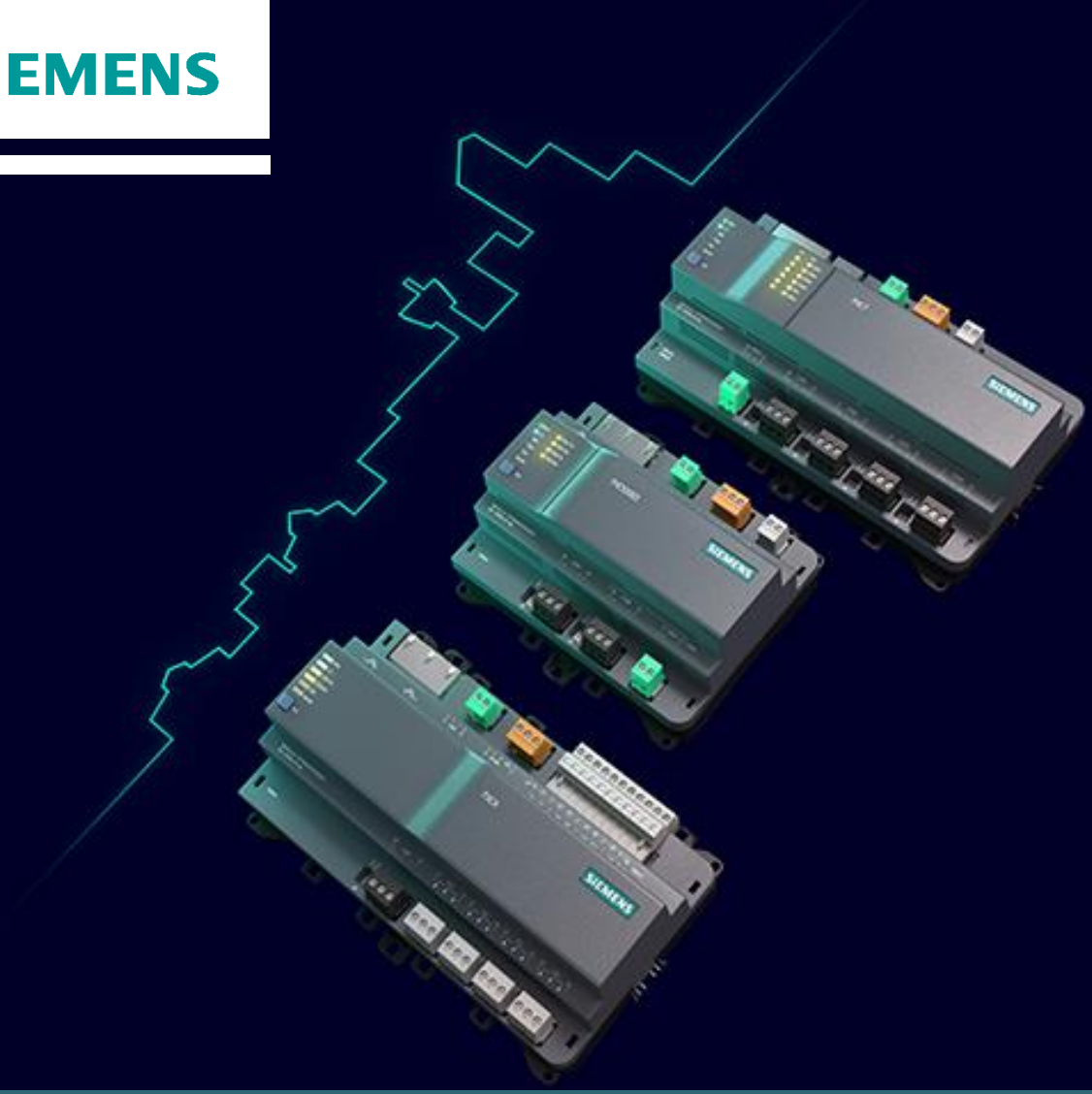
SIEMENS



User Manual

Python App for updating & hosting Web Pages using DDC data

SIEMENS

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1. Introduction

1.1 Overview

This app can read and extract point information from Direct Digital Controllers (DDC) and use those values to update web pages.

1.2 Software Description

The software comprises four types of python files – main.pyw, soup.pyw, app.pyw, and wsgi.pyw.

The **main.pyw** file extracts point information from Direct Digital Controllers (DDC) and stores the values in an excel sheet.

The **soup.pyw** file updates specific values on the HTML web pages using the point information excel sheet generated from the DDC.

The **app.pyw** and **wsgi.pyw** files are used to create the hosting platform for the HTML web pages.

