:mod:`email.headerregistry`: Custom Header Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 1); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 4)

Unknown directive type "module".

```
.. module:: email.headerregistry
   :synopsis: Automatic Parsing of headers based on the field name
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 7)

Unknown directive type "moduleauthor".

```
.. moduleauthor:: R. David Murray <rdmurray@bitdance.com>
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 8)

Unknown directive type "sectionauthor".

```
.. sectionauthor:: R. David Murray <rdmurray@bitdance.com>
```

Source code: :source:`Lib/email/headerregistry.py`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 10); *backlink*

Unknown interpreted text role "source".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 14)

Unknown directive type "versionadded".

```
.. versionadded:: 3.6 [1]_
```

Headers are represented by customized subclasses of :class:`str`. The particular class used to represent a given header is determined by the :attr:`~email.policy.EmailPolicy.header_factory` of the :mod:`~email.policy` in effect when the headers are created. This section documents the particular `header_factory` implemented by the email package for handling RFC 5322 compliant email messages, which not only provides customized header objects for various header types, but also provides an extension mechanism for applications to add their own custom header types.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 16); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 16); *backlink*

Unknown interpreted text role "attr".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 16); *backlink*

Unknown interpreted text role "mod".

When using any of the policy objects derived from :data:`~email.policy.EmailPolicy`, all headers are produced by :class:`.HeaderRegistry` and have :class:`.BaseHeader` as their last base class. Each header class has an additional base class that is determined by the type of the header. For example, many headers have the class :class:`.UnstructuredHeader` as their other base class. The specialized second class for a header is determined by the name of the header, using a lookup table stored in the :class:`.HeaderRegistry`. All of this is managed transparently for the typical application program, but interfaces are provided for modifying the default behavior for use by more complex applications.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 25); *backlink*

Unknown interpreted text role "data".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 25); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 25); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 25); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 25); *backlink*

Unknown interpreted text role "class".

The sections below first document the header base classes and their attributes, followed by the API for modifying the behavior of :class:`.HeaderRegistry`, and finally the support classes used to represent the data parsed from structured headers.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 36); *backlink*

Unknown interpreted text role "class".

name and *value* are passed to `BaseHeader` from the :attr:`~email.policy.EmailPolicy.header_factory` call. The string value of any header object is the *value* fully decoded to unicode.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 44); *backlink*

Unknown interpreted text role "attr".

This base class defines the following read-only properties:

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst`, line 51)

Unknown directive type "attribute".

```
.. attribute:: name

   The name of the header (the portion of the field before the ':').  This
   is exactly the value passed in the
   :attr:`~email.policy.EmailPolicy.header_factory` call for *name*; that
   is, case is preserved.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 59)

Unknown directive type "attribute".

```
.. attribute:: defects

   A tuple of :exc:`~email.errors.HeaderDefect` instances reporting any
   RFC compliance problems found during parsing.  The email package tries to
   be complete about detecting compliance issues.  See the :mod:`~email.errors`
   module for a discussion of the types of defects that may be reported.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 67)

Unknown directive type "attribute".

```
.. attribute:: max_count

   The maximum number of headers of this type that can have the same
   ``name``.  A value of ``None`` means unlimited.  The ``BaseHeader`` value
   for this attribute is ``None``; it is expected that specialized header
   classes will override this value as needed.
```

`BaseHeader` also provides the following method, which is called by the email library code and should not in general be called by application programs:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 78)

Unknown directive type "method".

```
.. method:: fold(*, policy)

   Return a string containing :attr:`~email.policy.Policy.linesep`
   characters as required to correctly fold the header according to
   *policy*.  A :attr:`~email.policy.Policy.cte_type` of ``8bit`` will be
   treated as if it were ``7bit``, since headers may not contain arbitrary
   binary data.  If :attr:`~email.policy.EmailPolicy.utf8` is ``False``,
   non-ASCII data will be :rfc:`2047` encoded.
```

`BaseHeader` by itself cannot be used to create a header object. It defines a protocol that each specialized header cooperates with in order to produce the header object. Specifically, `BaseHeader` requires that the specialized class provide a :func:`classmethod` named `parse`. This method is called as follows:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 88); *backlink*

Unknown interpreted text role "func".

```
parse(string, kwds)
```

`kwds` is a dictionary containing one pre-initialized key, `defects`. `defects` is an empty list. The parse method should append any detected defects to this list. On return, the `kwds` dictionary *must* contain values for at least the keys `decoded` and `defects`. `decoded` should be the string value for the header (that is, the header value fully decoded to unicode). The parse method should assume that *string* may contain content-transfer-encoded parts, but should correctly handle all valid unicode characters as well so that it can parse un-encoded header values.

