



“The Dream” Instruction manual August 2020

What is “The Dream”?

The project is divided into simple two categories, for automating two different data tables.

| CITIES | ICAO | IATA | ELEV | ISA+15 | RWY | WIDTH |
|-----------------|------|------|------|--------|--------|-------|
| Van Nuys | KVNY | VNY | 802 | 28 | 8,001 | 150 |
| Palm Springs | KPSP | PSP | 476 | 29 | 10,000 | 150 |
| Teterboro | KTEB | TEB | 8 | 30 | 7,000 | 150 |
| Indianapolis | KIND | IND | 796 | 28 | 11,200 | 150 |
| Olbia Costa Sme | LIEO | OLB | 37 | 30 | 8,022 | 148 |
| Atlanta | KATL | ATL | 1026 | 28 | 12,390 | 150 |

| AIRCRAFT | CITY | TOW @ ISA +15 (APG) | INFO | SPEED | PAX/PAX WEIGHT | RANGE |
|-------------|------|---------------------|---------------------------------|-------|----------------|------------------|
| L75 Liberty | KVNY | 21500 | Multiple runway, multiple flaps | M | M | 2080 (Marketing) |
| | KPSP | 21500 | Multiple runway, multiple flaps | M | M | 2080 (Marketing) |
| | KTEB | 21500 | Multiple runway, multiple flaps | M | M | 2080 (Marketing) |
| | KIND | 21500 | Multiple runway, multiple flaps | M | M | 2080 (Marketing) |
| | LIEO | 21500 | Multiple runway, multiple flaps | M | M | 2080 (Marketing) |
| | KATL | 21500 | Multiple runway, multiple flaps | M | M | 2080 (Marketing) |

1. Automating Table 1 by parsing through ACU-KWIK

2. Automating Table 2 by parsing through APG reports.

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Achieving “The Dream”

The essence of this project is to “web scrape” and automate data collection. We scrape from websites like ACU-KWIK and APG. The goal is to:

1. **Reduce human error, and increase time saving**
2. **Make the job easier**

This is ultimately working towards **automated range maps (and route studies!)** meaning they can easily be done by anyone (i.e. Sales Directors could complete requests with no support).

With...



1

Table 1

Parsing through the HTML source of ACU-KWIK website, using ICAO codes as identifiers

Text-fields into data frame

2

Table 2

Parsing through PDFs generated by APG and auto-searching maximum weights

Parsed output into data frame



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Contents

This document is divided into the following categories. Click on the words to navigate directly!

1. [Installation](#)
2. [Pre-requirements](#)
3. [Using the tool](#)
4. [Extra functionalities](#)
5. [Link to RAPV](#)
6. [Troubleshooting/FAQ](#)
7. [Goals](#)
8. [Author](#)

1. Installation

Downloading








The project is hosted on Sales Engineering's Sharepoint. If you have access to this Sharepoint, you can use this [link](#).

If you do not have access to Sales Engineering's Sharepoint, contact Mathieu St-Cyr (mathieu.st-cyr@aero.bombardier.com) to get access.

Future hosting could be via a more accessible Sharepoint folder shared amongst many teams. It could also be transferred via a USB.

Once you click on the link, download "The Dream" zip folder and the template excel file. This downloading step may not be required if you already have a parent folder synced (like Performance Tools). In this case, you might be able to extract straight away.

Documents > Sales Engineering - DO NOT SYNC > Performance Tools > The Dream

|  | Name ▾ | Content Type ▾ | Modified ▾ | Modified By ▾ | + Add column ▾ |
|---|---|----------------|-----------------------|--------------------|----------------|
|  | Shared Database Test | Folder | July 20 | Siddharth Raghavan | |
|  | Installation instructions.txt | _Unclassified | Yesterday at 10:21 AM | Siddharth Raghavan | |
|  |  TemplateV2.xlsm | | Yesterday at 10:39 AM | Siddharth Raghavan | |
|  |  The Dream.zip | | Yesterday at 12:07 PM | Siddharth Raghavan | |

Download

Delete

Move to








Copy to

1. Installation - continued

Installation text doc

Also in the Sharepoint folder, you can view the “Installation instructions” text document, which details 10 simple steps to follow to set-up the tool. Follow these instructions. This manual also walks a user through these steps.

Documents > Sales Engineering - DO NOT SYNC > Performance Tools > The Dream

|  | Name ▾ | | Content Type ▾ | Modified ▾ | Modified By ▾ | + Add column ▾ |
|---|-------------------------------|---|----------------|-----------------------|--------------------|----------------|
|  | Shared Database Test | | Folder | July 20 | Siddharth Raghavan | |
|  | Installation instructions.txt |   | _Unclassified | Yesterday at 10:21 AM | Siddharth Raghavan | |
|  | TemplateV2.xlsm | | _Unclassified | Yesterday at 10:39 AM | Siddharth Raghavan | |
|  | The Dream.zip | | _Unclassified | Yesterday at 12:07 PM | Siddharth Raghavan | |

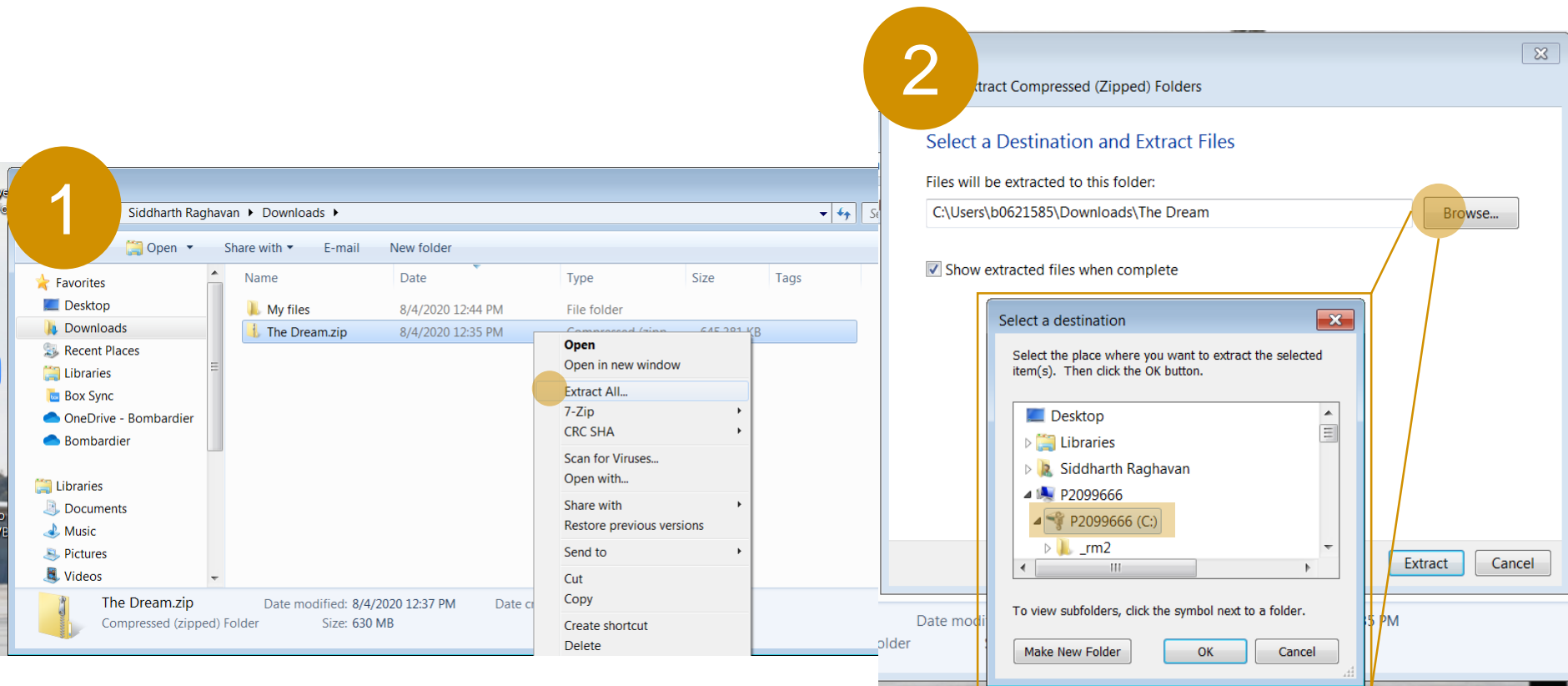
Installation instructions.txt

```
1 July 23, 2020 - Installation instructions for "The Dream"
2 By Siddharth Raghavan
3
4 1. "The Dream" is placed in ... Sales Engineering - DO NOT SYNC -> Performance Tools ->
5
6 2. In this folder, you will see "The Dream" main zipped folder, this text doc updating i
7 template excel macro files
8
9 3. Download "The Dream" zip folder, and download the other two files (this instruction t
10
11 4. THIS DOWNLOAD TAKES A WHITTLE!! The zipped folder is big (~630 MB) and so it took me a
```

