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1  #!/usr/bin/env python
2  # -*- coding: utf-8 -*-
3
4
5  import sys
6  import json
7  import datetime
8  import influxdb_client
9  from influxdb_client.client.write_api import SYNCHRONOUS
10
11  DEBUG = False # True
12
13  # InfluxDB にアクセスするライブラリ
14
15  class InfluxDB:
16      # コンストラクタ
17      def __init__(self, url, org, token):
18          print("Constructor of InfluxDB")
19          self.url = url
20          self.organization = org
21          self.api_token = token
22          # InfluxDB へ接続するクライアント作成
23          self.client = influxdb_client.InfluxDBClient(
24              url=url,
25              token=token,
26              org=org
27          )
28          # Bucket API 呼び出し準備
29          self.bucket_api = self.client.buckets_api()
30          # 検索 API 呼び出し準備
31          self.query_api = self.client.query_api()
32          # 書き込み API 呼び出し準備
33          self.write_api = self.client.write_api(write_options=SYNCHRONOUS)
34
35          # デストラクタ
36          def __del__(self):
37              print("Destructor of InfluxDB")
38
39
40          # Bucket 作成

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41 def create_bucket(self, bucket_name):
42     print("create_bucket")
43     # bucket 存在確認
44     bkt = self.bucket_api.find_bucket_by_name(bucket_name=bucket_name)
45     if DEBUG : print(bkt)
46
47     # 存在しなければ bucket 作成
48     if bkt == None:
49         print("bucket " + bucket_name + " is Not exist.")
50         self.bucket_api.create_bucket(bucket_name=bucket_name, org=self.organization)
51
52
53 # Bucket 削除
54 def delete_bucket(self, bucket_name):
55     print("delete_bucket")
56     # bucket 存在確認
57     bkt = self.bucket_api.find_bucket_by_name(bucket_name=bucket_name)
58     if DEBUG : print(bkt)
59
60     # 存在すれば bucket 削除
61     if bkt != None:
62         print("bucket " + bucket_name + " exist.")
63         self.bucket_api.delete_bucket(bkt)
64
65 def json2point(self, measurement, data_json):
66     data =json.loads(data_json)
67     if DEBUG : print(data)
68
69     # tag
70     p = influxdb_client.Point(measurement).tag("source", data['source'])
71
72     # timestamp
73     if 'timestamp' in data:
74         if data['timestamp']:
75             p.time(datetime.datetime.strptime(data['timestamp'], "%Y%m%d%H%M%S"))
76
77     # field
78     r = []
79     it = None
80     for d in data['data']:

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81         if DEBUG : print(d)
82         for k,v in d.items():
83             if DEBUG : print(k,v)
84             p.field(k, v)
85
86     return p
87
88
89     # データ保存
90     """
91     データは以下の JSON 形式でもらう。timestamp は UTC で指定。
92     {
93         "timestamp":,
94         "source":,
95         "data":[]
96     }
97     """
98     def put_data(self, bucket_name, measurement, data):
99         print("put_data:", measurement, data)
100         r = self.json2point(measurement, data)
101         self.write_api.write(bucket=bucket_name, org=self.organization, record=r)
102
103
104     # データ取得
105     def get_data(self, bucket_name, measurement, start=None, stop=None, source=None):
106         print("get_data:", bucket_name, measurement, start, stop)
107         # 検索
108         """
109         start,stop は UTC で指定。
110         """
111         range = "
112         if start != None:
113             range = '|> range(start: ' + str(int(datetime.datetime.strptime(start,
114 "%Y%m%d%H%M%S").replace(tzinfo=datetime.timezone.utc).timestamp)))
115         else:
116             range = '|> range(start: 0'
117         if stop != None:
118             range = range + ', stop: ' + str(int(datetime.datetime.strptime(stop,
119 "%Y%m%d%H%M%S").replace(tzinfo=datetime.timezone.utc).timestamp))) + ')'

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119     else:
120         range = range + ', stop: now()')
121
122     query = ' from(bucket:"" + bucket_name + "") ' + range
123
124     if measurement:
125         query = query + '|> filter(fn:(r) => r._measurement == "' + measurement + "'')
126
127     if source:
128         query = query + '|> filter(fn:(r) => r.source == "' + source + "'')
129
130
131     if DEBUG : print(query)
132
133     result = self.query_api.query(org=self.organization, query=query)
134
135     if DEBUG:
136         for table in result:
137             #print(table)
138             for record in table.records:
139                 print(record.get_measurement())
140                 print(record.get_time())
141                 print(record.get_field())
142                 print(record.get_value())
143                 for v in record.values:
144                     print(v)
145                     print(record[v])
146
147
148     """
149     結果は、以下の形式で返す
150     {
151         "start": "",
152         "stop": "",
153         "bucket":
154         data: [{"timestamp": "xxx", "measurement": "mmm", "source": "xxx", フィールド: 値}, ...]
155     }
156
157     """
158     res = {"start": start, "stop": stop, "bucket": bucket_name}

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159         dp = []
160         for table in result:
161             for record in table.records:
162                 if DEBUG: print("RECORD: ",record)
163                 d = {"timestamp":record.get_time().strftime("%Y%m%d%H%M%S"), "measurement":record.get_measurement(),
"source":record['source'], record.get_field():record.get_value()}
164                 if DEBUG : print(d)
165                 dp.append(d)
166
167         res['data'] = dp
168         if DEBUG : print(res)
169
170         return res
```