`BaseHeader`'s `__new__` then creates the header instance, and calls its `init` method. The specialized class only needs to provide an `init` method if it wishes to set additional attributes beyond those provided by `BaseHeader` itself. Such an `init` method should look like this:

```
def init(self, /, *args, **kw):
    self._myattr = kw.pop('myattr')
    super().init(*args, **kw)
```

That is, anything extra that the specialized class puts in to the `kwds` dictionary should be removed and handled, and the remaining contents of `kw` (and `args`) passed to the `BaseHeader` `init` method.

An "unstructured" header is the default type of header in RFC 5322. Any header that does not have a specified syntax is treated as

unstructured. The classic example of an unstructured header is the :mailheader:`Subject` header.

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 121); *backlink***
>
> Unknown interpreted text role "mailheader".

In RFC 5322, an unstructured header is a run of arbitrary text in the ASCII character set. RFC 2047, however, has an RFC 5322 compatible mechanism for encoding non-ASCII text as ASCII characters within a header value. When a *value* containing encoded words is passed to the constructor, the `UnstructuredHeader` parser converts such encoded words into unicode, following the RFC 2047 rules for unstructured text. The parser uses heuristics to attempt to decode certain non-compliant encoded words. Defects are registered in such cases, as well as defects for issues such as invalid characters within the encoded words or the non-encoded text.

This header type provides no additional attributes.

RFC 5322 specifies a very specific format for dates within email headers. The `DateHeader` parser recognizes that date format, as well as recognizing a number of variant forms that are sometimes found "in the wild".

This header type provides the following additional attributes:

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 148)**
>
> Unknown directive type "attribute".
>
> ```
> .. attribute:: datetime
>
>    If the header value can be recognized as a valid date of one form or
>    another, this attribute will contain a :class:`~datetime.datetime`
>    instance representing that date.  If the timezone of the input date is
>    specified as ``-0000`` (indicating it is in UTC but contains no
>    information about the source timezone), then :attr:`.datetime` will be a
>    naive :class:`~datetime.datetime`.  If a specific timezone offset is
>    found (including `+0000`), then :attr:`.datetime` will contain an aware
>    ``datetime`` that uses :class:`datetime.timezone` to record the timezone
>    offset.
> ```

The `decoded` value of the header is determined by formatting the `datetime` according to the RFC 5322 rules; that is, it is set to:

```
email.utils.format_datetime(self.datetime)
```

When creating a `DateHeader`, *value* may be :class:`~datetime.datetime` instance. This means, for example, that the following code is valid and does what one would expect:

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 165); *backlink***
>
> Unknown interpreted text role "class".

```
msg['Date'] = datetime(2011, 7, 15, 21)
```

Because this is a naive `datetime` it will be interpreted as a UTC timestamp, and the resulting value will have a timezone of `-0000`. Much more useful is to use the :func:`~email.utils.localtime` function from the :mod:`~email.utils` module:

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 171); *backlink***
>
> Unknown interpreted text role "func".

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 171); *backlink***
>
> Unknown interpreted text role "mod".

```
msg['Date'] = utils.localtime()
```

This example sets the date header to the current time and date using the current timezone offset.

Address headers are one of the most complex structured header types. The `AddressHeader` class provides a generic interface to any address header.

This header type provides the following additional attributes:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 191)

Unknown directive type "attribute".

```
.. attribute:: groups

   A tuple of :class:`.Group` objects encoding the
   addresses and groups found in the header value.  Addresses that are
   not part of a group are represented in this list as single-address
   ``Groups`` whose :attr:`~.Group.display_name` is ``None``.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 199)

Unknown directive type "attribute".

