:mod:`urllib.request` --- Extensible library for opening URLs

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.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)urllib.request.rst, line 4)

Unknown directive type "module".

```
.. module:: urllib.request
   :synopsis: Extensible library for opening URLs.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 7)

Unknown directive type "moduleauthor".

```
.. moduleauthor:: Jeremy Hylton <jeremy@alum.mit.edu>
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 8)

Unknown directive type "sectionauthor".

```
.. sectionauthor:: Moshe Zadka <moshez@users.sourceforge.net>
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 9)

Unknown directive type "sectionauthor".

```
.. sectionauthor:: Senthil Kumaran <senthil@uthcode.com>
```

Source code: :source:`Lib/urllib/request.py`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 11); *backlink*

Unknown interpreted text role "source".

The :mod:`urllib.request` module defines functions and classes which help in opening URLs (mostly HTTP) in a complex world --- basic and digest authentication, redirections, cookies and more.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 15); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 19)

Unknown directive type "seealso".

```
.. seealso::

    The `Requests package <https://requests.readthedocs.io/en/master/>`_
    is recommended for a higher-level HTTP client interface.
```

The :mod:`urllib.request` module defines the following functions:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 25); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 28)

Unknown directive type "function".

```
.. function:: urlopen(url, data=None[, timeout], *, cafile=None, capath=None, cadefault=False, context=

   Open the URL *url*, which can be either a string or a
   :class:`Request` object.

   *data* must be an object specifying additional data to be sent to the
   server, or ``None`` if no such data is needed.  See :class:`Request`
   for details.

   urllib.request module uses HTTP/1.1 and includes ``Connection:close`` header
   in its HTTP requests.

   The optional *timeout* parameter specifies a timeout in seconds for
   blocking operations like the connection attempt (if not specified,
   the global default timeout setting will be used).  This actually
   only works for HTTP, HTTPS and FTP connections.

   If *context* is specified, it must be a :class:`ssl.SSLContext` instance
   describing the various SSL options. See :class:`~http.client.HTTPSConnection`
   for more details.

   The optional *cafile* and *capath* parameters specify a set of trusted
   CA certificates for HTTPS requests.  *cafile* should point to a single
   file containing a bundle of CA certificates, whereas *capath* should
   point to a directory of hashed certificate files.  More information can
   be found in :meth:`ssl.SSLContext.load_verify_locations`.

   The *cadefault* parameter is ignored.

   This function always returns an object which can work as a
   :term:`context manager` and has the properties *url*, *headers*, and *status*.
   See :class:`urllib.response.addinfourl` for more detail on these properties.

   For HTTP and HTTPS URLs, this function returns a
   :class:`http.client.HTTPResponse` object slightly modified. In addition
   to the three new methods above, the msg attribute contains the
   same information as the :attr:`~http.client.HTTPResponse.reason`
   attribute --- the reason phrase returned by server --- instead of
   the response headers as it is specified in the documentation for
   :class:`~http.client.HTTPResponse`.

   For FTP, file, and data URLs and requests explicitly handled by legacy
   :class:`URLopener` and :class:`FancyURLopener` classes, this function
   returns a :class:`urllib.response.addinfourl` object.

   Raises :exc:`~urllib.error.URLError` on protocol errors.

   Note that ``None`` may be returned if no handler handles the request (though
   the default installed global :class:`OpenerDirector` uses
   :class:`UnknownHandler` to ensure this never happens).

   In addition, if proxy settings are detected (for example, when a ``*_proxy``
   environment variable like :envvar:`http_proxy` is set),
   :class:`ProxyHandler` is default installed and makes sure the requests are
   handled through the proxy.

   The legacy ``urllib.urlopen`` function from Python 2.6 and earlier has been
   discontinued; :func:`urllib.request.urlopen` corresponds to the old
   ``urllib2.urlopen``.  Proxy handling, which was done by passing a dictionary
   parameter to ``urllib.urlopen``, can be obtained by using
   :class:`ProxyHandler` objects.

   .. audit-event:: urllib.Request fullurl,data,headers,method urllib.request.urlopen

      The default opener raises an :ref:`auditing event <auditing>`
      ``urllib.Request`` with arguments ``fullurl``, ``data``, ``headers``,
      ``method`` taken from the request object.

   .. versionchanged:: 3.2
      *cafile* and *capath* were added.

   .. versionchanged:: 3.2
      HTTPS virtual hosts are now supported if possible (that is, if
      :data:`ssl.HAS_SNI` is true).

   .. versionadded:: 3.2
      *data* can be an iterable object.

   .. versionchanged:: 3.3
      *cadefault* was added.

   .. versionchanged:: 3.4.3
      *context* was added.
```

```
   .. versionchanged:: 3.10
      HTTPS connection now send an ALPN extension with protocol indicator
      ``http/1.1`` when no *context* is given. Custom *context* should set
      ALPN protocols with :meth:`~ssl.SSLContext.set_alpn_protocol`.

   .. deprecated:: 3.6

       *cafile*, *capath* and *cadefault* are deprecated in favor of *context*.
       Please use :meth:`ssl.SSLContext.load_cert_chain` instead, or let
       :func:`ssl.create_default_context` select the system's trusted CA
       certificates for you.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 125)

Unknown directive type "function".

```
.. function:: install_opener(opener)

   Install an :class:`OpenerDirector` instance as the default global opener.
   Installing an opener is only necessary if you want urlopen to use that
   opener; otherwise, simply call :meth:`OpenerDirector.open` instead of
   :func:`~urllib.request.urlopen`.  The code does not check for a real
   :class:`OpenerDirector`, and any class with the appropriate interface will
   work.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 135)

Unknown directive type "function".

```
.. function:: build_opener([handler, ...])

   Return an :class:`OpenerDirector` instance, which chains the handlers in the
   order given. *handler*\s can be either instances of :class:`BaseHandler`, or
   subclasses of :class:`BaseHandler` (in which case it must be possible to call
   the constructor without any parameters).  Instances of the following classes
   will be in front of the *handler*\s, unless the *handler*\s contain them,
   instances of them or subclasses of them: :class:`ProxyHandler` (if proxy
   settings are detected), :class:`UnknownHandler`, :class:`HTTPHandler`,
   :class:`HTTPDefaultErrorHandler`, :class:`HTTPRedirectHandler`,
   :class:`FTPHandler`, :class:`FileHandler`, :class:`HTTPErrorProcessor`.

   If the Python installation has SSL support (i.e., if the :mod:`ssl` module
   can be imported), :class:`HTTPSHandler` will also be added.

   A :class:`BaseHandler` subclass may also change its :attr:`handler_order`
   attribute to modify its position in the handlers list.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 154)

Unknown directive type "function".

```
.. function:: pathname2url(path)

   Convert the pathname *path* from the local syntax for a path to the form used in
   the path component of a URL.  This does not produce a complete URL.  The return
   value will already be quoted using the :func:`~urllib.parse.quote` function.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 161)

Unknown directive type "function".