1.3 Platform Requirements

- Modern Operating System:
  - Windows 7 or 10
  - Mac OS X 10.11 or higher, 64-bit
  - Linux: RHEL 6/7, 64-bit
- x86 64-bit CPU (Intel/AMD architecture)
- 4 GB RAM
- 5 GB free disk space

2. Getting Started

2.1 Required Applications

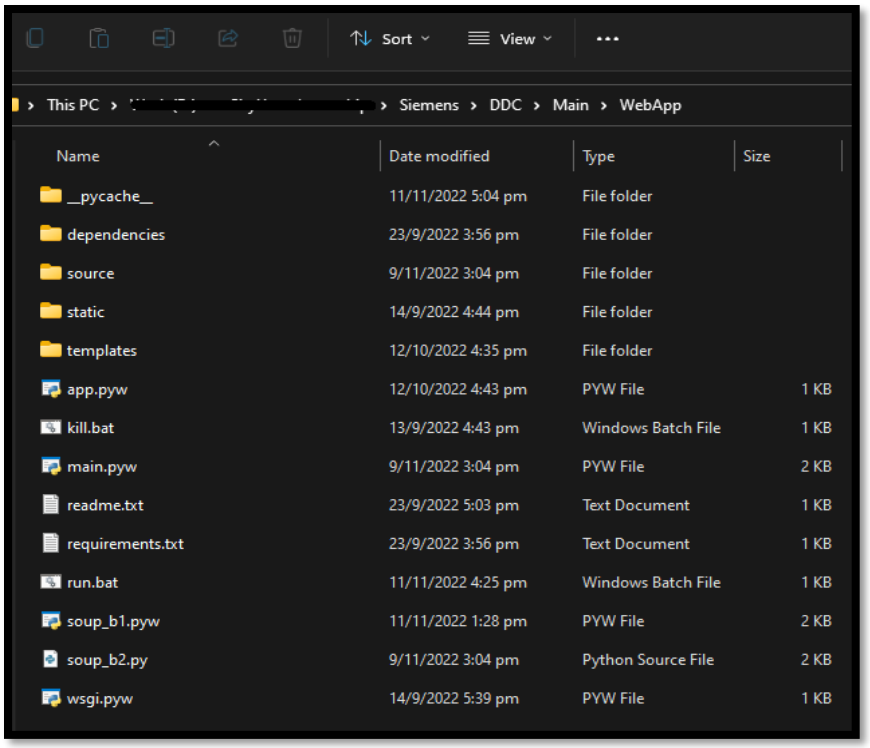
Before this program can be used, the following needs to be downloaded and installed:

- Python
- Anaconda
- Visual Studio Code

2.2 Directories & Contents

There are several directories present in the program. The contents of each directory are listed below:

- **WebApp:** This is the main directory containing the python program files and all the other directories.
- **Dependencies:** contains all the dependencies that need to be installed for the program to run properly
- **Source:** contains the excel sheets – "raw" and "data"
  - Raw – this file is used to set the requirements of the data extraction process for the main.pyw file
  - Data – consists of the data extracted from the DDC using the main.pyw file
- **Static:** contains the CSS files, and media files for each web page
- **Templates:** contains the HTML file for each web page