```
.. attribute:: addresses

   A tuple of :class:`.Address` objects encoding all
   of the individual addresses from the header value.  If the header value
   contains any groups, the individual addresses from the group are included
   in the list at the point where the group occurs in the value (that is,
   the list of addresses is "flattened" into a one dimensional list).
```

The `decoded` value of the header will have all encoded words decoded to unicode. :class:`~encodings.idna` encoded domain names are also decoded to unicode. The `decoded` value is set by :attr:`~str.join`ing the :class:`str` value of the elements of the `groups` attribute with `', '`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 207); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 207); *backlink*

Unknown interpreted text role "attr".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 207); *backlink*

Unknown interpreted text role "class".

A list of :class:`.Address` and :class:`.Group` objects in any combination may be used to set the value of an address header. `Group` objects whose `display_name` is `None` will be interpreted as single addresses, which allows an address list to be copied with groups intact by using the list obtained from the `groups` attribute of the source header.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 213); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 213); *backlink*

Unknown interpreted text role "class".

A subclass of :class:`.AddressHeader` that adds one additional attribute:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 222); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 226)

Unknown directive type "attribute".

```
.. attribute:: address

   The single address encoded by the header value.  If the header value
   actually contains more than one address (which would be a violation of
   the RFC under the default :mod:`~email.policy`), accessing this attribute
   will result in a :exc:`ValueError`.
```

Many of the above classes also have a `Unique` variant (for example, `UniqueUnstructuredHeader`). The only difference is that in the `Unique` variant, :attr:`~.BaseHeader.max_count` is set to 1.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 234); *backlink*

Unknown interpreted text role "attr".

There is really only one valid value for the :mailheader:`MIME-Version` header, and that is `1.0`. For future proofing, this header class supports other valid version numbers. If a version number has a valid value per RFC 2045, then the header object will have non-`None` values for the following attributes:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 241); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 247)

Unknown directive type "attribute".

```
.. attribute:: version

   The version number as a string, with any whitespace and/or comments
   removed.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 252)

Unknown directive type "attribute".

```
.. attribute:: major

   The major version number as an integer
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 256)

Unknown directive type "attribute".

```
.. attribute:: minor

   The minor version number as an integer
```

MIME headers all start with the prefix 'Content-'. Each specific header has a certain value, described under the class for that header. Some can also take a list of supplemental parameters, which have a common format. This class serves as a base for all the MIME headers that take parameters.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 268)

Unknown directive type "attribute".

```
.. attribute:: params
```

```
   A dictionary mapping parameter names to parameter values.
```

A :class:`ParameterizedMIMEHeader` class that handles the :mailheader:`Content-Type` header.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 275); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 275); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 278)

Unknown directive type "attribute".

```
.. attribute:: content_type

   The content type string, in the form ``maintype/subtype``.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 282)

Unknown directive type "attribute".

```
.. attribute:: maintype
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 284)

Unknown directive type "attribute".

```
.. attribute:: subtype
```

A :class:`ParameterizedMIMEHeader` class that handles the :mailheader:`Content-Disposition` header.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 289); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 289); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 292)

Unknown directive type "attribute".

```
.. attribute:: content_disposition

   ``inline`` and ``attachment`` are the only valid values in common use.
```

Handles the :mailheader:`Content-Transfer-Encoding` header.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 299); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 301)

Unknown directive type "attribute".

```
.. attribute:: cte

   Valid values are ``7bit``, ``8bit``, ``base64``, and
   ``quoted-printable``.  See :rfc:`2045` for more information.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 308)