```
.. function:: url2pathname(path)

   Convert the path component *path* from a percent-encoded URL to the local syntax for a
   path.  This does not accept a complete URL.  This function uses
   :func:`~urllib.parse.unquote` to decode *path*.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 167)

Unknown directive type "function".

```
.. function:: getproxies()

   This helper function returns a dictionary of scheme to proxy server URL
   mappings. It scans the environment for variables named ``<scheme>_proxy``,
   in a case insensitive approach, for all operating systems first, and when it
   cannot find it, looks for proxy information from System
   Configuration for macOS and Windows Systems Registry for Windows.
   If both lowercase and uppercase environment variables exist (and disagree),
   lowercase is preferred.

   .. note::

      If the environment variable ``REQUEST_METHOD`` is set, which usually
      indicates your script is running in a CGI environment, the environment
      variable ``HTTP_PROXY`` (uppercase ``_PROXY``) will be ignored. This is
      because that variable can be injected by a client using the "Proxy:" HTTP
      header. If you need to use an HTTP proxy in a CGI environment, either use
      ``ProxyHandler`` explicitly, or make sure the variable name is in
      lowercase (or at least the ``_proxy`` suffix).
```

The following classes are provided:

This class is an abstraction of a URL request.

url should be a string containing a valid URL.

data must be an object specifying additional data to send to the server, or `None` if no such data is needed. Currently HTTP requests are the only ones that use *data*. The supported object types include bytes, file-like objects, and iterables of bytes-like objects. If no `Content-Length` nor `Transfer-Encoding` header field has been provided, :class:`HTTPHandler` will set these headers according to the type of *data*. `Content-Length` will be used to send bytes objects, while `Transfer-Encoding: chunked` as specified in RFC 7230, Section 3.3.1 will be used to send files and other iterables.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst`, line 196); *backlink*

Unknown interpreted text role "class".

For an HTTP POST request method, *data* should be a buffer in the standard :mimetype:`application/x-www-form-urlencoded` format. The :func:`urllib.parse.urlencode` function takes a mapping or sequence of 2-tuples and returns an ASCII string in this format. It should be encoded to bytes before being used as the *data* parameter.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst`, line 206); *backlink*

Unknown interpreted text role "mimetype".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst`, line 206); *backlink*

Unknown interpreted text role "func".

headers should be a dictionary, and will be treated as if :meth:`add_header` was called with each key and value as arguments. This is often used to "spoof" the `User-Agent` header value, which is used by a browser to identify itself -- some HTTP servers only allow requests coming from common browsers as opposed to scripts. For example, Mozilla Firefox may identify itself as `"Mozilla/5.0 (X11; U; Linux i686) Gecko/20071127 Firefox/2.0.0.11"`, while :mod:`urllib`'s default user agent string is `"Python-urllib/2.6"` (on Python 2.6).

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst`, line 212); *backlink*

Unknown interpreted text role "meth".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst`, line 212); *backlink*

Unknown interpreted text role "mod".

An appropriate `Content-Type` header should be included if the *data* argument is present. If this header has not been provided and *data* is not None, `Content-Type: application/x-www-form-urlencoded` will be added as a default.

The next two arguments are only of interest for correct handling of third-party HTTP cookies:

origin_req_host should be the request-host of the origin transaction, as defined by RFC 2965. It defaults to `http.cookiejar.request_host(self)`. This is the host name or IP address of the original request that was initiated by the user. For example, if the request is for an image in an HTML document, this should be the request-host of the request for the page containing the image.

unverifiable should indicate whether the request is unverifiable, as defined by RFC 2965. It defaults to `False`. An unverifiable request is one whose URL the user did not have the option to approve. For example, if the request is for an image in an HTML document, and the user had no option to approve the automatic fetching of the image, this should be true.

method should be a string that indicates the HTTP request method that will be used (e.g. `'HEAD'`). If provided, its value is stored in the :attr:`~Request.method` attribute and is used by :meth:`get_method()`. The default is `'GET'` if *data* is `None` or `'POST'` otherwise. Subclasses may indicate a different default method by setting the :attr:`~Request.method` attribute in the class itself.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 245); *backlink*

Unknown interpreted text role "attr".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 245); *backlink*

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 245); *backlink*

Unknown interpreted text role "attr".

Note

The request will not work as expected if the data object is unable to deliver its content more than once (e.g. a file or an iterable that can produce the content only once) and the request is retried for HTTP redirects or authentication. The *data* is sent to the HTTP server right away after the headers. There is no support for a 100-continue expectation in the library.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 260)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   :attr:`Request.method` argument is added to the Request class.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 263)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.4
   Default :attr:`Request.method` may be indicated at the class level.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 266)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.6
   Do not raise an error if the ``Content-Length`` has not been
   provided and *data* is neither ``None`` nor a bytes object.
   Fall back to use chunked transfer encoding instead.
```

The :class:`OpenerDirector` class opens URLs via :class:`BaseHandler`s chained together. It manages the chaining of handlers, and recovery from errors.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 273); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 273); *backlink*

Unknown interpreted text role "class".

This is the base class for all registered handlers --- and handles only the simple mechanics of registration.

A class which defines a default handler for HTTP error responses; all responses are turned into :exc:`~urllib.error.HTTPError` exceptions.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 285); *backlink*

Unknown interpreted text role "exc".

A class to handle redirections.

A class to handle HTTP Cookies.

Cause requests to go through a proxy. If *proxies* is given, it must be a dictionary mapping protocol names to URLs of proxies. The default is to read the list of proxies from the environment variables `<protocol>_proxy`. If no proxy environment variables are set, then in a Windows environment proxy settings are obtained from the registry's Internet Settings section, and in a macOS environment proxy information is retrieved from the System Configuration Framework.

To disable autodetected proxy pass an empty dictionary.

The :envvar:`no_proxy` environment variable can be used to specify hosts which shouldn't be reached via proxy; if set, it should be a comma-separated list of hostname suffixes, optionally with `:port` appended, for example `cern.ch,ncsa.uiuc.edu,some.host:8080`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 311); *backlink*

Unknown interpreted text role "envvar".

Note

`HTTP_PROXY` will be ignored if a variable `REQUEST_METHOD` is set; see the documentation on :func:`~urllib.request.getproxies`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 318); *backlink*

Unknown interpreted text role "func".

Keep a database of `(realm, uri) -> (user, password)` mappings.

Keep a database of `(realm, uri) -> (user, password)` mappings. A realm of `None` is considered a catch-all realm, which is searched if no other realm fits.

A variant of :class:`HTTPPasswordMgrWithDefaultRealm` that also has a database of `uri -> is_authenticated` mappings. Can be used by a BasicAuth handler to determine when to send authentication credentials immediately instead of waiting for a `401` response first.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 336); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 341)

Unknown directive type "versionadded".

```
.. versionadded:: 3.5
```

This is a mixin class that helps with HTTP authentication, both to the remote host and to a proxy. *password_mgr*, if given, should be something that is compatible with :class:`HTTPPasswordMgr`; refer to section :ref:`http-password-mgr` for information on the interface that must be supported. If *passwd_mgr* also provides `is_authenticated` and `update_authenticated` methods (see :ref:`http-password-mgr-with-prior-auth`), then the handler will use the `is_authenticated` result for a given URI to determine whether or not to send authentication credentials with the request. If `is_authenticated` returns `True` for the URI, credentials are sent. If `is_authenticated` is `False`, credentials are not sent, and then if a `401` response is received the request is re-sent with the authentication credentials. If authentication succeeds, `update_authenticated` is called to set `is_authenticated` `True` for the URI, so that subsequent requests to the URI or any of its super-URIs will automatically include the authentication credentials.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 346); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 346); *backlink*

Unknown interpreted text role "ref".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 346); *backlink*

Unknown interpreted text role "ref".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 363)

Unknown directive type "versionadded".