1. Installation - continued

Extraction

Once you download the zip folder, extract it to your C: drive as shown. Click “OK” and then “Extract” once the correct location is chosen. Extraction may take a while. If you have a previous version of “The Dream”, delete it completely **before** the extraction.



1. Installation - continued

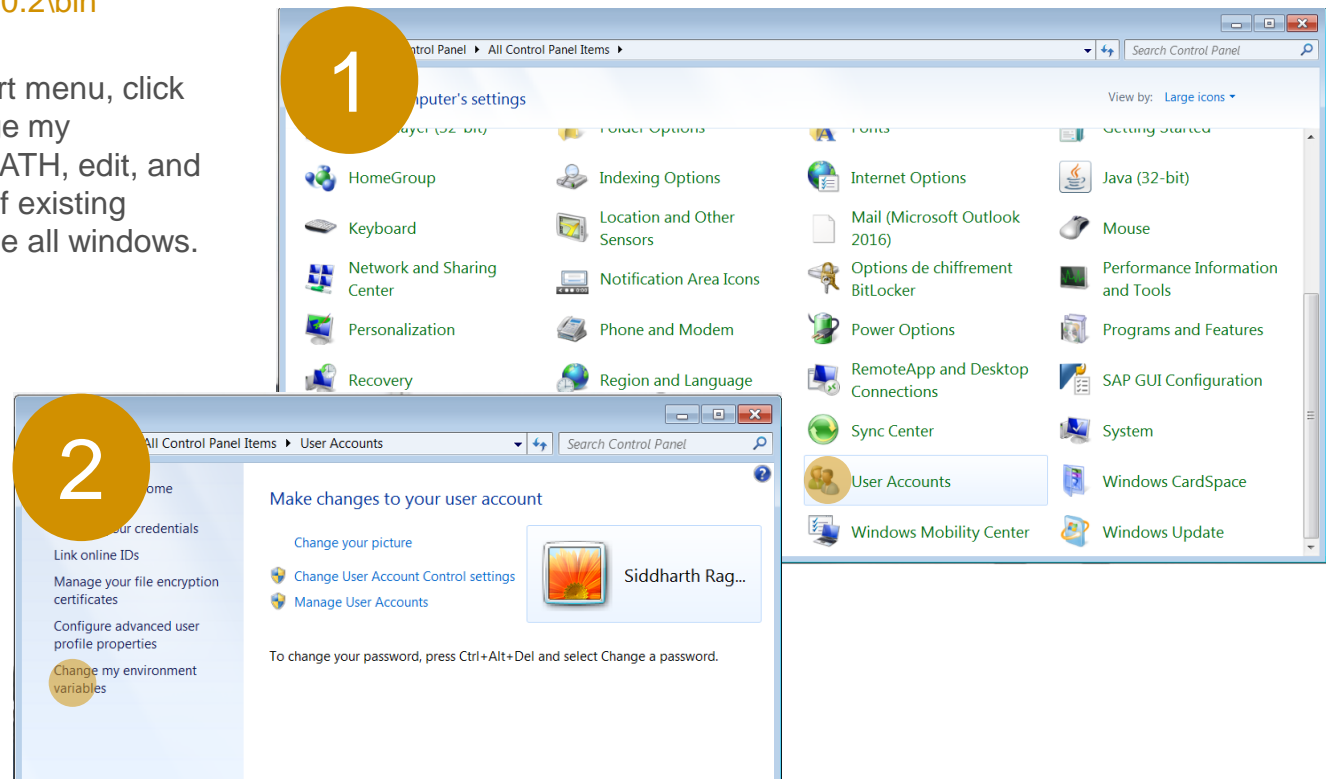
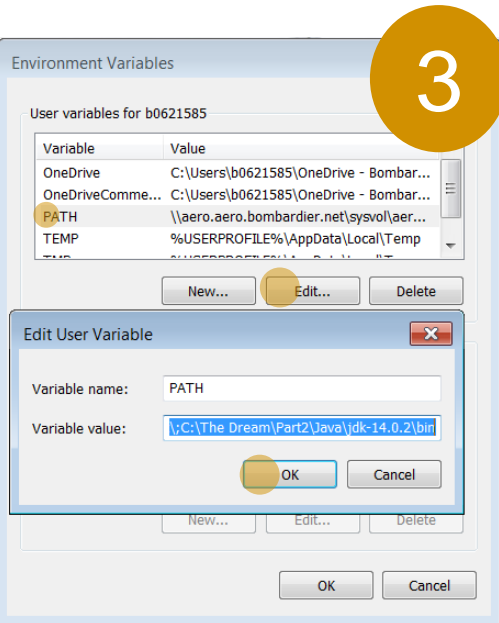
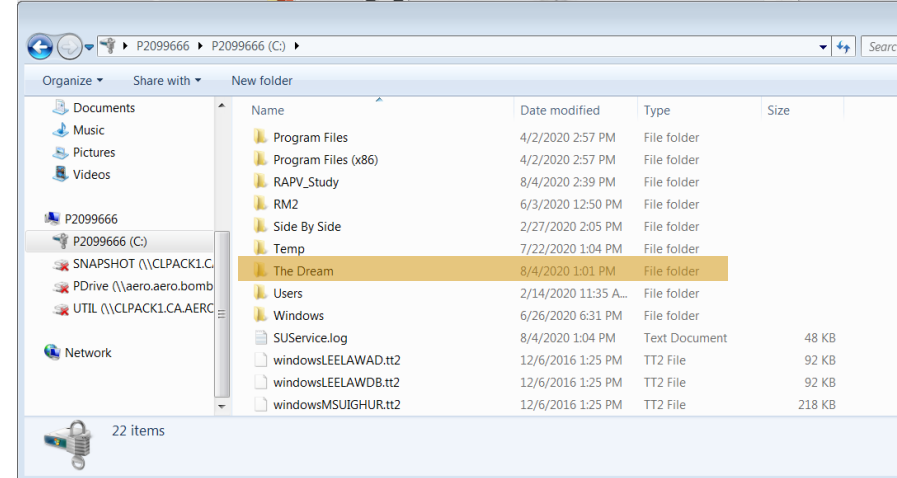
Setting Java path