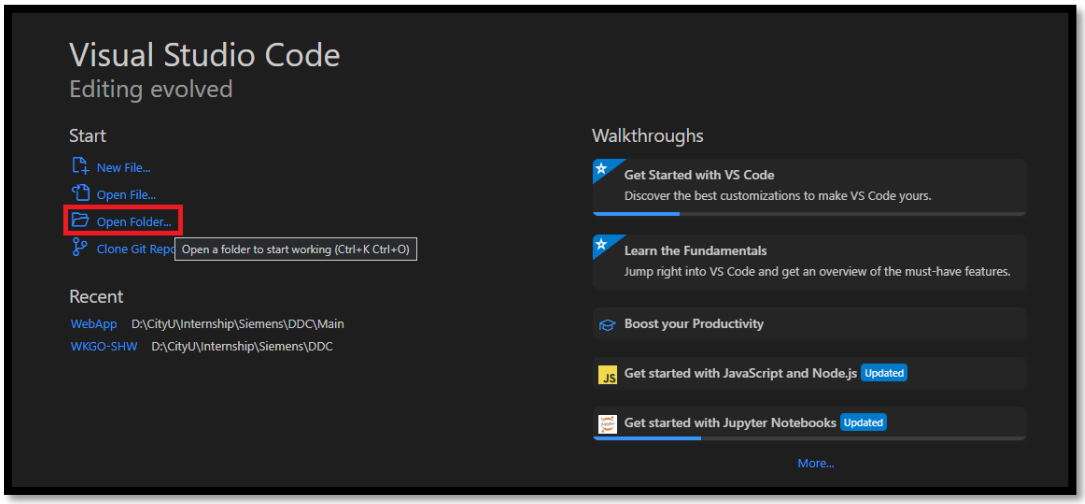
3. Setting up

3.1 Initial Setup

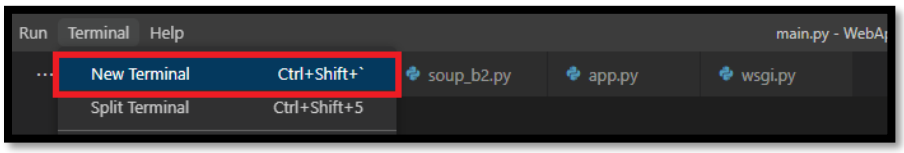
To run the program, the following steps need to be completed:

3.1.1 Dependencies & main.pyw

- Open Anaconda Navigator, then launch VS Code and open the folder "WebApp"



- Open a new terminal, then write the following code "pip install --no-index --find-links /**path to dependencies directory**/ -r requirements.txt"



  - The "**path to dependencies directory**" is specific to the device. For example:

- In VS Code, open the **main.pyw** file from the WebApp folder
  - Check the LAN IP Address of the host device and update **line 7** in **main.pyw**: bacnet = BAC0.connect(ip=' ')
  - **Line 8** refers to the time interval of data extraction from the DDC. It is measured in milliseconds (ms) and shall be updated according to the user's preference.

```
7   bacnet = BAC0.connect(ip='192.168.1.49/24')
8   interval = 5
```

3.1.2 Excel Raw File

The **raw.csv** file contains the device and point list. To extract more point information from different DDCs, the raw.csv file needs to be updated accordingly.

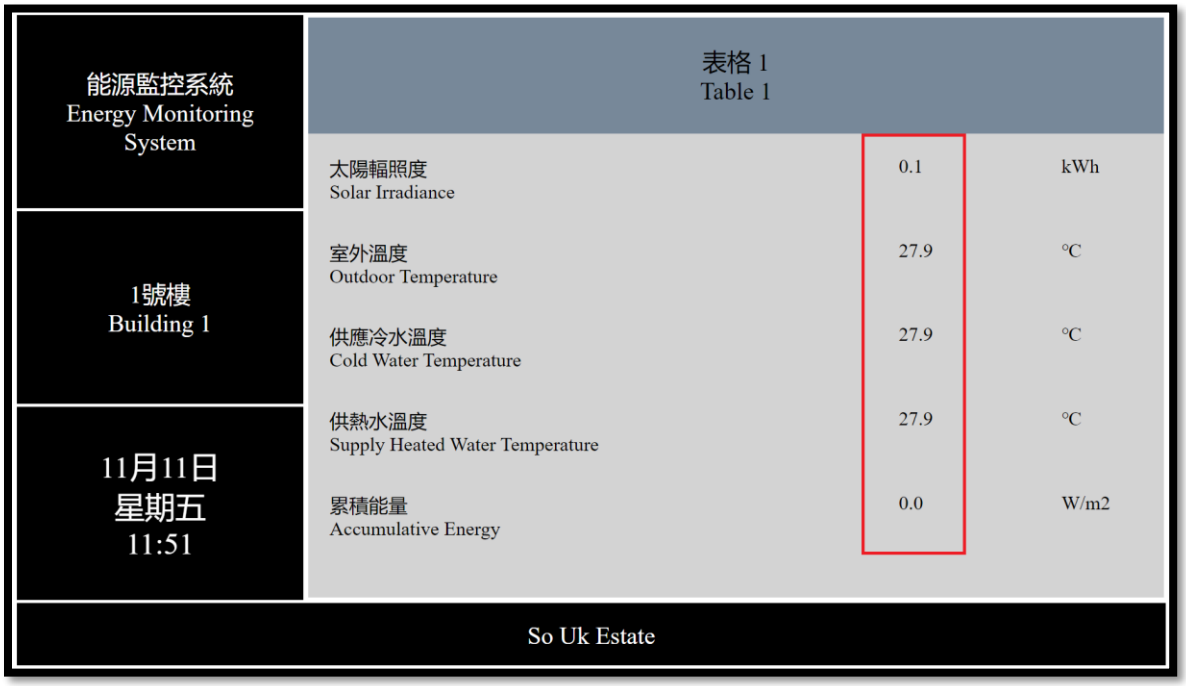
- Add the **Device Name** to the first column
- Input the corresponding Object type. If the type is **Analog Input**, **Analog Output**, or **Analog Value**, it has to be written as **analogInput, analogOutput,** and **analogValue**, respectively.
- Finally, update the **Object Instance**, **Object Name**, and **IP Address**.