```
.. versionadded:: 3.5
   Added ``is_authenticated`` support.
```

Handle authentication with the remote host. *password_mgr*, if given, should be something that is compatible with :class:`HTTPPasswordMgr`; refer to section :ref:`http-password-mgr` for information on the interface that must be supported. HTTPBasicAuthHandler will raise a :exc:`ValueError` when presented with a wrong Authentication scheme.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 369); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 369); *backlink*

Unknown interpreted text role "ref".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 369); *backlink*

Unknown interpreted text role "exc".

Handle authentication with the proxy. *password_mgr*, if given, should be something that is compatible with :class:`HTTPPasswordMgr`; refer to section :ref:`http-password-mgr` for information on the interface that must be supported.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 378); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 378); *backlink*

Unknown interpreted text role "ref".

This is a mixin class that helps with HTTP authentication, both to the remote host and to a proxy. *password_mgr*, if given, should be something that is compatible with :class:`HTTPPasswordMgr`; refer to section :ref:`http-password-mgr` for information on the interface that must be supported.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 386); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 386); *backlink*

Unknown interpreted text role "ref".

Handle authentication with the remote host. *password_mgr*, if given, should be something that is compatible with :class:`HTTPPasswordMgr`; refer to section :ref:`http-password-mgr` for information on the interface that must be supported. When both Digest Authentication Handler and Basic Authentication Handler are both added, Digest Authentication is always tried first. If the Digest Authentication returns a 40x response again, it is sent to Basic Authentication handler to Handle. This Handler method will raise a :exc:`ValueError` when presented with an authentication scheme other than Digest or Basic.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 395); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 395); *backlink*

Unknown interpreted text role "ref".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 395); *backlink*

Unknown interpreted text role "exc".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 405)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   Raise :exc:`ValueError` on unsupported Authentication Scheme.
```

Handle authentication with the proxy. *password_mgr*, if given, should be something that is compatible with :class:`HTTPPasswordMgr`; refer to section :ref:`http-password-mgr` for information on the interface that must be supported.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 412); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 412); *backlink*

Unknown interpreted text role "ref".

A class to handle opening of HTTP URLs.

A class to handle opening of HTTPS URLs. *context* and *check_hostname* have the same meaning as in :class:`http.client.HTTPSConnection`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 425); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 428)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.2
   *context* and *check_hostname* were added.
```

Open local files.

Open data URLs.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 440)

Unknown directive type "versionadded".

```
.. versionadded:: 3.4
```

Open FTP URLs.

Open FTP URLs, keeping a cache of open FTP connections to minimize delays.

A catch-all class to handle unknown URLs.

Process HTTP error responses.

Request Objects

The following methods describe :class:`Request`'s public interface, and so all may be overridden in subclasses. It also defines several public attributes that can be used by clients to inspect the parsed request.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 467); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 472)

Unknown directive type "attribute".

```
.. attribute:: Request.full_url

   The original URL passed to the constructor.

   .. versionchanged:: 3.4

   Request.full_url is a property with setter, getter and a deleter. Getting
   :attr:`~Request.full_url` returns the original request URL with the
   fragment, if it was present.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 482)

Unknown directive type "attribute".

```
.. attribute:: Request.type

   The URI scheme.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 486)

Unknown directive type "attribute".

```
.. attribute:: Request.host

   The URI authority, typically a host, but may also contain a port
   separated by a colon.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 491)

Unknown directive type "attribute".

```
.. attribute:: Request.origin_req_host

   The original host for the request, without port.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 495)

Unknown directive type "attribute".

```
.. attribute:: Request.selector

   The URI path.  If the :class:`Request` uses a proxy, then selector
   will be the full URL that is passed to the proxy.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 500)

Unknown directive type "attribute".

```
.. attribute:: Request.data

   The entity body for the request, or ``None`` if not specified.

   .. versionchanged:: 3.4
      Changing value of :attr:`Request.data` now deletes "Content-Length"
      header if it was previously set or calculated.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 508)

Unknown directive type "attribute".

```
.. attribute:: Request.unverifiable

   boolean, indicates whether the request is unverifiable as defined
```

```
   by :rfc:`2965`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 513)

Unknown directive type "attribute".

```
.. attribute:: Request.method

   The HTTP request method to use.  By default its value is :const:`None`,
   which means that :meth:`~Request.get_method` will do its normal computation
   of the method to be used.  Its value can be set (thus overriding the default
   computation in :meth:`~Request.get_method`) either by providing a default
   value by setting it at the class level in a :class:`Request` subclass, or by
   passing a value in to the :class:`Request` constructor via the *method*
   argument.

   .. versionadded:: 3.3

   .. versionchanged:: 3.4
      A default value can now be set in subclasses; previously it could only
      be set via the constructor argument.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 530)

Unknown directive type "method".

```
.. method:: Request.get_method()

   Return a string indicating the HTTP request method.  If
   :attr:`Request.method` is not ``None``, return its value, otherwise return
   ``'GET'`` if :attr:`Request.data` is ``None``, or ``'POST'`` if it's not.
   This is only meaningful for HTTP requests.

   .. versionchanged:: 3.3
      get_method now looks at the value of :attr:`Request.method`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 541)

Unknown directive type "method".

```
.. method:: Request.add_header(key, val)

   Add another header to the request.  Headers are currently ignored by all
   handlers except HTTP handlers, where they are added to the list of headers sent
   to the server.  Note that there cannot be more than one header with the same
   name, and later calls will overwrite previous calls in case the *key* collides.
   Currently, this is no loss of HTTP functionality, since all headers which have
   meaning when used more than once have a (header-specific) way of gaining the
   same functionality using only one header.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 552)

Unknown directive type "method".

```
.. method:: Request.add_unredirected_header(key, header)

   Add a header that will not be added to a redirected request.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 557)

Unknown directive type "method".

```
.. method:: Request.has_header(header)

   Return whether the instance has the named header (checks both regular and
   unredirected).
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 563)

Unknown directive type "method".

```
.. method:: Request.remove_header(header)

   Remove named header from the request instance (both from regular and
   unredirected headers).

   .. versionadded:: 3.4
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 571)

Unknown directive type "method".

```
.. method:: Request.get_full_url()

   Return the URL given in the constructor.

   .. versionchanged:: 3.4

   Returns :attr:`Request.full_url`
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 580)

Unknown directive type "method".

```
.. method:: Request.set_proxy(host, type)

   Prepare the request by connecting to a proxy server. The *host* and *type* will
   replace those of the instance, and the instance's selector will be the original
   URL given in the constructor.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 587)

Unknown directive type "method".

```
.. method:: Request.get_header(header_name, default=None)

   Return the value of the given header. If the header is not present, return
   the default value.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 593)

Unknown directive type "method".

```
.. method:: Request.header_items()

   Return a list of tuples (header_name, header_value) of the Request headers.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 597)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.4
   The request methods add_data, has_data, get_data, get_type, get_host,
   get_selector, get_origin_req_host and is_unverifiable that were deprecated
   since 3.3 have been removed.
```

OpenerDirector Objects

:class:`OpenerDirector` instances have the following methods:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 608); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 611)

Unknown directive type "method".

```
.. method:: OpenerDirector.add_handler(handler)

   *handler* should be an instance of :class:`BaseHandler`.  The following methods
   are searched, and added to the possible chains (note that HTTP errors are a
   special case).  Note that, in the following, *protocol* should be replaced
   with the actual protocol to handle, for example :meth:`http_response` would
   be the HTTP protocol response handler.  Also *type* should be replaced with
   the actual HTTP code, for example :meth:`http_error_404` would handle HTTP
   404 errors.

   * :meth:`<protocol>_open` --- signal that the handler knows how to open *protocol*
     URLs.

     See |protocol_open|_ for more information.

   * :meth:`http_error_\<type\>` --- signal that the handler knows how to handle HTTP
     errors with HTTP error code *type*.

     See |http_error_nnn|_ for more information.