Now, you should have “The Dream” on your C: drive. Continue following instructions as per the “Installation instructions” text doc.

Copy the path below.

;C:\The Dream\Part2\Java\jdk-14.0.2\bin

Go to the Control Panel in the start menu, click on User Accounts, then on Change my Environment variables. Click on PATH, edit, and paste the **path above** at the **end** of existing PATH. Click OK, and OK and close all windows.



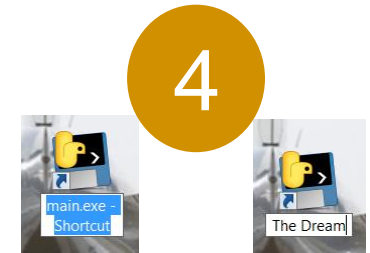
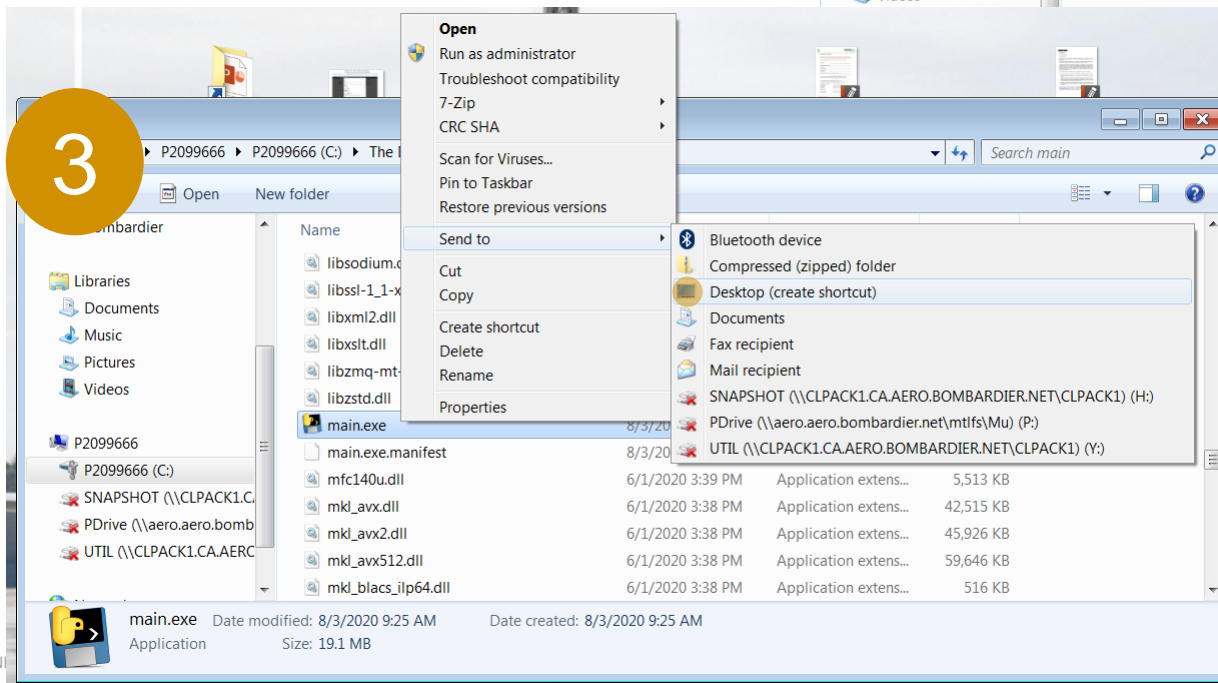
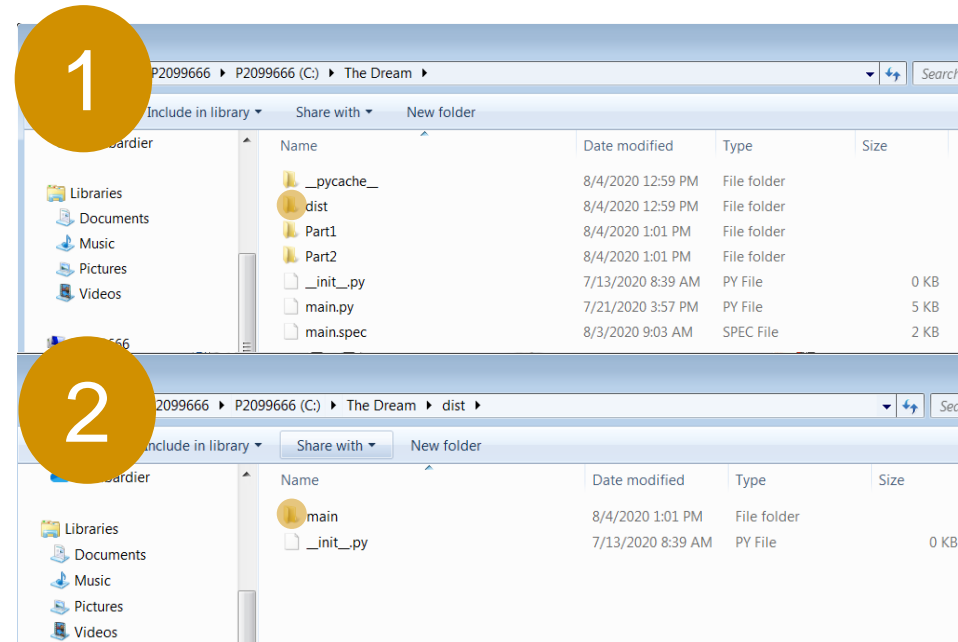
BOMBARDIER

1. Installation - continued

Creating desktop shortcut

Open “The Dream” on the C: drive. Navigate to dist, then to main, and then scroll till you find “main.exe”. Right-click, send to, and create a desktop shortcut.

You can rename this shortcut on your desktop if you wish to. The tool is now installed! You will never need to find this directory again!



