

SENDGRID INTEGRATION WITH PYTHON

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|--------------|------------------------------------|
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| Project Name | NUTRITION ASSISTANT APPLICATION |

STEP 1:

REQUIREMENTS:

Python 2.6, 2.7, 3.4 or 3.5.

STEP 2:

Create an API key

The screenshot shows the SendGrid 'API Keys' management page. On the left is a sidebar with navigation links: Dashboard, Email API, Marketing, Design Library, Stats, Activity, Suppressions, and Settings. The main content area is titled 'API Keys' and features a 'Create API Key' button in the top right corner. Below the title is a table with three columns: 'NAME', 'API KEY', and 'ACTION'. A single entry is visible in the table with the name 'sendgridmail', a redacted API key, and an 'ACTION' column containing a gear icon and a dropdown arrow. At the bottom of the page, a status bar indicates 'Waiting for rum.browser-intake-datadoghq.com...'.

| NAME | API KEY | ACTION |
|--------------|------------|-------------------------------|
| sendgridmail | [REDACTED] | [Gears Icon] [Dropdown Arrow] |

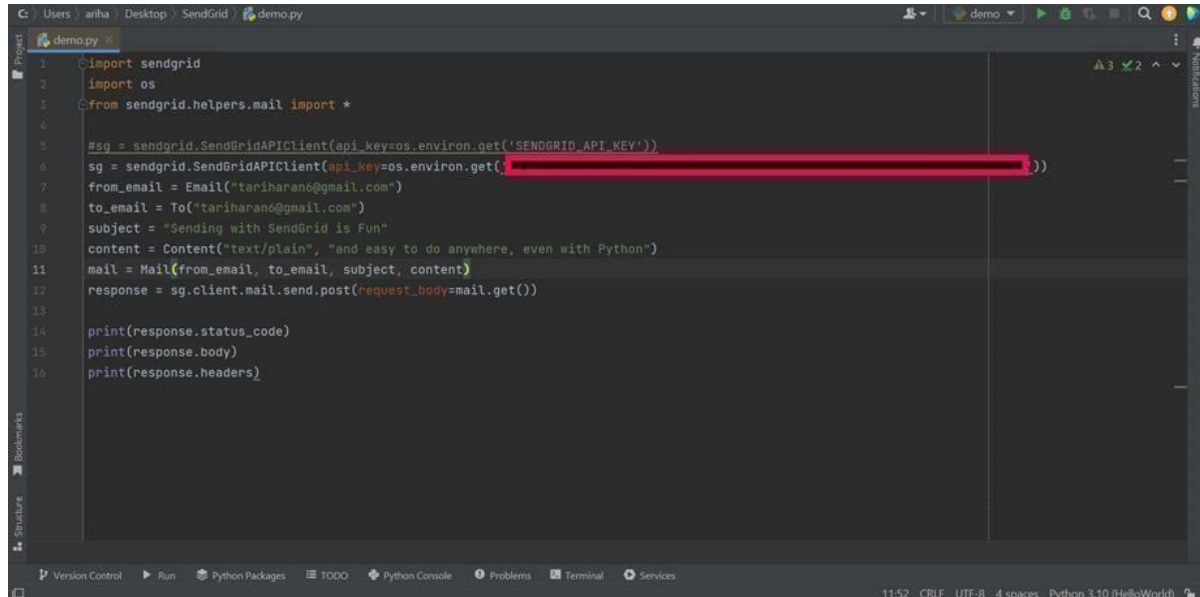
STEP 3:

INSTALL

PACKAGE: > pip install sendgrid

STEP 4:

SEND EMAIL

A screenshot of a code editor window titled 'demo.py'. The code is in Python and uses the SendGrid library to send an email. The code is as follows:

```
1 import sendgrid
2 import os
3 from sendgrid.helpers.mail import *
4
5 #sg = sendgrid.SendGridAPIClient(api_key=os.environ.get('SENDGRID_API_KEY'))
6 sg = sendgrid.SendGridAPIClient(api_key=os.environ.get('SENDGRID_API_KEY'))
7 from_email = Email("tariharan@gmail.com")
8 to_email = To("tariharan@gmail.com")
9 subject = "Sending with SendGrid is Fun"
10 content = Content("text/plain", "and easy to do anywhere, even with Python")
11 mail = Mail(from_email, to_email, subject, content)
12 response = sg.client.mail.send.post(request_body=mail.get())
13
14 print(response.status_code)
15 print(response.body)
16 print(response.headers)
```

The code is written in a dark-themed editor. The SendGrid API key is redacted with a black box. The editor has a sidebar on the left with 'Project', 'Bookmarks', and 'Structure' views. The bottom status bar shows '11:52 CRLF UTF-8 4 spaces Python 3.10 (HelloWorld)'.