   * :meth:`<protocol>_error` --- signal that the handler knows how to handle errors
     from (non-\ ``http``) *protocol*.

   * :meth:`<protocol>_request` --- signal that the handler knows how to pre-process
     *protocol* requests.

     See |protocol_request|_ for more information.

   * :meth:`<protocol>_response` --- signal that the handler knows how to
     post-process *protocol* responses.

     See |protocol_response|_ for more information.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 644)

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 644)

Substitution definition contains illegal element <problematic>:

```
<problematic ids="id75" refid="id74">
    :meth:`BaseHandler.<protocol>_open`

.. |protocol_open| replace:: :meth:`BaseHandler.<protocol>_open`
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 645)

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 645)

Substitution definition contains illegal element <problematic>:

```
<problematic ids="id77" refid="id76">
    :meth:`BaseHandler.http_error_\<nnn\>`

.. |http_error_nnn| replace:: :meth:`BaseHandler.http_error_\<nnn\>`
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 646)

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 646)

Substitution definition contains illegal element <problematic>:

```
<problematic ids="id79" refid="id78">
    :meth:`BaseHandler.<protocol>_request`

.. |protocol_request| replace:: :meth:`BaseHandler.<protocol>_request`
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 647)

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 647)

Substitution definition contains illegal element <problematic>:

```
<problematic ids="id81" refid="id80">
    :meth:`BaseHandler.<protocol>_response`

.. |protocol_response| replace:: :meth:`BaseHandler.<protocol>_response`
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 649)

Unknown directive type "method".

```
.. method:: OpenerDirector.open(url, data=None[, timeout])

   Open the given *url* (which can be a request object or a string), optionally
   passing the given *data*. Arguments, return values and exceptions raised are
   the same as those of :func:`urlopen` (which simply calls the :meth:`open`
   method on the currently installed global :class:`OpenerDirector`).  The
   optional *timeout* parameter specifies a timeout in seconds for blocking
   operations like the connection attempt (if not specified, the global default
   timeout setting will be used). The timeout feature actually works only for
   HTTP, HTTPS and FTP connections.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 661)

Unknown directive type "method".

```
.. method:: OpenerDirector.error(proto, *args)

   Handle an error of the given protocol.  This will call the registered error
   handlers for the given protocol with the given arguments (which are protocol
   specific).  The HTTP protocol is a special case which uses the HTTP response
   code to determine the specific error handler; refer to the :meth:`http_error_\<type\>`
   methods of the handler classes.

   Return values and exceptions raised are the same as those of :func:`urlopen`.
```

OpenerDirector objects open URLs in three stages:

The order in which these methods are called within each stage is determined by sorting the handler instances.

1. Every handler with a method named like :meth:`<protocol>_request` has that method called to pre-process the request.

   System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 676); *backlink*

   Unknown interpreted text role "meth".

2. Handlers with a method named like :meth:`<protocol>_open` are called to handle the request. This stage ends when a handler either returns a non-:const:`None` value (ie. a response), or raises an exception (usually :exc:`~urllib.error.URLError`). Exceptions are allowed to propagate.

   System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 679); *backlink*

   Unknown interpreted text role "meth".

   System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 679); backlink

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 679); backlink

Unknown interpreted text role "exc".

In fact, the above algorithm is first tried for methods named :meth:`default_open`. If all such methods return :const:`None`, the algorithm is repeated for methods named like :meth:`<protocol>_open`. If all such methods return :const:`None`, the algorithm is repeated for methods named :meth:`unknown_open`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 684); backlink

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 684); backlink

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 684); backlink

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 684); backlink

Unknown interpreted text role "const".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 684); backlink

Unknown interpreted text role "meth".

Note that the implementation of these methods may involve calls of the parent :class:`OpenerDirector` instance's :meth:`~OpenerDirector.open` and :meth:`~OpenerDirector.error` methods.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 690); backlink

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 690); backlink

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 690); backlink

Unknown interpreted text role "meth".

3. Every handler with a method named like :meth:`<protocol>_response` has that method called to post-process the response.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 694); backlink

Unknown interpreted text role "meth".

BaseHandler Objects

:class:`BaseHandler` objects provide a couple of methods that are directly useful, and others that are meant to be used by derived classes. These are intended for direct use:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 703); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 708)

Unknown directive type "method".

```
.. method:: BaseHandler.add_parent(director)

   Add a director as parent.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 713)

Unknown directive type "method".

```
.. method:: BaseHandler.close()

   Remove any parents.
```

The following attribute and methods should only be used by classes derived from :class:`BaseHandler`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 717); *backlink*

Unknown interpreted text role "class".

Note

The convention has been adopted that subclasses defining :meth:`<protocol>_request` or :meth:`<protocol>_response` methods are named :class:`\*Processor`; all others are named :class:`\*Handler`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 722); *backlink*

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 722); *backlink*

Unknown interpreted text role "meth".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 722); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 722); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 727)

Unknown directive type "attribute".

```
.. attribute:: BaseHandler.parent

   A valid :class:`OpenerDirector`, which can be used to open using a different
   protocol, or handle errors.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 733)

Unknown directive type "method".

```
.. method:: BaseHandler.default_open(req)

   This method is *not* defined in :class:`BaseHandler`, but subclasses should
   define it if they want to catch all URLs.

   This method, if implemented, will be called by the parent
   :class:`OpenerDirector`.  It should return a file-like object as described in
   the return value of the :meth:`open` of :class:`OpenerDirector`, or ``None``.
   It should raise :exc:`~urllib.error.URLError`, unless a truly exceptional
   thing happens (for example, :exc:`MemoryError` should not be mapped to
   :exc:`URLError`).

   This method will be called before any protocol-specific open method.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 749)

Unknown directive type "method".

```
.. method:: BaseHandler.<protocol>_open(req)
   :noindex:

   This method is *not* defined in :class:`BaseHandler`, but subclasses should
   define it if they want to handle URLs with the given protocol.

   This method, if defined, will be called by the parent :class:`OpenerDirector`.
   Return values should be the same as for  :meth:`default_open`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 759)

Unknown directive type "method".

```
.. method:: BaseHandler.unknown_open(req)

   This method is *not* defined in :class:`BaseHandler`, but subclasses should
   define it if they want to catch all URLs with no specific registered handler to
   open it.

   This method, if implemented, will be called by the :attr:`parent`
   :class:`OpenerDirector`.  Return values should be the same as for
   :meth:`default_open`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 770)

Unknown directive type "method".

```
.. method:: BaseHandler.http_error_default(req, fp, code, msg, hdrs)

   This method is *not* defined in :class:`BaseHandler`, but subclasses should
   override it if they intend to provide a catch-all for otherwise unhandled HTTP
   errors.  It will be called automatically by the  :class:`OpenerDirector` getting
   the error, and should not normally be called in other circumstances.

   *req* will be a :class:`Request` object, *fp* will be a file-like object with
   the HTTP error body, *code* will be the three-digit code of the error, *msg*
   will be the user-visible explanation of the code and *hdrs* will be a mapping
   object with the headers of the error.

   Return values and exceptions raised should be the same as those of
   :func:`urlopen`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 787)

Unknown directive type "method".

```
.. method:: BaseHandler.http_error_<nnn>(req, fp, code, msg, hdrs)

   *nnn* should be a three-digit HTTP error code.  This method is also not defined
   in :class:`BaseHandler`, but will be called, if it exists, on an instance of a
   subclass, when an HTTP error with code *nnn* occurs.

   Subclasses should override this method to handle specific HTTP errors.