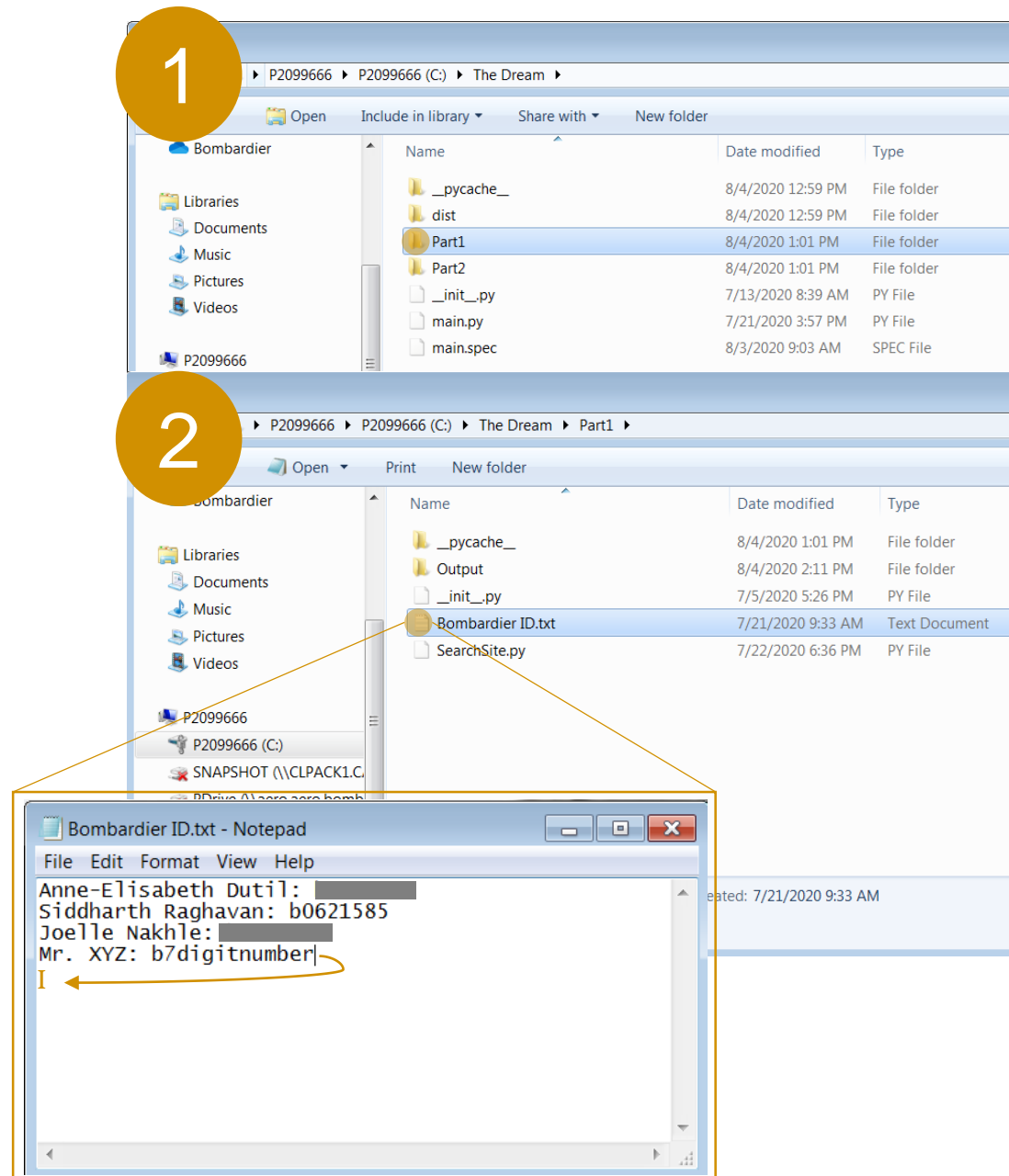
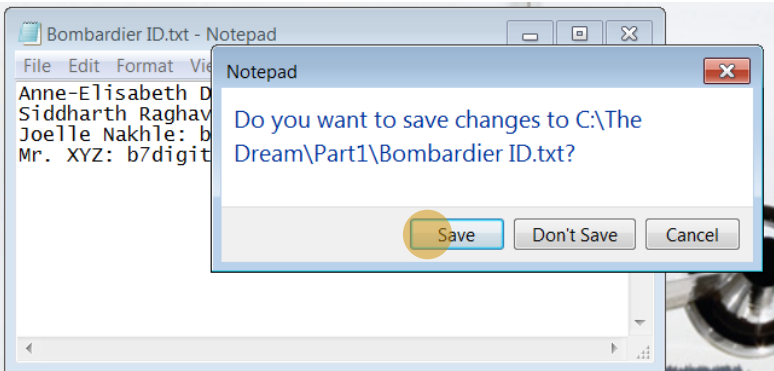
BOMBARDIER

2. Pre-requirements

ID number for database

Before you start using the tool, make sure certain pre-requirements are satisfied. First, you need to have your name and ID in the tool's database searcher. Go to "The Dream" and click on Part 1, then click on the Bombardier ID text doc.

Enter your name, followed by a colon, and then your Bombardier ID number. Make sure to hit ENTER after you're done (i.e. cursor is on next line). Close the text doc and save when prompted.



BOMBARDIER

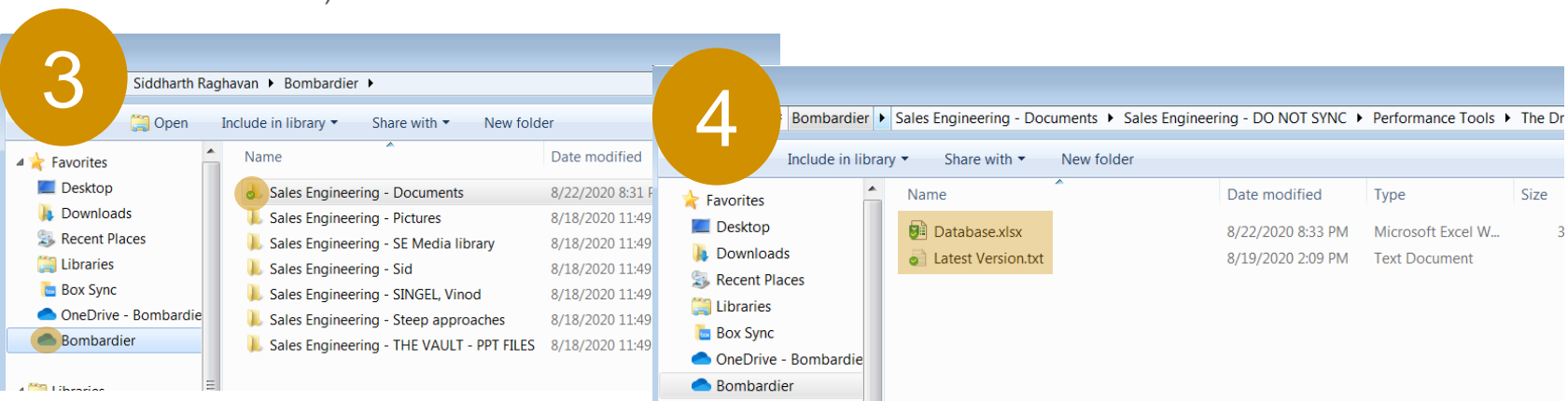
2. Pre-requirements - continued

Syncing for database and latest version

Second, you need to make sure that the database file and latest version text file on Sharepoint are synced. To do this, use the Sharepoint link again ([link](#)) and click on Synced Files. Then, click on Sync. With a properly set-up OneDrive account, you should be able to see this folder on your laptop.