	A	B	C	D	E	F	G	H
1	Device Name	Point Type	Engineering Units	BACnet Object type	BACnet Object Instance	BACnet Object Name	BACnet Device Instance	IP Address
2	DDC-BTEST01-01	LAI		analogInput	8	B01-IRR1	7001	192.168.1.11
3	DDC-BTEST01-01	LAI	degrees_celsius	analogInput	2	B01-TEMP1	7001	192.168.1.11
4	DDC-BTEST01-01	LAI	degrees_celsius	analogInput	9	B01-SHWTEMP1	7001	192.168.1.11
5	DDC-BTEST01-01	LAI	degrees_celsius	analogInput	10	B01-SHWTEMP2	7001	192.168.1.11
6	DDC-BTEST01-01	LAI	kWh	analogValue	1	B01-kWh	7001	192.168.1.11
7	DDC-BTEST01-02	LAI		analogInput	1	B02-RH1	7002	192.168.1.12
8	DDC-BTEST01-02	LAI	degrees_celsius	analogInput	0	B02-TEMP1	7002	192.168.1.12
9	CDNIS-ART-IRR	LAI		analogValue	10004	!CDNIS-ART-IRR:BATT2	7220	192.168.1.220
10	CDNIS-ART-IRR	LAI		analogValue	10012	!CDNIS-ART-IRR:MEMFRAG	7220	192.168.1.220

3.1.3 HTML & soup.pyw Files

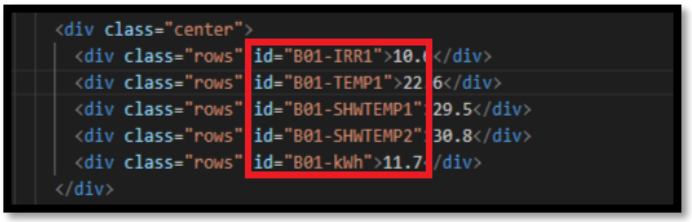
To ensure that the table values on the web pages are correct, some elements must be cross-checked between the HTML and soup.pyw files.

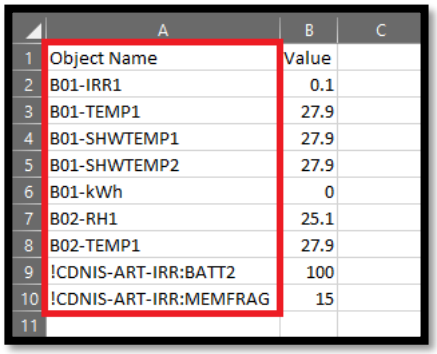
The **soup.pyw** file uses data from the **data.csv** file.



The steps are as follows:

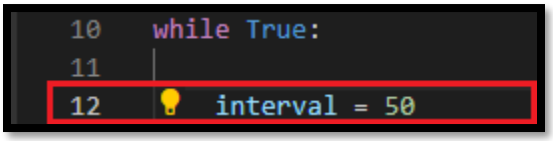
- The **id** on the HTML files must be the same as the **Object Name** on the data.csv file.
  - Please make sure to update the **index.html** file, **not** the **new.html** file



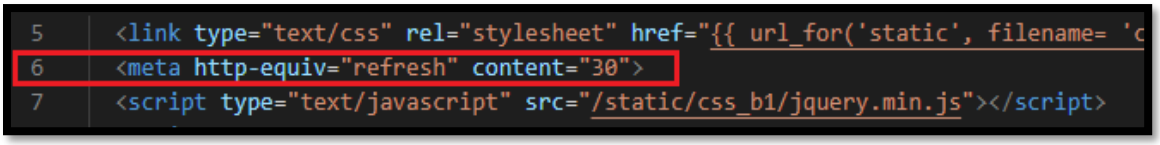


	A	B	C
1	Object Name	Value	
2	B01-IRR1	0.1	
3	B01-TEMP1	27.9	
4	B01-SHWTEMP1	27.9	
5	B01-SHWTEMP2	27.9	
6	B01-kWh	0	
7	B02-RH1	25.1	
8	B02-TEMP1	27.9	
9	!CDNIS-ART-IRR:BATT2	100	
10	!CDNIS-ART-IRR:MEMFRAG	15	
11			

- The **updating interval** (ms) for the HTML file can be found on the **soup.pyw** file on **line 12**.