   Arguments, return values and exceptions raised should be the same as for
   :meth:`http_error_default`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 800)

Unknown directive type "method".

```
.. method:: BaseHandler.<protocol>_request(req)
   :noindex:

   This method is *not* defined in :class:`BaseHandler`, but subclasses should
   define it if they want to pre-process requests of the given protocol.

   This method, if defined, will be called by the parent :class:`OpenerDirector`.
   *req* will be a :class:`Request` object. The return value should be a
   :class:`Request` object.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 812)

Unknown directive type "method".

```
.. method:: BaseHandler.<protocol>_response(req, response)
   :noindex:

   This method is *not* defined in :class:`BaseHandler`, but subclasses should
   define it if they want to post-process responses of the given protocol.

   This method, if defined, will be called by the parent :class:`OpenerDirector`.
   *req* will be a :class:`Request` object. *response* will be an object
   implementing the same interface as the return value of :func:`urlopen`.  The
   return value should implement the same interface as the return value of
   :func:`urlopen`.
```

HTTPRedirectHandler Objects

Note

Some HTTP redirections require action from this module's client code. If this is the case, :exc:`~urllib.error.HTTPError` is raised. See RFC 2616 for details of the precise meanings of the various redirection codes.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 832); *backlink*

Unknown interpreted text role "exc".

An :class:`HTTPError` exception raised as a security consideration if the HTTPRedirectHandler is presented with a redirected URL which is not an HTTP, HTTPS or FTP URL.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 836); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 841)

Unknown directive type "method".

```
.. method:: HTTPRedirectHandler.redirect_request(req, fp, code, msg, hdrs, newurl)

   Return a :class:`Request` or ``None`` in response to a redirect. This is called
   by the default implementations of the :meth:`http_error_30\*` methods when a
   redirection is received from the server.  If a redirection should take place,
   return a new :class:`Request` to allow :meth:`http_error_30\*` to perform the
   redirect to *newurl*.  Otherwise, raise :exc:`~urllib.error.HTTPError` if
   no other handler should try to handle this URL, or return ``None`` if you
   can't but another handler might.

   .. note::

      The default implementation of this method does not strictly follow :rfc:`2616`,
      which says that 301 and 302 responses to ``POST`` requests must not be
      automatically redirected without confirmation by the user.  In reality, browsers
      do allow automatic redirection of these responses, changing the POST to a
      ``GET``, and the default implementation reproduces this behavior.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 860)

Unknown directive type "method".

```
.. method:: HTTPRedirectHandler.http_error_301(req, fp, code, msg, hdrs)

   Redirect to the ``Location:`` or ``URI:`` URL.  This method is called by the
   parent :class:`OpenerDirector` when getting an HTTP 'moved permanently' response.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 866)

Unknown directive type "method".

```
.. method:: HTTPRedirectHandler.http_error_302(req, fp, code, msg, hdrs)

   The same as :meth:`http_error_301`, but called for the 'found' response.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 871)

Unknown directive type "method".

```
.. method:: HTTPRedirectHandler.http_error_303(req, fp, code, msg, hdrs)

   The same as :meth:`http_error_301`, but called for the 'see other' response.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 876)

Unknown directive type "method".

```
.. method:: HTTPRedirectHandler.http_error_307(req, fp, code, msg, hdrs)

   The same as :meth:`http_error_301`, but called for the 'temporary redirect'
   response. It does not allow changing the request method from ``POST``
   to ``GET``.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 883)

Unknown directive type "method".

```
.. method:: HTTPRedirectHandler.http_error_308(req, fp, code, msg, hdrs)

   The same as :meth:`http_error_301`, but called for the 'permanent redirect'
   response. It does not allow changing the request method from ``POST``
   to ``GET``.

   .. versionadded:: 3.11
```

HTTPCookieProcessor Objects

:class:`HTTPCookieProcessor` instances have one attribute:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 897); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 899)

Unknown directive type "attribute".

```
.. attribute:: HTTPCookieProcessor.cookiejar

   The :class:`http.cookiejar.CookieJar` in which cookies are stored.
```

ProxyHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 910)

Unknown directive type "method".

```
.. method:: ProxyHandler.<protocol>_open(request)
   :noindex:

   The :class:`ProxyHandler` will have a method :meth:`<protocol>_open` for every
   *protocol* which has a proxy in the *proxies* dictionary given in the
   constructor.  The method will modify requests to go through the proxy, by
   calling ``request.set_proxy()``, and call the next handler in the chain to
   actually execute the protocol.
```

HTTPPasswordMgr Objects

These methods are available on :class:`HTTPPasswordMgr` and :class:`HTTPPasswordMgrWithDefaultRealm` objects.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 925); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 925); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 929)

Unknown directive type "method".

```
.. method:: HTTPPasswordMgr.add_password(realm, uri, user, passwd)

   *uri* can be either a single URI, or a sequence of URIs. *realm*, *user* and
   *passwd* must be strings. This causes ``(user, passwd)`` to be used as
   authentication tokens when authentication for *realm* and a super-URI of any of
   the given URIs is given.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 937)

Unknown directive type "method".

```
.. method:: HTTPPasswordMgr.find_user_password(realm, authuri)

   Get user/password for given realm and URI, if any.  This method will return
   ``(None, None)`` if there is no matching user/password.

   For :class:`HTTPPasswordMgrWithDefaultRealm` objects, the realm ``None`` will be
   searched if the given *realm* has no matching user/password.
```

HTTPPasswordMgrWithPriorAuth Objects

This password manager extends :class:`HTTPPasswordMgrWithDefaultRealm` to support tracking URIs for which authentication credentials should always be sent.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 951); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 955)

Unknown directive type "method".

```
.. method:: HTTPPasswordMgrWithPriorAuth.add_password(realm, uri, user, \
            passwd, is_authenticated=False)

   *realm*, *uri*, *user*, *passwd* are as for
   :meth:`HTTPPasswordMgr.add_password`.  *is_authenticated* sets the initial
   value of the ``is_authenticated`` flag for the given URI or list of URIs.
   If *is_authenticated* is specified as ``True``, *realm* is ignored.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 964)

Unknown directive type "method".

```
.. method:: HTTPPasswordMgrWithPriorAuth.find_user_password(realm, authuri)

   Same as for :class:`HTTPPasswordMgrWithDefaultRealm` objects
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 969)

Unknown directive type "method".

```
.. method:: HTTPPasswordMgrWithPriorAuth.update_authenticated(self, uri, \
            is_authenticated=False)

   Update the ``is_authenticated`` flag for the given *uri* or list
   of URIs.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 976)

Unknown directive type "method".

```
.. method:: HTTPPasswordMgrWithPriorAuth.is_authenticated(self, authuri)

   Returns the current state of the ``is_authenticated`` flag for
   the given URI.
```

AbstractBasicAuthHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 988)

Unknown directive type "method".

```
.. method:: AbstractBasicAuthHandler.http_error_auth_reqed(authreq, host, req, headers)

   Handle an authentication request by getting a user/password pair, and re-trying
   the request.  *authreq* should be the name of the header where the information
   about the realm is included in the request, *host* specifies the URL and path to
   authenticate for, *req* should be the (failed) :class:`Request` object, and
   *headers* should be the error headers.

   *host* is either an authority (e.g. ``"python.org"``) or a URL containing an
   authority component (e.g. ``"http://python.org/"``). In either case, the
   authority must not contain a userinfo component (so, ``"python.org"`` and
   ``"python.org:80"`` are fine, ``"joe:password@python.org"`` is not).
```

HTTPBasicAuthHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1008)

Unknown directive type "method".

```
.. method:: HTTPBasicAuthHandler.http_error_401(req, fp, code,  msg, hdrs)

   Retry the request with authentication information, if available.
```

ProxyBasicAuthHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1019)

Unknown directive type "method".

```
.. method:: ProxyBasicAuthHandler.http_error_407(req, fp, code,  msg, hdrs)

   Retry the request with authentication information, if available.
```

AbstractDigestAuthHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1030)

Unknown directive type "method".

```
.. method:: AbstractDigestAuthHandler.http_error_auth_reqed(authreq, host, req, headers)

   *authreq* should be the name of the header where the information about the realm
   is included in the request, *host* should be the host to authenticate to, *req*
   should be the (failed) :class:`Request` object, and *headers* should be the
   error headers.
```

HTTPDigestAuthHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1044)

Unknown directive type "method".

```
.. method:: HTTPDigestAuthHandler.http_error_401(req, fp, code,  msg, hdrs)

   Retry the request with authentication information, if available.
```

ProxyDigestAuthHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1055)

Unknown directive type "method".

```
.. method:: ProxyDigestAuthHandler.http_error_407(req, fp, code,  msg, hdrs)

   Retry the request with authentication information, if available.
```

HTTPHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1066)

Unknown directive type "method".

```
.. method:: HTTPHandler.http_open(req)

   Send an HTTP request, which can be either GET or POST, depending on
   ``req.has_data()``.
```

HTTPSHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1078)

Unknown directive type "method".

```
.. method:: HTTPSHandler.https_open(req)

   Send an HTTPS request, which can be either GET or POST, depending on
   ``req.has_data()``.
```

FileHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1090)

Unknown directive type "method".

```
.. method:: FileHandler.file_open(req)

   Open the file locally, if there is no host name, or the host name is
   ``'localhost'``.

   .. versionchanged:: 3.2
      This method is applicable only for local hostnames.  When a remote
      hostname is given, an :exc:`~urllib.error.URLError` is raised.
```

DataHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1105)

Unknown directive type "method".

```
.. method:: DataHandler.data_open(req)

   Read a data URL. This kind of URL contains the content encoded in the URL
   itself. The data URL syntax is specified in :rfc:`2397`. This implementation
   ignores white spaces in base64 encoded data URLs so the URL may be wrapped
   in whatever source file it comes from. But even though some browsers don't
   mind about a missing padding at the end of a base64 encoded data URL, this
   implementation will raise an :exc:`ValueError` in that case.
```

FTPHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1121)

Unknown directive type "method".

```
.. method:: FTPHandler.ftp_open(req)

   Open the FTP file indicated by *req*. The login is always done with empty
   username and password.
```

CacheFTPHandler Objects

:class:`CacheFTPHandler` objects are :class:`FTPHandler` objects with the following additional methods:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1132); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1132); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1136)

Unknown directive type "method".

```
.. method:: CacheFTPHandler.setTimeout(t)

   Set timeout of connections to *t* seconds.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1141)

Unknown directive type "method".

```
.. method:: CacheFTPHandler.setMaxConns(m)

   Set maximum number of cached connections to *m*.
```

UnknownHandler Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1152)

Unknown directive type "method".

```
.. method:: UnknownHandler.unknown_open()

   Raise a :exc:`~urllib.error.URLError` exception.
```

HTTPErrorProcessor Objects

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1162)

Unknown directive type "method".

```
.. method:: HTTPErrorProcessor.http_response(request, response)

   Process HTTP error responses.

   For 200 error codes, the response object is returned immediately.

   For non-200 error codes, this simply passes the job on to the
   :meth:`http_error_\<type\>` handler methods, via :meth:`OpenerDirector.error`.
   Eventually, :class:`HTTPDefaultErrorHandler` will raise an
   :exc:`~urllib.error.HTTPError` if no other handler handles the error.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1174)

Unknown directive type "method".

```
.. method:: HTTPErrorProcessor.https_response(request, response)

   Process HTTPS error responses.

   The behavior is same as :meth:`http_response`.
```

Examples

In addition to the examples below, more examples are given in :ref:`urllib-howto`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1186); *backlink*

Unknown interpreted text role "ref".

This example gets the python.org main page and displays the first 300 bytes of it.

```
>>> import urllib.request
>>> with urllib.request.urlopen('http://www.python.org/') as f:
...     print(f.read(300))
...
```

```
b'<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">\n\n\n<html
xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">\n\n<head>\n
<meta http-equiv="content-type" content="text/html; charset=utf-8" />\n
<title>Python Programming '
```

Note that urlopen returns a bytes object. This is because there is no way for urlopen to automatically determine the encoding of the byte stream it receives from the HTTP server. In general, a program will decode the returned bytes object to string once it determines or guesses the appropriate encoding.

The following W3C document, https://www.w3.org/International/O-charset, lists the various ways in which an (X)HTML or an XML document could have specified its encoding information.

As the python.org website uses *utf-8* encoding as specified in its meta tag, we will use the same for decoding the bytes object.

```
>>> with urllib.request.urlopen('http://www.python.org/') as f:
...     print(f.read(100).decode('utf-8'))
...
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtm
```

It is also possible to achieve the same result without using the :term:`context manager` approach.

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1221); *backlink***
>
> Unknown interpreted text role "term".

```
>>> import urllib.request
>>> f = urllib.request.urlopen('http://www.python.org/')
>>> print(f.read(100).decode('utf-8'))
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtm
```

In the following example, we are sending a data-stream to the stdin of a CGI and reading the data it returns to us. Note that this example will only work when the Python installation supports SSL.

```
>>> import urllib.request
>>> req = urllib.request.Request(url='https://localhost/cgi-bin/test.cgi',
...                       data=b'This data is passed to stdin of the CGI')
>>> with urllib.request.urlopen(req) as f:
...     print(f.read().decode('utf-8'))
...
Got Data: "This data is passed to stdin of the CGI"
```

The code for the sample CGI used in the above example is:

```
#!/usr/bin/env python
import sys
data = sys.stdin.read()
print('Content-type: text/plain\n\nGot Data: "%s"' % data)
```

Here is an example of doing a `PUT` request using :class:`Request`:

> **System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1249); *backlink***
>
> Unknown interpreted text role "class".

```
import urllib.request
DATA = b'some data'
req = urllib.request.Request(url='http://localhost:8080', data=DATA, method='PUT')
with urllib.request.urlopen(req) as f:
    pass
print(f.status)
print(f.reason)
```

Use of Basic HTTP Authentication:

```
import urllib.request
# Create an OpenerDirector with support for Basic HTTP Authentication...
auth_handler = urllib.request.HTTPBasicAuthHandler()
auth_handler.add_password(realm='PDQ Application',
                          uri='https://mahler:8092/site-updates.py',
                          user='klem',
                          passwd='kadidd!ehopper')
opener = urllib.request.build_opener(auth_handler)
# ...and install it globally so it can be used with urlopen.
urllib.request.install_opener(opener)
urllib.request.urlopen('http://www.example.com/login.html')
```

:func:`build_opener` provides many handlers by default, including a :class:`ProxyHandler`. By default, :class:`ProxyHandler` uses the environment variables named `<scheme>_proxy`, where `<scheme>` is the URL scheme involved. For example, the :envvar:`http_proxy` environment variable is read to obtain the HTTP proxy's URL.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1273); *backlink*

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1273); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1273); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1273); *backlink*

Unknown interpreted text role "envvar".