You can check this by looking at your File Explorer, clicking on Bombardier (with the OneDrive icon), navigating to Synced Files, and then verifying that the Excel file and text file are there.

(Syncing may not be required if you have already synced a parent folder, like “Performance Tools”)



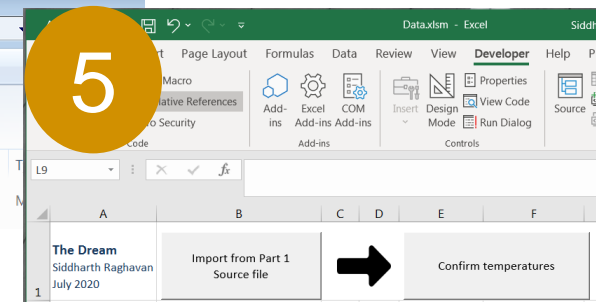
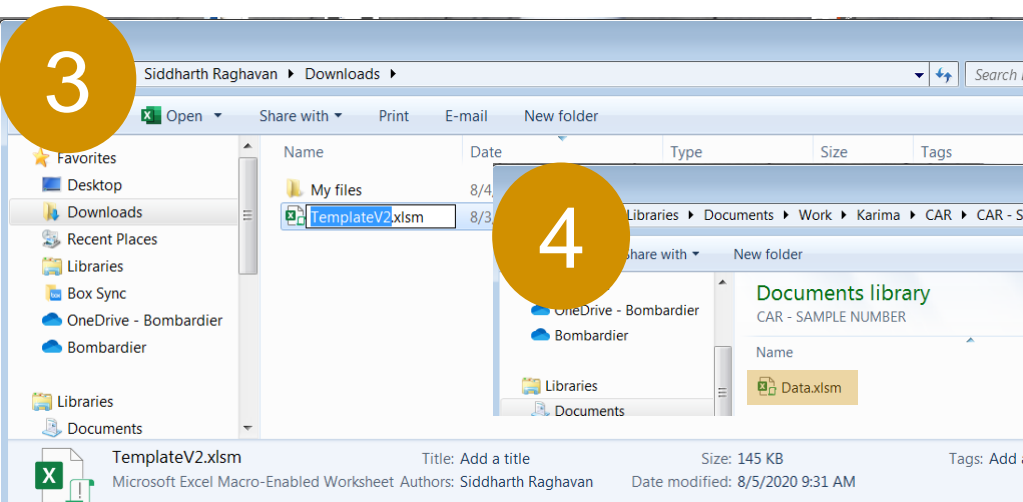
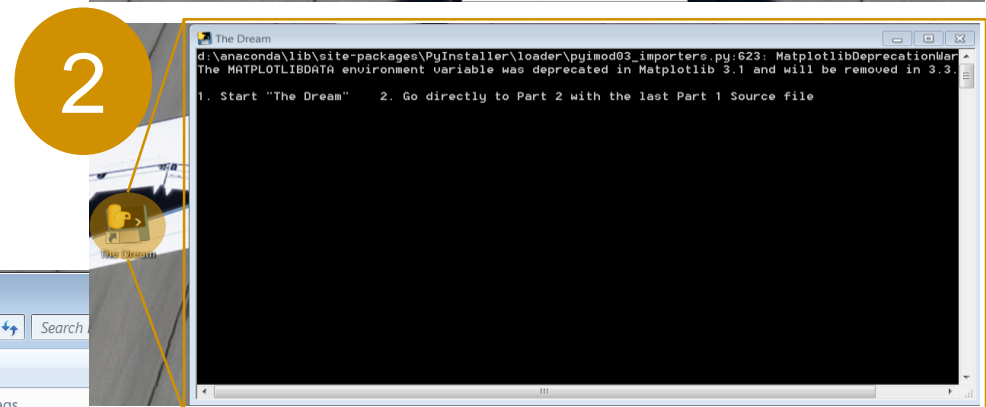
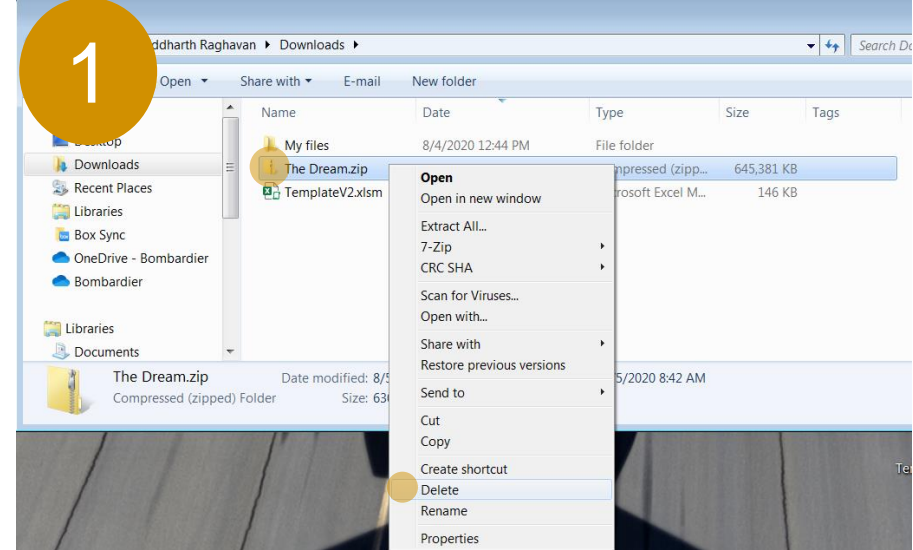
BOMBARDIER

3. Using the tool

Opening relevant interfaces

You're all ready to use the tool! You can delete the zipped folder that you downloaded. Double-click on the shortcut you created on the desktop. This will open a prompt window, which will be the main interface.

Now, for the template Excel file, you can move/copy this Excel file to any location you wish to. You can rename that file (or copy of that file) if you want. I've moved a copy of the template file to a CAR folder, with a new name – Data. Open the file. This will be the secondary interface.

