry.Address]`  
 The message's *Sender* address, if any

**date:** `Optional[datetime.datetime]`  
 The message's *Date* header, if set

**headers:** `Dict[str, List[str]]`  
 Any additional headers on the message. The header names are lowercase.

**compose()** → `email.message.EmailMessage`  
 Convert the *SimpleEletter* back into an *EmailMessage*

## 2.5 Exceptions

**exception** `eletter.errors.Error`

Bases: `Exception`

New in version 0.5.0.

The superclass of all custom exceptions raised by eletter

**exception** `eletter.errors.DecompositionError`

Bases: `eletter.errors.Error`, `ValueError`

New in version 0.5.0.

Raised when eletter is asked to decompose an *EmailMessage* with an unrepresentable *Content-Type*

**exception** `eletter.errors.SimplificationError`

Bases: `eletter.errors.Error`, `ValueError`

New in version 0.5.0.

Raised when eletter is asked to simplify a message that cannot be simplified

**exception** `eletter.errors.MixedContentError`

Bases: `eletter.errors.SimplificationError`

New in version 0.5.0.

Subclass of *SimplificationError* raised when a *multipart/mixed* is encountered in which one or more attachments precede a message body part; such messages can be forced to be simplified by setting the *unmix* argument of *simplify()* or *decompose\_simple()* to `True`.

## 2.6 Utility Functions

`eletter.assemble_content_type` (*maintype: str, subtype: str, \*\*params: str*) → *str*

New in version 0.2.0.

Construct a *Content-Type* string from a maintype, subtype, and some number of parameters

**Raises `ValueError`** – if `f"{maintype}/{subtype}"` is an invalid *Content-Type*

`eletter.format_addresses` (*addresses: Iterable[Union[str, email.headerregistry.Address, email.headerregistry.Group]], encode: bool = False*) → *str*

Convert an iterable of e-mail address strings (of the form “foo@example.com”, without angle brackets or a display name), *Address* objects, and/or *Group* objects into a formatted string. If `encode` is `False` (the default), non-ASCII characters are left as-is. If it is `True`, non-ASCII display names are converted into **RFC 2047** encoded words, and non-ASCII domain names are encoded using Punycode.

`eletter.reply_quote` (*s: str, prefix: str = '> '*) → *str*

New in version 0.2.0.

**Quote** a text following the *de facto* standard for replying to an e-mail; that is, prefix each line of the text with `>`  (or a custom prefix), and if a line already starts with the prefix, omit any trailing whitespace from the newly-added prefix (so `> already quoted` becomes `>> already quoted`).

If the resulting string does not end with a newline, one is added. The empty string is treated as a single line.



## CHANGELOG

### 3.1 v0.5.0 (2021-03-27)

- Attachments' filenames can now be `None`
- Added a `decompose()` function for decomposing an `EmailMessage` into a `MailItem` plus headers
- Added a `decompose_simple()` function for decomposing an `EmailMessage` into a text body, HTML body, attachments, and headers
- The `subject` argument to the `compose()` function & method can now be `None`/omitted
- If an `address` argument to `compose()` is set to an empty list, the corresponding header will no longer be present in the resulting e-mail
- Gave `Related` a `get_root()` method

### 3.2 v0.4.0 (2021-03-13)

- Using `|`, `&`, or `^` on a `MailItem` and a `str` now automatically converts the `str` to a `TextBody`
- The `from_` argument to the `compose()` function & method can now be `None`/omitted
- `format_addresses()` has been moved to `mailbits` but is still re-exported from this library for the time being.
- **Breaking:** All arguments to the `compose()` function & method are now keyword-only

### 3.3 v0.3.0 (2021-03-11)

- Gave the `from_file()` classmethods `inline` and `content_id` arguments
- Gave all classes optional `content_id` attributes
- Added `TextBody`, `HTMLBody`, `Alternative`, `Mixed`, and `Related` classes for constructing complex e-mails

### 3.4 v0.2.0 (2021-03-09)

- Gave *BytesAttachment* and *FileAttachment* each a `from_file()` classmethod
- The `from_` and `reply_to` arguments to `compose()` may now be passed lists of addresses
- Support address groups
- Added `assemble_content_type()`, `format_addresses()`, and `reply_quote()` utility functions
- Added an *EmailAttachment* class

### 3.5 v0.1.0 (2021-03-09)

Initial release

eletter provides functionality for constructing & deconstructing `email.message.EmailMessage` instances without having to touch the needlessly complicated `EmailMessage` class itself. A simple function enables composition of e-mails with text and/or HTML bodies plus attachments, and classes are provided for composing more complex multipart e-mails.



## INSTALLATION

eletter requires Python 3.6 or higher. Just use `pip` for Python 3 (You have pip, right?) to install `eletter` and its dependencies:

```
python3 -m pip install eletter
```



## EXAMPLES

Constructing an e-mail with the `compose()` function:

```
import eletter

TEXT = (
    "Oh my beloved!\n"
    "\n"
    "Wilt thou dine with me on the morrow?\n"
    "\n"
    "We're having hot pockets.\n"
    "\n"
    "Love, Me\n"
)

HTML = (
    "<p>Oh my beloved!</p>\n"
    "<p>Wilt thou dine with me on the morrow?</p>\n"
    "<p>We're having <strong>hot pockets</strong>.<p>\n"
    "<p><em>Love</em>, Me</p>\n"
)

with open("hot-pocket.png", "rb") as fp:
    picture = eletter.BytesAttachment(
        content=fp.read(),
        filename="enticement.png",
        content_type="image/png",
    )

msg = eletter.compose(
    subject="Meet Me",
    from_="me@here.qq",
    to=[eletter.Address("My Dear", "my.beloved@love.love)],
    text=TEXT,
    html=HTML,
    attachments=[picture],
)
```

`msg` can then be sent like any other `EmailMessage`, say, by using `outgoing`.

For more complex e-mails, a set of classes is provided. Here is the equivalent of the HTML-with-image e-mail with alternative plain text version from the [email examples page](#) in the Python docs:

```
from email.utils import make_msgid
import eletter
```

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```
text = eletter.TextBody(
    "Salut!\n"
    "\n"
    "Cela ressemble à un excellent recipie[1] déjeuner.\n"
    "\n"
    "[1] http://www.yummly.com/recipe/Roasted-Asparagus-Epicurious-203718\n"
    "\n"
    "--Pepé\n"
)

asparagus_cid = make_msgid()

html = eletter.HTMLBody(
    "<html>\n"
    "  <head></head>\n"
    "  <body>\n"
    "    <p>Salut!</p>\n"
    "    <p>Cela ressemble à un excellent\n"
    "      <a href="http://www.yummly.com/recipe/Roasted-Asparagus-"
    'Epicurious-203718">\n'
    "        recipie\n"
    "      </a> déjeuner.\n"
    "    </p>\n"
    f'    \n'
    "  </body>\n"
    "</html>\n"
)

image = eletter.BytesAttachment.from_file(
    "roasted-asparagus.jpg",
    inline=True,
    content_id=asparagus_cid,
)

msg = (text | (html ^ image)).compose(
    subject="Ayons asperges pour le déjeuner",
    from_=eletter.Address("Pepé Le Pew", "pepe@example.com"),
    to=[
        eletter.Address("Penelope Pussycat", "penelope@example.com"),
        eletter.Address("Fabrette Pussycat", "fabrette@example.com"),
    ],
)
```

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