SENDGRID PYTHON CODE :

```

1  import os
2  from sendgrid import SendGridAPIClient
3  from sendgrid.helpers.mail import Mail
4
5  message = Mail(
6      from_email='from_email@example.com',
7      to_emails='to@example.com',
8      subject='Sending with Twilio SendGrid is Fun',
9      html_content='<strong>and easy to do anywhere, even with
Python</strong>')
10 try:
11     sg = SendGridAPIClient(os.environ.get('SENDGRID_API_KEY'))
12     response = sg.send(message)
13     print(response.status_code)
14     print(response.body)
15     print(response.headers)
16 except Exception as e:
17     print(e.message)

```

HTTP CLIENT PROGRAM

```

1  """HTTP Client library"""
2  import json
3  import logging
4  from .exceptions import handle_error
5
6  try:
7      # Python 3
8      import urllib.request as urllib
9      from urllib.parse import urlencode
10     from urllib.error import HTTPError
11 except ImportError:
12     # Python 2

```

```

13     import urllib2 as urllib
14     from urllib2 import HTTPError
15     from urllib import urlencode
16
17     _logger = logging.getLogger(__name__)
18
19
20     class Response(object):
21         """Holds the response from an API call."""
22
23         def __init__(self, response):
24             """
25             :param response: The return value from a open call
26                             on a urllib.build_opener()
27             :type response: urllib response object
28             """
29             self._status_code = response.getcode()
30             self._body = response.read()
31             self._headers = response.info()
32
33         @property
34         def status_code(self):
35             """
36             :return: integer, status code of API call
37             """
38             return self._status_code
39
40         @property
41         def body(self):
42             """
43             :return: response from the API
44             """
45             return self._body
46
47         @property

```

```

48     def headers(self):
49         """
50         :return: dict of response headers
51         """
52         return self._headers
53
54     @property
55     def to_dict(self):
56         """
57         :return: dict of response from the API
58         """
59         if self.body:
60             return json.loads(self.body.decode('utf-8'))
61         else:
62             return None
63
64
65 class Client(object):
66     """Quickly and easily access any REST or REST-like API."""
67
68     # These are the supported HTTP verbs
69     methods = ('delete', 'get', 'patch', 'post', 'put')
70
71     def __init__(self,
72                 host,
73                 request_headers=None,
74                 version=None,
75                 url_path=None,
76                 append_slash=False,
77                 timeout=None):
78         """
79         :param host: Base URL for the api. (e.g.
80                     https://api.sendgrid.com)
81         :type host: string
82         :param request_headers: A dictionary of the headers you want

```

```

82             applied on all calls
83     :type request_headers: dictionary
84     :param version: The version number of the API.
85                     Subclass _build_versioned_url for custom
behavior.
86                     Or just pass the version as part of the URL
87                     (e.g. client._("/v3"))
88     :type version: integer
89     :param url_path: A list of the url path segments
90     :type url_path: list of strings
91     """
92     self.host = host
93     self.request_headers = request_headers or {}
94     self._version = version
95     # _url_path keeps track of the dynamically built url
96     self._url_path = url_path or []
97     # APPEND SLASH set
98     self.append_slash = append_slash
99     self.timeout = timeout
100
101     def _build_versioned_url(self, url):
102         """Subclass this function for your own needs.
103             Or just pass the version as part of the URL
104             (e.g. client._('/v3'))
105         :param url: URI portion of the full URL being requested
106         :type url: string
107         :return: string
108         """
109         return '{}{}/v({}){}'.format(self.host, str(self._version),
url)
110
111     def _build_url(self, query_params):
112         """Build the final URL to be passed to urllib
113
114         :param query_params: A dictionary of all the query

```

```

parameters
115         :type query_params: dictionary
116         :return: string
117         """
118         url = ''
119         count = 0
120         while count < len(self._url_path):
121             url += '{}({})'.format(self._url_path[count])
122             count += 1
123
124         # add slash
125         if self.append_slash:
126             url += '/'
127
128         if query_params:
129             url_values = urlencode(sorted(query_params.items()),
True)
130             url = '{}?{}'.format(url, url_values)
131
132         if self._version:
133             url = self._build_versioned_url(url)
134         else:
135             url = '{}({})'.format(self.host, url)
136         return url
137
138     def _update_headers(self, request_headers):
139         """Update the headers for the request
140
141         :param request_headers: headers to set for the API call
142         :type request_headers: dictionary
143         :return: dictionary
144         """
145         self.request_headers.update(request_headers)
146
147     def _build_client(self, name=None):