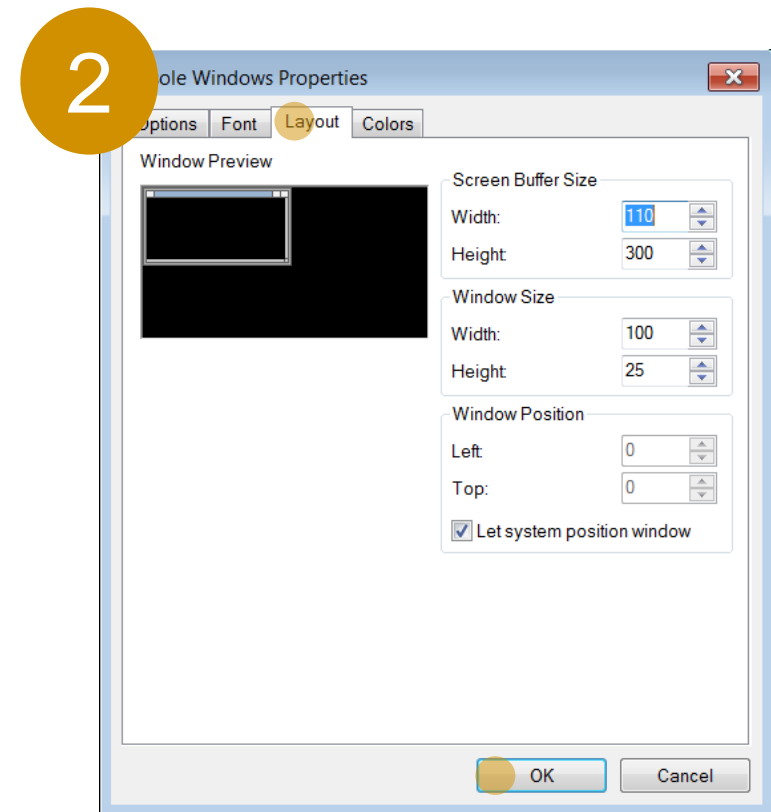
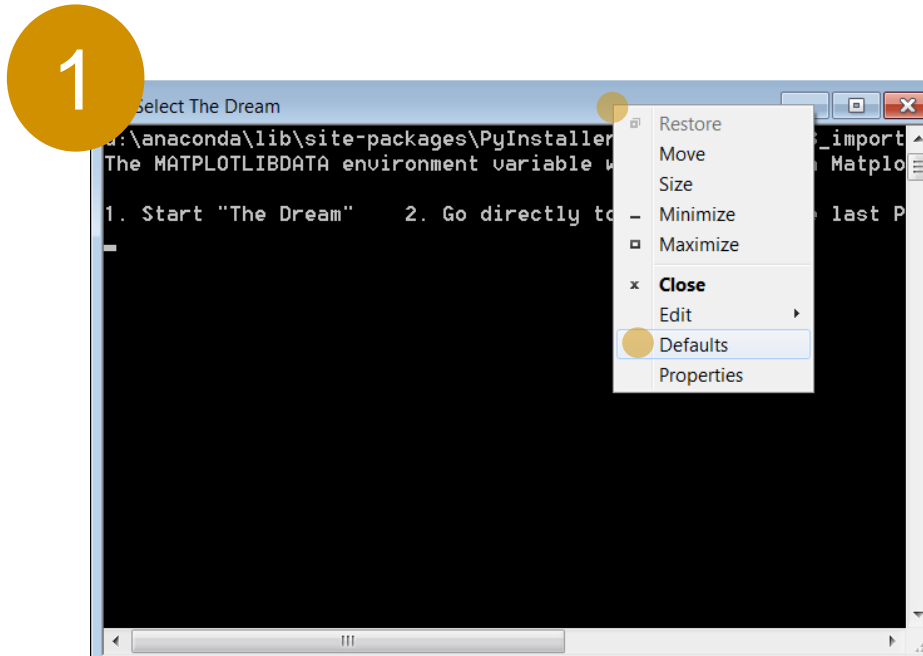


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3. Using the tool - continued

Re-sizing prompt window

You can re-size the prompt window, if it suits your needs. You can do this by right-clicking on the top of the window, and then clicking Defaults. Then click on Layout and enter your preferred dimensions. I have mine at 110x300 buffer size, and 100x25 window size. Click OK once done.



3. Using the tool - continued

ICAO code/city name inputs

Say I receive a range map request.

It is for "KASE, KAPF, London, Dubai, Hong Kong". It is to be a comparison between the Global 7500 and the G650ER. The takeoff weights (TOWs) are to be computed at a standard ISA+15C. Wet runway performance is not needed.

Start by choosing 1. Start "The Dream". To do this, simply type 1, and hit ENTER. Type in the ICAO codes/city names. Hit ENTER after you type each one. Once all ICAO codes/city names are entered, type "escape" and hit ENTER. This ends the list. Anything you type in is case-insensitive (i.e. you can type "london", not necessarily "London". Or you can type "kaSe" not necessarily "KASE")

1

```
lib\site-packages\PyInstaller\loader\pyimod03_importers.py:623: MatplotlibDeprecationWarning: The LIBDATA environment variable was deprecated in Matplotlib 3.1 and will be removed in 3.3.
1. Start "The Dream"    2. Go directly to Part 2 with the last Part 1 Source file
1
Enter the ICAO codes or the Cities of desired airports.
Type ESCAPE to end the list.

1. KASE
2. KAPF_
```

2

```
lib\site-packages\PyInstaller\loader\pyimod03_importers.py:623: MatplotlibDeprecationWarning: The LIBDATA environment variable was deprecated in Matplotlib 3.1 and will be removed in 3.3.
1. Start "The Dream"    2. Go directly to Part 2 with the last Part 1 Source file
1
Enter the ICAO codes or the Cities of desired airports.
Type ESCAPE to end the list.

1. KASE
2. KAPF
3. london
4. dubai
5. hong kong
6. escape_
```

3. Using the tool - continued

Code selection for city names

If you input some city names (like in our example), you will get new prompts to choose specific codes for that city name. So make sure you know which airport you're flying from if you input city names! For our example, London likely refers to Heathrow Int'l (EGLL), Dubai likely refers to the Dubai Int'l (OMDB), and Hong Kong likely refers to Hong Kong Int'l (VHHH). The choices input are therefore 6, 1, and 3 respectively. Hit ENTER after you type each number.

You will then receive a prompt to go into Part 2.

1

2

```
Enter ICAO codes or the Cities of desired airports.  
Type ESCAPE to end the list.  
  
1. KASE  
2. KAPF  
3. london  
4. dubai  
5. hong kong  
6. escape  
  
The corresponding ICAO code(s) for 'london' listed on the database include:  
1. KUYF      2. KLOZ      3. KGON      4. FAEL      5. EGSS      6. EGLL      7. EGL  
8. EGKK      9. EGGW     10. EGAE     11. CYXU     12. 23UT  
  
Enter the corresponding number. 6  
  
The corresponding ICAO code(s) for 'dubai' listed on the database include:  
1. OMDB  
  
Enter the corresponding number. 1  
  
The corresponding ICAO code(s) for 'hong kong' listed on the database include:  
1. UHST      2. UHSK      3. VHHH  
  
Enter the corresponding number. 3
```

3. Using the tool - continued

Importing Part 1 source file and confirming temperatures

Before proceeding to Part 2, click on the first button (Import from Part 1 Source file) on your Excel file. This will clear what was previously on the file and fill it in with your all information for your list of airfields. By default, the temperatures are ISA+15C (rightmost column). Since the request specified ISA+15C, we don't need to change any temperatures. Click the second button (Confirm temperatures).

Now we can proceed to Part 2. Back on the prompt window, type in “y” or “yes” or anything starting with “y” (case-insensitive). Hit ENTER.