This example replaces the default :class:`ProxyHandler` with one that uses programmatically-supplied proxy URLs, and adds proxy authorization support with :class:`ProxyBasicAuthHandler`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1279); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1279); *backlink*

Unknown interpreted text role "class".

```
proxy_handler = urllib.request.ProxyHandler({'http': 'http://www.example.com:3128/'})
proxy_auth_handler = urllib.request.ProxyBasicAuthHandler()
proxy_auth_handler.add_password('realm', 'host', 'username', 'password')

opener = urllib.request.build_opener(proxy_handler, proxy_auth_handler)
# This time, rather than install the OpenerDirector, we use it directly:
opener.open('http://www.example.com/login.html')
```

Adding HTTP headers:

Use the *headers* argument to the :class:`Request` constructor, or:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1293); *backlink*

Unknown interpreted text role "class".

```
import urllib.request
req = urllib.request.Request('http://www.example.com/')
req.add_header('Referer', 'http://www.python.org/')
# Customize the default User-Agent header value:
req.add_header('User-Agent', 'urllib-example/0.1 (Contact: . . .)')
r = urllib.request.urlopen(req)
```

:class:`OpenerDirector` automatically adds a :mailheader:`User-Agent` header to every :class:`Request`. To change this:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1302); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1302); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1302); *backlink*

Unknown interpreted text role "class".

```
import urllib.request
```

```
opener = urllib.request.build_opener()
opener.addheaders = [('User-agent', 'Mozilla/5.0')]
opener.open('http://www.example.com/')
```

Also, remember that a few standard headers (:mailheader:`Content-Length`, :mailheader:`Content-Type` and :mailheader:`Host`) are added when the :class:`Request` is passed to :func:`urlopen` (or :meth:`OpenerDirector.open`).

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1310); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1310); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1310); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1310); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1310); *backlink*

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1310); *backlink*

Unknown interpreted text role "meth".

Here is an example session that uses the `GET` method to retrieve a URL containing parameters:

```
>>> import urllib.request
>>> import urllib.parse
>>> params = urllib.parse.urlencode({'spam': 1, 'eggs': 2, 'bacon': 0})
>>> url = "http://www.musi-cal.com/cgi-bin/query?%s" % params
>>> with urllib.request.urlopen(url) as f:
...     print(f.read().decode('utf-8'))
...
```

The following example uses the `POST` method instead. Note that params output from urlencode is encoded to bytes before it is sent to urlopen as data:

```
>>> import urllib.request
>>> import urllib.parse
>>> data = urllib.parse.urlencode({'spam': 1, 'eggs': 2, 'bacon': 0})
>>> data = data.encode('ascii')
>>> with urllib.request.urlopen("http://requestb.in/xrbl82xr", data) as f:
...     print(f.read().decode('utf-8'))
...
```

The following example uses an explicitly specified HTTP proxy, overriding environment settings:

```
>>> import urllib.request
>>> proxies = {'http': 'http://proxy.example.com:8080/'}
>>> opener = urllib.request.FancyURLopener(proxies)
>>> with opener.open("http://www.python.org") as f:
...     f.read().decode('utf-8')
...
```

The following example uses no proxies at all, overriding environment settings:

```
>>> import urllib.request
>>> opener = urllib.request.FancyURLopener({})
>>> with opener.open("http://www.python.org/") as f:
...     f.read().decode('utf-8')
...
```

Legacy interface

The following functions and classes are ported from the Python 2 module `urllib` (as opposed to `urllib2`). They might become deprecated at some point in the future.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1365)

Unknown directive type "function".

```
.. function:: urlretrieve(url, filename=None, reporthook=None, data=None)

   Copy a network object denoted by a URL to a local file. If the URL
   points to a local file, the object will not be copied unless filename is supplied.
   Return a tuple ``(filename, headers)`` where *filename* is the
   local file name under which the object can be found, and *headers* is whatever
   the :meth:`info` method of the object returned by :func:`urlopen` returned (for
   a remote object). Exceptions are the same as for :func:`urlopen`.

   The second argument, if present, specifies the file location to copy to (if
   absent, the location will be a tempfile with a generated name). The third
   argument, if present, is a callable that will be called once on
   establishment of the network connection and once after each block read
   thereafter.  The callable will be passed three arguments; a count of blocks
   transferred so far, a block size in bytes, and the total size of the file.  The
   third argument may be ``-1`` on older FTP servers which do not return a file
   size in response to a retrieval request.

   The following example illustrates the most common usage scenario::

      >>> import urllib.request
      >>> local_filename, headers = urllib.request.urlretrieve('http://python.org/')
      >>> html = open(local_filename)
      >>> html.close()

   If the *url* uses the :file:`http:` scheme identifier, the optional *data*
   argument may be given to specify a ``POST`` request (normally the request
   type is ``GET``).  The *data* argument must be a bytes object in standard
   :mimetype:`application/x-www-form-urlencoded` format; see the
   :func:`urllib.parse.urlencode` function.

   :func:`urlretrieve` will raise :exc:`ContentTooShortError` when it detects that
   the amount of data available  was less than the expected amount (which is the
   size reported by a  *Content-Length* header). This can occur, for example, when
   the  download is interrupted.

   The *Content-Length* is treated as a lower bound: if there's more data  to read,
   urlretrieve reads more data, but if less data is available,  it raises the
   exception.

   You can still retrieve the downloaded data in this case, it is stored  in the
   :attr:`content` attribute of the exception instance.

   If no *Content-Length* header was supplied, urlretrieve can not check the size
   of the data it has downloaded, and just returns it.  In this case you just have
   to assume that the download was successful.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1412)

Unknown directive type "function".

```
.. function:: urlcleanup()

   Cleans up temporary files that may have been left behind by previous
   calls to :func:`urlretrieve`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1419)

Unknown directive type "deprecated".

```
.. deprecated:: 3.3
```

Base class for opening and reading URLs. Unless you need to support opening objects using schemes other than :file:`http:`, :file:`ftp:`, or :file:`file:`, you probably want to use :class:`FancyURLopener`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1421); *backlink*

Unknown interpreted text role "file".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1421); *backlink*

Unknown interpreted text role "file".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1421); *backlink*

Unknown interpreted text role "file".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1421); *backlink*

Unknown interpreted text role "class".

By default, the :class:`URLopener` class sends a :mailheader:`User-Agent` header of `urllib/VVV`, where *VVV* is the :mod:`urllib` version number. Applications can define their own :mailheader:`User-Agent` header by subclassing :class:`URLopener` or :class:`FancyURLopener` and setting the class attribute :attr:`version` to an appropriate string value in the subclass definition.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1425); *backlink*

Unknown interpreted text role "attr".

The optional *proxies* parameter should be a dictionary mapping scheme names to proxy URLs, where an empty dictionary turns proxies off completely. Its default value is `None`, in which case environmental proxy settings will be used if present, as discussed in the definition of :func:`urlopen`, above.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1431); *backlink*

Unknown interpreted text role "func".

Additional keyword parameters, collected in *x509*, may be used for authentication of the client when using the :file:`https:` scheme. The keywords *key_file* and *cert_file* are supported to provide an SSL key and certificate; both are needed to support client authentication.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1436); *backlink*

Unknown interpreted text role "file".

:class:`URLopener` objects will raise an :exc:`OSError` exception if the server returns an error code.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1441); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1441); *backlink*

Unknown interpreted text role "exc".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1444)

Unknown directive type "method".

```
.. method:: open(fullurl, data=None)

   Open *fullurl* using the appropriate protocol.  This method sets up cache and
   proxy information, then calls the appropriate open method with its input
   arguments.  If the scheme is not recognized, :meth:`open_unknown` is called.
   The *data* argument has the same meaning as the *data* argument of
   :func:`urlopen`.

   This method always quotes *fullurl* using :func:`~urllib.parse.quote`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1454)

Unknown directive type "method".

