

## **Objective:**

- To create an UiPath program to automate the extraction of GeBIZ project opportunities information data onto spreadsheets to facilitate the processing, tracking and comparison as well as to automatically download and sort the attached documents to respective folders for easy reference.
- To explore other possible GeBIZ automation features. (TBD)

## **The Project Plans:**

1. Auto login to GeBIZ with user GeBIZ ID or Singpass with secure credential. (done for Singpass)
2. Read keywords from an excel file then auto scrape all the available data from all the searched results (ie, project opportunities) on GeBIZ to another excel files. (done)
3. Auto download all the attached tender/quotation documents to specified folders on local drive. (done)
4. Complete incomplete scraping (eg, multiple Corrigendum versions, multiple Item-to-Respond for either PartNo, Item and Delivery Info Tables, ,etc) - (done)
5. Continue to debug, optimization and improve stability if necessary - (On-going - refer to program history below for details)
6. Setup auto calendar alert for site briefing and open tender closing dates.(Pending)
7. Other requirement and improvement -> Create standalone programs to scrape overview data from large search counts(max 90) for Daily, Opened, Closed projects onto excel sheets. (done)

## **About the UiPath program:**

- The UiPath folder should contain the following files:
  - MainV4.xaml - (updated to V4 on 03Jul2021 - refer to program history for changes details and the need of modify the default download path)
  - Credential\_Login.xaml - (for auto Singpass credential login. User need to setup Generic Credentials with title=Singpass upfront)
  - Extraction\_for\_TodayOpenOverview.xaml - (for extracting Overview info for all opened opportunities for Today)
  - Extraction\_for\_KeywordOpenOverview.xaml - (for extracting Overview info for all opened opportunities found for a keyword)
  - Extraction\_for\_KeywordCloseOverview.xaml - (for extracting Overview info for all closed projects includes ClosedDate, Awarded To/Value/Date)

- project.json
- setup.xlsx - (Developer created setup file. See note for xlsx files below for details)
- ProjectDetail.xlsx - (auto created if not exist. See note for xlsx files below for details)
- ItemToRespond.xlsx - (auto created if not exist. See note for xlsx files below for details)
- ProjectOverview\_TodayOpen.xlsx - (auto created if not exist. See note for xlsx files below for details)
- ProjectOverview\_KeywordOpen.xlsx - (auto created if not exist. See note for xlsx files below for details)
- ProjectOverview\_KeywordClose.xlsx - (auto created if not exist. See note for xlsx files below for details)
- ReadmeV4.pdf - (This file - contains all necessary information and status for the projects plan and the UiPath program)

### **- Important note Before running the UiPath program:**

1. Use firefox Brower with zoom level set at 100% and install UiPath extension if necessary.
2. User might need to install UiPath packages: UiPath.Credentials.Activities, Scroll Activity(by Lothar Verledens) if they are not installed.
3. User can run the standalone Credential\_Login.xaml to auto login if desired.  
  
(the program will prompt user to close all GeBIZ web pages before proceeding)
4. Each time before re-running the program, the GeBIZ website must stay at the currently working Opportunities page.(no need to return to home page).
5. You may blank the keyword field in setup.xlsx to run the current search results but the UserIndex field must be either "0"(run all searched projects)  
  
or a number that corresponds to one of the searched project. Specific searched projects can be run altogether by appending their index to UserIndex fields.
6. Folders named by respective keywords and project index number will be auto generated under the default UiPath folder.
7. All the downloaded tendering and corrigendum documents in the download folder will be auto transferred to the above folders during runtime.
8. These folders and files will be overwritten by the same keyword searching if not being moved out.
9. User should monitor for possible messagebox pop outs and react accordingly. (eg, monitor download folder for in-progress big files)

10. Estimated execution time for each searched project take around 2mins. Expecting longer time if involved multiple pages downloading.

11.The program will prompt user to confirm whether to proceed if search count >6. To abort, right clicking the minimized UiPath window then close it.

12.Avisable not to turnoff the MessageBox monitoring for each keyword index looping until the status is satisfied. (refer to program history for how to)

13.Must monitor if MessageBox pop-up to prompt user to check if big file has completed downloading (ie, no more .part file) in the download folder.

(this is to prevent exception error due to long downloading time during moving files.)

14.When running the standalone .xaml, remember to use RunFile.