The Dream
Siddharth Raghavan
July 2020

1
2
3
4
5
6
7
8
9
10
11
12

Merge
Unmerge

Import from Part 1 Source file → Confirm temperatures → Import from Source

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C |
|---------------------------------|------|------|-----------|---------------|-------|------------------|---------|
| Aspen, CO, USA | KASE | ASE | 7,838 | 8,006 | 100 | Asphalt/Grooved | 14 |
| Naples, FL, USA | KAPF | APF | 8 | 6,600 | 150 | Asphalt/Grooved | 30 |
| London, UNITED KINGDOM | EGLL | LHR | 83 | 12,802 | 164 | Asphalt, grooved | 30 |
| Dubai, DU, UNITED ARAB EMIRATES | OMDB | DXB | 62 | 14,590 | 198 | Asphalt | 30 |
| Hong Kong, HONG KONG SAR | VHHH | HKG | 28 | 12,467 | 197 | Asphalt | 30 |

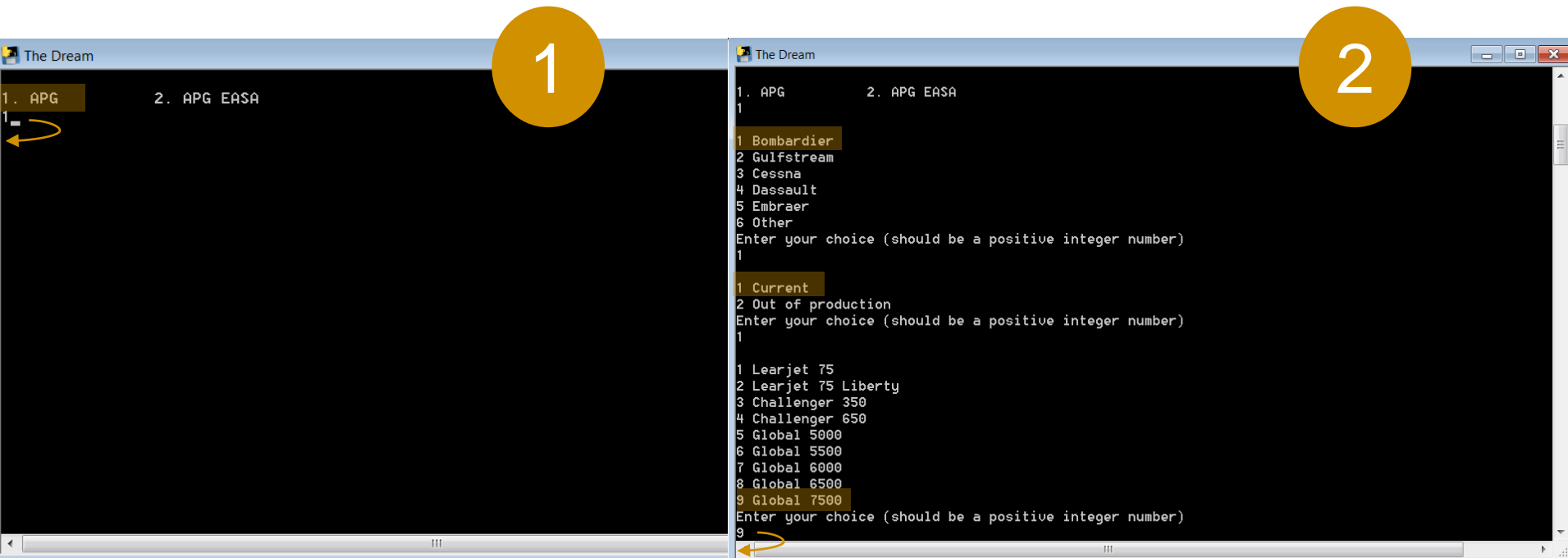
Part 1 Source file ready.
Make sure you CONFIRM TEMPERATURES in Part 1!
Go into Part 2? Y for yes, otherwise for no.
y=

3. Using the tool - continued

Choosing aircraft

Usually we use APG (and not APG EASA) unless it is explicitly a European-based request (using EU-OPS fuel reserves). For this sample request, we choose 1 (APG) by typing 1 and hitting ENTER. A Chrome window will open. **Do not minimize** this browser window. **It should be left alone** (i.e. no clicking on the window) in the background, and you can work on other browser windows as normal.

Next, choose your first aircraft. For this request, we first choose the Global 7500. We type 1, 1, and 9 to choose this aircraft. Hit ENTER after each number input.



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3. Using the tool - continued

Default options

This is a request for dry takeoff performance. Also, no landing performance is required. Hence, we type “y” or “Yes” or anything starting with “Y” (case-insensitive) for Default options. Hit ENTER. Wait and let magic happen!

The screenshot displays the APG WinPlan web application interface. The browser address bar shows <https://atlas.apgdata.com/WinPlan5/Analysis.aspx>. The interface is divided into two main steps:

Step 1 - Select Aircraft and Set Delivery

- Aircraft: GLOBAL7500 GEP20-19BB1A (Tail#: GLOBAL7500)
- Contaminants: select one or more optional contaminants
- Email: ☐ mathieu.st-cyr@aero.bombardier.com
- TO Options: 2 TRs, ANTI-ICE OFF, ECS OFF, AF STATIC TAKEOFF, NORMAL THRU PROC
- Running Analysis... button

Step 2 - Select Airfields and Customize Analysis

ICAO: Add Takeoff Add Landing Add Both

Airfield List

| | ICAO | IATA | Name | City | State |
|--------------------------|------|------|-----------------------|-----------|-------|
| <input type="checkbox"/> | KASE | ASE | ASPEN-PITKIN CO/SARDY | ASPEN | CO |
| <input type="checkbox"/> | KAPF | APF | NAPLES MUNI | NAPLES | FL |
| <input type="checkbox"/> | EGLL | LHR | HEATHROW | LONDON | GBR |
| <input type="checkbox"/> | OMDB | DXB | DUBAI INTL | DUBAI | ARE |
| <input type="checkbox"/> | VHHH | HKG | HONG KONG INTL | HONG KONG | CHN |

The Dream terminal window overlay:

```
2 Gulfstream
3 Cessna
4 Dassault
5 Embraer
6 Other
Enter your choice (should be a positive integer number)
1
1 Current
2 Out of production
Enter your choice (should be a positive integer number)
1
1 Learjet 75
2 Learjet 75 Liberty
3 Challenger 350
4 Challenger 650
5 Global 5000
6 Global 5500
7 Global 6000
8 Global 6500
9 Global 7500
Enter your choice (should be a positive integer number)
9
Implement default options? (Only takeoff data on dry runways) Y for yes, otherwise for no
y
```

