Access to IMF Data SDMX API in Python

**Overview**

The recommended Python library for SDMX data queries is sdmx1 This library is well integrated with Pandas’ library, and widely utilized for data analysis. This feature allows users to retrieve data into a dataframe that facilitates data analysis without additional data manipulations over the data message received as response to an API request. sdmx1 library has well documented use cases that can be reviewed at the following link <https://sdmx1.readthedocs.io/en/v2.22.0/>

This article provides guidance on how to:

* Connect to the Portal as a public user
* Connect to the Portal as an authenticated user

**Connect to the Portal as a public user**

**Prerequisites**

1.sdmx1

pip install sdmx1

**Data query**

**Case**: Retrieve data from the Integration workspace of iData PROD environment from the CPI dataset with the series key 111.CPI.CP01.IX.M:

**Parameters**

1. url – entry endpoint of the environment where the data is located

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| # import libraries  import sdmx    # retrieve data  IMF\_DATA = sdmx.Client('IMF\_DATA')  data\_msg = IMF\_DATA.data('CPI', key='USA+CAN.CPI.CP01.IX.M', params={'startPeriod': 2018})    # convert to pandas  cpi\_df = sdmx.to\_pandas(data\_msg)  print(cpi\_df.head()) |

**Connecting to portal as an authenticated user**

**Prerequisites**

1. SDMX1

pip install sdmx1

2. MSAL Microsoft Authentication Library (MSAL)

pip install msal

**Authentication and Data query**

**Case**: Retrieve data from the Integration workspace of iData PROD environment from the CPI dataset with the series key 111.CPI.CP01.IX.M:

1. scope – scope indicating target iData environment.

2. authority – Azure AD url to which the user is redirected for the authorization process

3. client\_id – application (client) ID that the Azure AD app registrations assigned to the app (iData)

4. url – entry endpoint of the environment where the data is located

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| --- |
| # import libraries  import  sdmx  from msal import PublicClientApplication    # parameter values for authorization and data requests  client\_id = '446ce2fa-88b1-436c-b8e6-94491ca4f6fb'  authority = '[https://imfprdb2c.b2clogin.com/imfprdb2c.onmicrosoft.com/b2c\_1a\_signin\_aad\_simple\_user\_journey/'](https://imfprdb2c.b2clogin.com/imfprdb2c.onmicrosoft.com/b2c_1a_signin_aad_simple_user_journey/%27)  scope = '[https://imfprdb2c.onmicrosoft.com/4042e178-3e2f-4ff9-ac38-1276c901c13d/iData.Login'](https://imfprdb2c.onmicrosoft.com/4042e178-3e2f-4ff9-ac38-1276c901c13d/iData.Login%27)  # authorize and retrieve access token  app = PublicClientApplication(client\_id,authority=authority)  token = None  token = app.acquire\_token\_interactive(scopes=[scope])  # define header for a request  header = {'Authorization': f"{token['token\_type']} {token['access\_token']}"}    # retrieve data  IMF\_DATA = sdmx.Client('IMF\_DATA')  data\_msg = IMF\_DATA.data('CPI', key='USA+CAN.CPI.CP01.IX.M', params={'startPeriod': 2018}, headers=header)    # convert to pandas  cpi\_df = sdmx.to\_pandas(data\_msg)  print(cpi\_df.head()) |