- The **refresh time** (ms) for the HTML file can be found on **line 6** of the **index.html** file.
  - Make sure to keep the **refresh time** closer to the **updating interval** on the **soup.pyw** file



- The intervals (ms) of the sliders for the **footer**, **top left section**, **media**, and **tables** are 10000, 10000, 900000, and 225000.

4. Running the Program

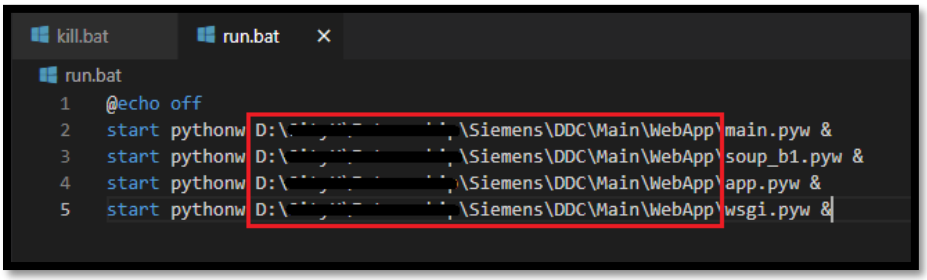
4.1 Procedures

The procedures for running the program are listed below.

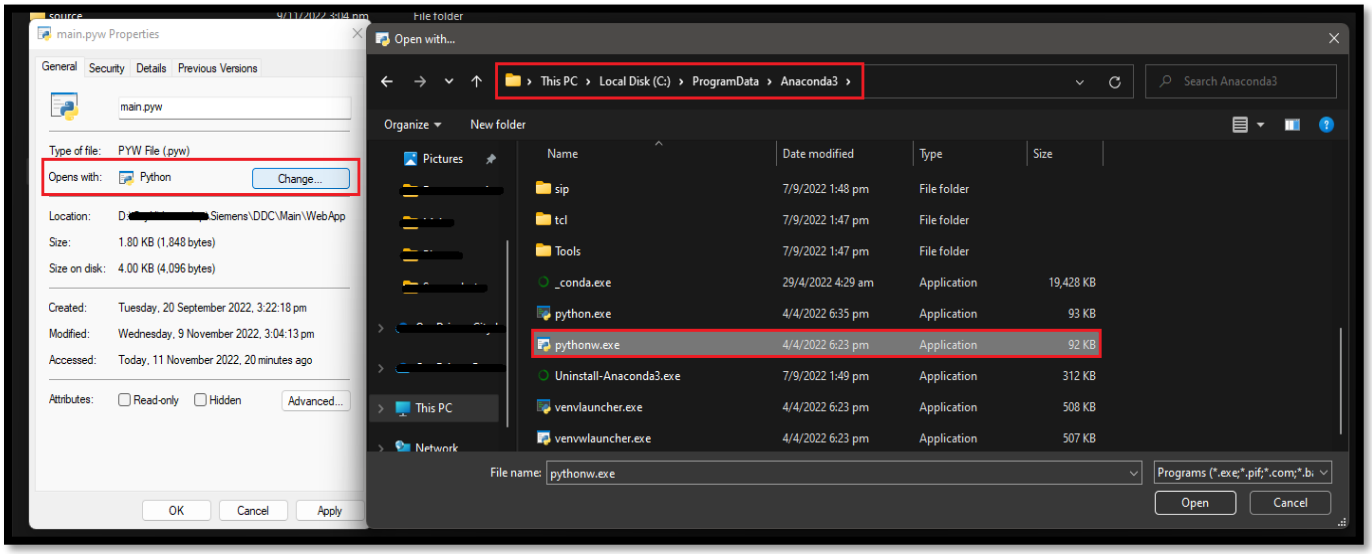
4.1.1 File Configuration

The following steps are to be followed to configure the python program files:

- Open the **run.bat** file in VS Code and check if the path to the **.pyw** files are correct.



- In the folder containing the **.pyw** files, right click on each file and select properties
  - In properties, change **"Opens with"** to **pythonw.exe** from "C:\Program Data\Anaconda3"



4.1.2 Launching

The following steps are to be followed to launch the WebApp:

- Launch **CMD.exe** from Anaconda Navigator
  - In CMD.exe, write **"cd"** then the **path** to **WebApp directory**
  - Then write **"run.bat"** to launch the python program
  - To close the program, write **"kill.bat"**