```
.. method:: open_unknown(fullurl, data=None)

   Overridable interface to open unknown URL types.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1459)

Unknown directive type "method".

```
.. method:: retrieve(url, filename=None, reporthook=None, data=None)

   Retrieves the contents of *url* and places it in *filename*.  The return value
   is a tuple consisting of a local filename and either an
   :class:`email.message.Message` object containing the response headers (for remote
   URLs) or ``None`` (for local URLs).  The caller must then open and read the
   contents of *filename*.  If *filename* is not given and the URL refers to a
   local file, the input filename is returned.  If the URL is non-local and
   *filename* is not given, the filename is the output of :func:`tempfile.mktemp`
   with a suffix that matches the suffix of the last path component of the input
   URL.  If *reporthook* is given, it must be a function accepting three numeric
   parameters: A chunk number, the maximum size chunks are read in and the total size of the download
   (-1 if unknown).  It will be called once at the start and after each chunk of data is read from the
   network.  *reporthook* is ignored for local URLs.

   If the *url* uses the :file:`http:` scheme identifier, the optional *data*
   argument may be given to specify a ``POST`` request (normally the request type
   is ``GET``).  The *data* argument must in standard
   :mimetype:`application/x-www-form-urlencoded` format; see the
   :func:`urllib.parse.urlencode` function.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1481)

Unknown directive type "attribute".

```
.. attribute:: version

   Variable that specifies the user agent of the opener object.  To get
   :mod:`urllib` to tell servers that it is a particular user agent, set this in a
   subclass as a class variable or in the constructor before calling the base
   constructor.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1491)

Unknown directive type "deprecated".

```
.. deprecated:: 3.3
```

:class:`FancyURLopener` subclasses :class:`URLopener` providing default handling for the following HTTP response codes: 301, 302, 303, 307 and 401. For the 30x response codes listed above, the :mailheader:`Location` header is used to fetch the actual URL. For 401 response codes (authentication required), basic HTTP authentication is performed. For the 30x response codes, recursion is bounded by the value of the *maxtries* attribute, which defaults to 10.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1493); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1493); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1493); *backlink*

Unknown interpreted text role "mailheader".

For all other response codes, the method :meth:`http_error_default` is called which you can override in subclasses to handle the error appropriately.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1500); *backlink*

Unknown interpreted text role "meth".

Note

According to the letter of RFC 2616, 301 and 302 responses to POST requests must not be automatically redirected without confirmation by the user. In reality, browsers do allow automatic redirection of these responses, changing the POST to a GET, and :mod:`urllib` reproduces this behaviour.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1505); *backlink*

Unknown interpreted text role "mod".

The parameters to the constructor are the same as those for :class:`URLopener`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1510); *backlink*

Unknown interpreted text role "class".

Note

When performing basic authentication, a :class:`FancyURLopener` instance calls its :meth:`prompt_user_passwd` method. The default implementation asks the users for the required information on the controlling terminal. A subclass may override this method to support more appropriate behavior if needed.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1514); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1514); *backlink*

Unknown interpreted text role "meth".

The :class:`FancyURLopener` class offers one additional method that should be overloaded to provide the appropriate behavior:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1519); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1522)

Unknown directive type "method".

```
.. method:: prompt_user_passwd(host, realm)

   Return information needed to authenticate the user at the given host in the
   specified security realm.  The return value should be a tuple, ``(user,
   password)``, which can be used for basic authentication.

   The implementation prompts for this information on the terminal; an application
   should override this method to use an appropriate interaction model in the local
   environment.
```

:mod:`urllib.request` Restrictions

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1533); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1536)

Unknown directive type "index".

```
.. index::
   pair: HTTP; protocol
   pair: FTP; protocol
```

- Currently, only the following protocols are supported: HTTP (versions 0.9 and 1.0), FTP, local files, and data URLs.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1543)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.4 Added support for data URLs.
```

- The caching feature of :func:`urlretrieve` has been disabled until someone finds the time to hack proper processing of Expiration time headers.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1545); *backlink*

Unknown interpreted text role "func".

- There should be a function to query whether a particular URL is in the cache.
- For backward compatibility, if a URL appears to point to a local file but the file can't be opened, the URL is re-interpreted using the FTP protocol. This can sometimes cause confusing error messages.
- The :func:`urlopen` and :func:`urlretrieve` functions can cause arbitrarily long delays while waiting for a network connection to be set up. This means that it is difficult to build an interactive web client using these functions without using threads.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1554); *backlink*

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1554); *backlink*

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1559)

Unknown directive type "index".

```
.. index::
   single: HTML
   pair: HTTP; protocol
```

- The data returned by :func:`urlopen` or :func:`urlretrieve` is the raw data returned by the server. This may be binary data (such as an image), plain text or (for example) HTML. The HTTP protocol provides type information in the reply header, which can be inspected by looking at the :mailheader:`Content-Type` header. If the returned data is HTML, you can use the module :mod:`html.parser` to parse it.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1563); *backlink*

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1563); *backlink*

Unknown interpreted text role "func".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1563); *backlink*

Unknown interpreted text role "mailheader".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1563); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1570)

Unknown directive type "index".

```
.. index:: single: FTP
```

- The code handling the FTP protocol cannot differentiate between a file and a directory. This can lead to unexpected behavior when attempting to read a URL that points to a file that is not accessible. If the URL ends in a `/`, it is assumed to refer to a directory and will be handled accordingly. But if an attempt to read a file leads to a 550 error (meaning the URL cannot be found or is not accessible, often for permission reasons), then the path is treated as a directory in order to handle the case when a directory is specified by a URL but the trailing `/` has been left off. This can cause misleading results when you try to fetch a file whose read permissions make it inaccessible; the FTP code will try to read it, fail with a 550 error, and then perform a directory listing for the unreadable file. If fine-grained control is needed, consider using the :mod:`ftplib` module, subclassing :class:`FancyURLopener`, or changing *_urlopener* to meet your needs.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1572); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1572); *backlink*

Unknown interpreted text role "class".

:mod:`urllib.response` --- Response classes used by urllib

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1588); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1591)

Unknown directive type "module".

```
.. module:: urllib.response
   :synopsis: Response classes used by urllib.
```

The :mod:`urllib.response` module defines functions and classes which define a minimal file-like interface, including `read()` and `readline()`. Functions defined by this module are used internally by the :mod:`urllib.request` module. The typical response object is a :class:`urllib.response.addinfourl` instance:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1594); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1594); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1594); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1601)

Unknown directive type "attribute".

```
.. attribute:: url

   URL of the resource retrieved, commonly used to determine if a redirect was followed.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1605)

Unknown directive type "attribute".

```
.. attribute:: headers

   Returns the headers of the response in the form of an :class:`~email.message.EmailMessage` instance.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1609)

Unknown directive type "attribute".

```
.. attribute:: status

   .. versionadded:: 3.9

   Status code returned by server.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1615)

Unknown directive type "method".

```
.. method:: geturl()

   .. deprecated:: 3.9
      Deprecated in favor of :attr:`~addinfourl.url`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1620)

Unknown directive type "method".

```
.. method:: info()

   .. deprecated:: 3.9
      Deprecated in favor of :attr:`~addinfourl.headers`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1625)

Unknown directive type "attribute".

```
.. attribute:: code

   .. deprecated:: 3.9
      Deprecated in favor of :attr:`~addinfourl.status`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)urllib.request.rst, line 1630)

Unknown directive type "method".

```
.. method:: getstatus()

   .. deprecated:: 3.9
      Deprecated in favor of :attr:`~addinfourl.status`.
```