```

```

148         """Make a new Client object
149
150         :param name: Name of the url segment
151         :type name: string
152         :return: A Client object
153         """
154         url_path = self._url_path + [name] if name else
            self._url_path
155         return Client(host=self.host,
156                       version=self._version,
157                       request_headers=self.request_headers,
158                       url_path=url_path,
159                       append_slash=self.append_slash,
160                       timeout=self.timeout)
161
162     def _make_request(self, opener, request, timeout=None):
163         """Make the API call and return the response. This is
            separated into
164             it's own function, so we can mock it easily for testing.
165
166         :param opener:
167         :type opener:
168         :param request: url payload to request
169         :type request: urllib.Request object
170         :param timeout: timeout value or None
171         :type timeout: float
172         :return: urllib response
173         """
174         timeout = timeout or self.timeout
175         try:
176             return opener.open(request, timeout=timeout)
177         except HTTPError as err:
178             exc = handle_error(err)
179             exc.__cause__ = None
180             _logger.debug('(method) Response: {status}')

```



```

        {body}'.format(
181             method=request.get_method(),
182             status=exc.status_code,
183             body=exc.body))
184         raise exc
185
186     def _ (self, name):
187         """Add variable values to the url.
188         (e.g. /your/api/{variable_value}/call)
189         Another example: if you have a Python reserved word,
190         such as global,
191         in your url, you must use this method.
192
193         :param name: Name of the url segment
194         :type name: string
195         :return: Client object
196         """
197         return self._build_client(name)
198
199     def __getattr__(self, name):
200         """Dynamically add method calls to the url, then call a
201         method.
202         (e.g. client.name.name.method())
203         You can also add a version number by using
204         .version(<int>)
205
206         :param name: Name of the url segment or method call
207         :type name: string or integer if name == version
208         :return: mixed
209         """
210         if name == 'version':
211             def get_version(*args, **kwargs):
212                 """
213                 :param args: dict of settings
214                 :param kwargs: unused

```

```

212         :return: string, version
213         """
214         self._version = args[0]
215         return self._build_client()
216     return get_version
217
218     # We have reached the end of the method chain, make the API
call
219     if name in self.methods:
220         method = name.upper()
221
222         def http_request(
223             request_body=None,
224             query_params=None,
225             request_headers=None,
226             timeout=None,
227             **_):
228             """Make the API call
229             :param timeout: HTTP request timeout. Will be
propagated to
230                 urllib client
231             :type timeout: float
232             :param request_headers: HTTP headers. Will be
merged into
233                 current client object state
234             :type request_headers: dict
235             :param query_params: HTTP query parameters
236             :type query_params: dict
237             :param request_body: HTTP request body
238             :type request_body: string or json-serializable
object
239             :param kwargs:
240             :return: Response object
241             """
242             if request_headers:

```

```

243         self._update_headers(request_headers)
244
245     if request_body is None:
246         data = None
247     else:
248         # Don't serialize to a JSON formatted str
249         # if we don't have a JSON Content-Type
250         if 'Content-Type' in self.request_headers and \
251             self.request_headers['Content-Type'] != \
252             'application/json':
253             data = request_body.encode('utf-8')
254         else:
255             self.request_headers.setdefault(
256                 'Content-Type', 'application/json')
257             data =
258             json.dumps(request_body).encode('utf-8')
259
260     opener = urllib.build_opener()
261     request = urllib.Request(
262         self._build_url(query_params),
263         headers=self.request_headers,
264         data=data,
265     )
266     request.get_method = lambda: method
267
268     _logger.debug('[method] Request: {url}'.format(
269         method=method,
270         url=request.get_full_url()))
271     if request.data:
272         _logger.debug('PAYLOAD: {data}'.format(
273             data=request.data))
274     _logger.debug('HEADERS: {headers}'.format(
275         headers=request.headers))

```

```

276         response = Response(
277             self._make_request(opener, request,
278                 timeout=timeout)
279         )
280         _logger.debug('{method} Response: {status}
281             {body}'.format(
282                 method=method,
283                 status=response.status_code,
284                 body=response.body))
285         return response
286
287         return http_request
288     else:
289         # Add a segment to the URL
290         return self._(name)
291
292     def __getstate__(self):
293         return self.__dict__
294
295     def setstate (self, state):

```