Invalid class attribute value for "class" directive: "HeaderRegistry(base_class=BaseHeader, \ default_class=UnstructuredHeader, \ use_default_map=True)".

```
.. class:: HeaderRegistry(base_class=BaseHeader, \
                          default_class=UnstructuredHeader, \
                          use_default_map=True)

    This is the factory used by :class:`~email.policy.EmailPolicy` by default.
    ``HeaderRegistry`` builds the class used to create a header instance
    dynamically, using *base_class* and a specialized class retrieved from a
    registry that it holds.  When a given header name does not appear in the
    registry, the class specified by *default_class* is used as the specialized
    class.  When *use_default_map* is ``True`` (the default), the standard
    mapping of header names to classes is copied in to the registry during
    initialization.  *base_class* is always the last class in the generated
    class's ``__bases__`` list.

    The default mappings are:

      :subject:                   UniqueUnstructuredHeader
      :date:                      UniqueDateHeader
      :resent-date:               DateHeader
      :orig-date:                 UniqueDateHeader
      :sender:                    UniqueSingleAddressHeader
      :resent-sender:             SingleAddressHeader
      :to:                        UniqueAddressHeader
      :resent-to:                 AddressHeader
      :cc:                        UniqueAddressHeader
      :resent-cc:                 AddressHeader
      :bcc:                       UniqueAddressHeader
      :resent-bcc:                AddressHeader
      :from:                      UniqueAddressHeader
      :resent-from:               AddressHeader
      :reply-to:                  UniqueAddressHeader
      :mime-version:              MIMEVersionHeader
      :content-type:              ContentTypeHeader
      :content-disposition:       ContentDispositionHeader
      :content-transfer-encoding: ContentTransferEncodingHeader
      :message-id:                MessageIDHeader

    ``HeaderRegistry`` has the following methods:


    .. method:: map_to_type(self, name, cls)

       *name* is the name of the header to be mapped.  It will be converted to
       lower case in the registry.  *cls* is the specialized class to be used,
       along with *base_class*, to create the class used to instantiate headers
       that match *name*.


    .. method:: __getitem__(name)

       Construct and return a class to handle creating a *name* header.


    .. method:: __call__(name, value)

       Retrieves the specialized header associated with *name* from the
       registry (using *default_class* if *name* does not appear in the
       registry) and composes it with *base_class* to produce a class,
       calls the constructed class's constructor, passing it the same
       argument list, and finally returns the class instance created thereby.
```

The following classes are the classes used to represent data parsed from structured headers and can, in general, be used by an application program to construct structured values to assign to specific headers.

The class used to represent an email address. The general form of an address is:

```
[display_name] <username@domain>
```

or:

```
username@domain
```

where each part must conform to specific syntax rules spelled out in RFC 5322.

As a convenience *addr_spec* can be specified instead of *username* and *domain*, in which case *username* and *domain* will be parsed from the *addr_spec*. An *addr_spec* must be a properly RFC quoted string; if it is not `Address` will raise an error. Unicode characters are allowed and will be property encoded when serialized. However, per the RFCs, unicode is *not* allowed in the username portion of the address.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 396)

Unknown directive type "attribute".

```
.. attribute:: display_name

   The display name portion of the address, if any, with all quoting
   removed.  If the address does not have a display name, this attribute
   will be an empty string.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 402)

Unknown directive type "attribute".

```
.. attribute:: username

   The ``username`` portion of the address, with all quoting removed.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 406)

Unknown directive type "attribute".

```
.. attribute:: domain

   The ``domain`` portion of the address.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 410)

Unknown directive type "attribute".

```
.. attribute:: addr_spec

   The ``username@domain`` portion of the address, correctly quoted
   for use as a bare address (the second form shown above).  This
   attribute is not mutable.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 416)

Unknown directive type "method".

```
.. method:: __str__()

   The ``str`` value of the object is the address quoted according to
   :rfc:`5322` rules, but with no Content Transfer Encoding of any non-ASCII
   characters.
```

To support SMTP (RFC 5321), `Address` handles one special case: if `username` and `domain` are both the empty string (or `None`),

then the string value of the `Address` is <>.

The class used to represent an address group. The general form of an address group is:

```
display_name: [address-list];
```

As a convenience for processing lists of addresses that consist of a mixture of groups and single addresses, a `Group` may also be used to represent single addresses that are not part of a group by setting *display_name* to `None` and providing a list of the single address as *addresses*.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 439)

Unknown directive type "attribute".

```
.. attribute:: display_name

   The ``display_name`` of the group.  If it is ``None`` and there is
   exactly one ``Address`` in ``addresses``, then the ``Group`` represents a
   single address that is not in a group.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 445)

Unknown directive type "attribute".

```
.. attribute:: addresses

   A possibly empty tuple of :class:`.Address` objects representing the
   addresses in the group.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 450)

Unknown directive type "method".

```
.. method:: __str__()

   The ``str`` value of a ``Group`` is formatted according to :rfc:`5322`,
   but with no Content Transfer Encoding of any non-ASCII characters.  If
   ``display_name`` is none and there is a single ``Address`` in the
   ``addresses`` list, the ``str`` value will be the same as the ``str`` of
   that single ``Address``.
```

Footnotes

[1] Originally added in 3.3 as a :term:`provisional module <provisional package>`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]email.headerregistry.rst, line 461); *backlink*

Unknown interpreted text role "term".