### **Known issues:**

- Old doc format (ie, .doc) cannot be auto downloaded (firefox constraint)
- Duplicate Corrigendum documents downloading if the next Corrigendum version has no document.
- Corrigendum version older than 10 will be omitted due to unstable selectors.
- Headers for scraped data were not yet be able to auto upload.(Fixed in MainV3)
- Auto downloading with multiple pages is yet to be fixed. (Fixed in MainV3)
- Missing data scraping for the following data from ItemToRespond from some rare projects; (Fixed in MainV4)

(eg, PART NO. INFORMATION, NSN, Minimum Shelf Life, S/N, MPN, Cage Code, Cage Name)

### **Notes for the .xlsx files:**

setup.xlsx: (for user to input keywords with options and house the headers template)

- For sheet name "setups":

1. Under column name "KeyWords" (columnA)- contains user defined keywords.

a. User can add as many keywords as they need but these keywords should have been verified for the adequate search count.

b. If it is left blank, the program will run the current search result on Opportunities page that required by the user.

2. Under column name "UserIndexs" (columnB) - contains user defined execution options:

Enter "0" for the default execution (ie, run all the available searched projects in sequence for each keyword)

Enter other number(limit to max of 90) will select which searched project count(ie, UserIndex) to execute

(eg, enter 2 will run only the 2nd search project of the corresponding keyword)

If the entry is blank, program will default it to "0".

User can append the same keyword with different UserIndexs nbr to run selective project index for the same keyword.

3. Under column names "skipMsgbox","printOneVersinOnly","VersionCountLimit", user can use these cells to pre-set the program option default setting as mentioned in the program history.

- For sheet names "headers":

Contains pre-defined headers for the respective scraped data. Both will be written to ProjectDetail.xlsx respectively during program run time.

User must not delete nor change the spelling of these headers unless the corresponding changes are also made in the UiPath program.

ProjectDetail.xlsx :

1. For collecting all the scraped data except for the tabulated data from Item-To-Respond.
2. Each keyword will create one sheet to store data. Newly scraped data from the same keyword will be appended.

ItemToRespond.xlsx :

1. For collecting all the extracted tabulated data from Item-To-Respond which includes Part No. , Delivery Information, etc)
2. Each keyword will create one sheet to store data. Newly scraped data from the same keyword will be appended.
3. The headers are pre-defined in the UiPath program.

ProjectOverview TodayOpen.xlsx :

- For collecting the overview data scrapped by the standalone program:Extraction\_for\_TodayOpenOverview.xaml

ProjectOverview KeywordOpen.xlsx :

- For collecting the overview data scrapped by the standalone program:Extraction\_for\_KeywordOpenOverview.xaml

ProjectOverview KeywordClose.xlsx :

- For collecting the overview data scraped by the standalone program:Extraction\_for\_KeywordCloseOverview.xaml

## **Program history:**

Main.xaml - 19Jun2021: Initial Release - (auto data scraping is limited to open opportunities only)

Main.xamlV1- 23Jun2021:Add data scraping for ItemToRespond, Corrigendum/document download via dynamic selector looping.

Main.xamlV2- 26Jun2021:- Change to use Table Scraping for unlimited ItemToRespond and DELIVERY INFORMATION Tables.

- Limit Corrigendum scraping and its doc downloading up to 10 VERSIONs.
- Merge user keywords input and data header template to setup.xlsx.
- Output scraped data to GeBIZoutput.xlsx and ItemsToRespond.xlsx (latter is for ItemToRespond/Tables)
- Need to install ScrollActivity dependency package for auto up/down scrolling of window.

Main.xamlV3- 29Jun2021 - Fixed multiple download pages for both tender and corrigendum Documents.

- Fixed auto header generation issue on ItemToRespond.xlsx.

Main.xamlV4- 03Jul2021 - Add new variable (DownLoadFolder) for user to update their PC's default downloading path under the Variable Scope.

- Fixed bugs on ItemToRespond auto header generation.
- Fixed bugs on Corrigendum document download retry iteration.
- Add option (printOneVersionOnly) to download only the latest version or all versions (limit to the setting in VersionCountLimit and up to max of 10) of corrigendum documents.
- Add option (skipMsgbox) to skip(default=false) messagebox promptings for the status of each searched project.
- Change file name from GeBIZoutput.xlsx to ProjectDetail.xlsx and update setup.xlsx with additional and revised headers.
- Uploading of data to ProjectDetail.xlsx will be done at end of each project instead of doing at the end of program.
- Include data scraping of "MANUAL COLLECTION INFORMATION" from some rare projects.

- Include table extraction for "PART NO. INFORMATION" and "ITEMS" from ItemToRespond.
- Created standalone Credential\_Login.xaml for auto login with Singpass credential.
- Created standalone Extraction\_for\_TodayOpenOverview.xaml(all the today's opened project overviews will be scraped - limit to 90)
- Created standalone Extraction\_for\_KeywordOpenOverview.xaml(all searched opened project overviews per keyword will be scraped - limit to 90)
- Created standalone Extraction\_for\_KeywordCloseOverview.xaml(all searched closed project info per keyword will be scraped - limit to 90)