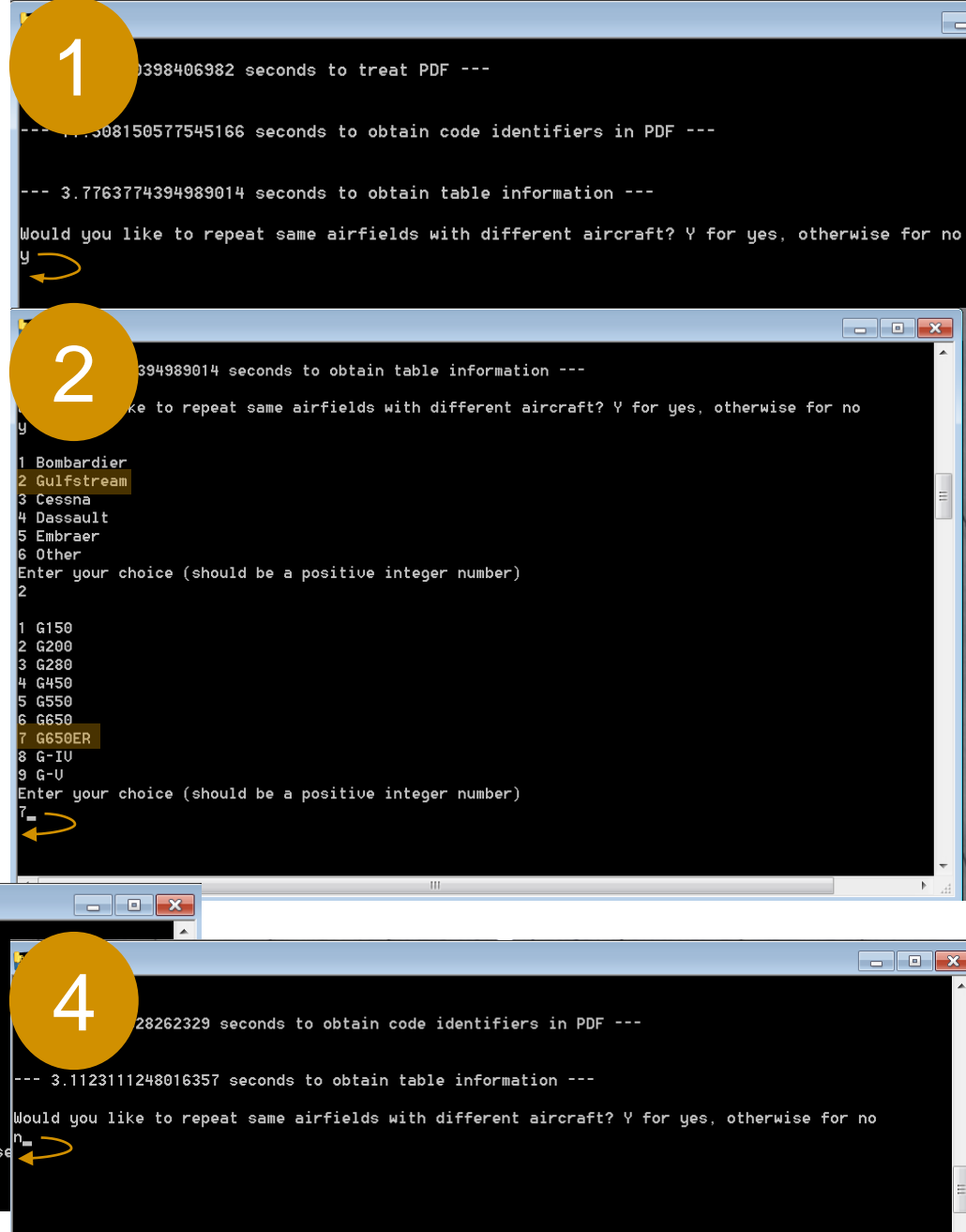
3. Using the tool - continued

Multiple aircraft

The browser windows will close automatically, and some processing of data will happen. You will be updated on what's happening through statements on your prompt. Finally, you will be asked if you want to repeat the same analysis with a different aircraft. Since our demo request is a comparison with the G650ER, we type "y" or "Yes" or anything starting with "y" (case-insensitive) and hit ENTER.

For the G650ER, we type 2 and then 7. Hit ENTER after each input. We will implement default options again, so type "y" and hit ENTER. The same automation will occur. Wait for a while for the processing to finish.

Since we have no more aircraft to analyze, we can type "n" (or anything not starting with "y") and hit ENTER.



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3. Using the tool - continued

Importing from Part 2 source file, and range map table

We are done collecting and processing data! You can leave the tool as is if you have another request to do later, or you can quit the tool by exiting the program (top right 'X' button) or typing anything not starting with "y" and hitting ENTER.

To get the range map table, click the third button (Import from Part 2 Source file) on your Excel file, and then click the fourth button (Range map). At the time of writing this, the fifth button (Route study) has not been programmed yet.

With this, the TOWs are immediately computed, and you can easily fill in the table with information that later gets entered into RAPV/Flight Profiles for range calculation.

1

```
28262329 seconds to obtain code identifiers in PDF ---  
  
--- 3.1123111248016357 seconds to obtain table information ---  
  
Would you like to repeat same airfields with different aircraft? Y for yes, otherwise for no  
n  
  
Part 2 Source file ready!  
  
×FRESH START× Go again? Y for yes, otherwise for no.  
n
```

2

Import from Part 1 Source file

Confirm temperatures

Import from Part 2 Source file

Range map

Route study (not done yet)

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C | | Global 7500 | G650ER |
|---------------------------------|------|------|-----------|---------------|-------|------------------|---------|------|-------------|--------|
| Aspen, CO, USA | KASE | ASE | 7,838 | 8,006 | 100 | Asphalt/Grooved | 14 | KASE | 105181 | 88781 |
| Naples, FL, USA | KAPF | APF | 8 | 6,600 | 150 | Asphalt/Grooved | 30 | KAPF | 107722 | 92562 |
| London, UNITED KINGDOM | EGLL | LHR | 83 | 12,802 | 164 | Asphalt, grooved | 30 | EGLL | 114850 | 103600 |
| Dubai, DU, UNITED ARAB EMIRATES | OMDB | DXB | 62 | 14,590 | 198 | Asphalt | 30 | OMDB | 114850 | 103600 |
| Hong Kong, HONG KONG SAR | VHHH | HKG | 28 | 12,467 | 197 | Asphalt | 30 | VHHH | 114850 | 103600 |

| AIRCRAFT | CITY | SPEED | PAX/PAX WGT | RANGE |
|-------------|------|-------|-------------|-------|
| Global 7500 | KASE | | | |
| | KAPF | | | |
| | EGLL | | | |
| | OMDB | | | |
| | VHHH | | | |
| G650ER | KASE | | | |
| | KAPF | | | |
| | EGLL | | | |
| | OMDB | | | |
| | VHHH | | | |

4. Extra functionalities

Excel - Miscellaneous sheet

There are many extra functionalities implemented in both the Excel and the tool itself. One is the Miscellaneous Entry sheet, titled “MiscEntry” on the Excel template. On this sheet, there are several details that are especially useful for route studies. There is also the average time (in seconds) it took to parse and obtain data for each airfield.

The screenshot shows an Excel spreadsheet with a table of airport data. The table has columns for ICAO, LATITUDE, LONGITUDE, AIRPORT TYPE, AIRPORT OF ENTRY, CUSTOMS, US-CUSTOMS, PRECLEARANCE, and OPEN 24H. A summary row at the bottom of the table shows the 'Average time per URL parse' as 3.07 seconds.

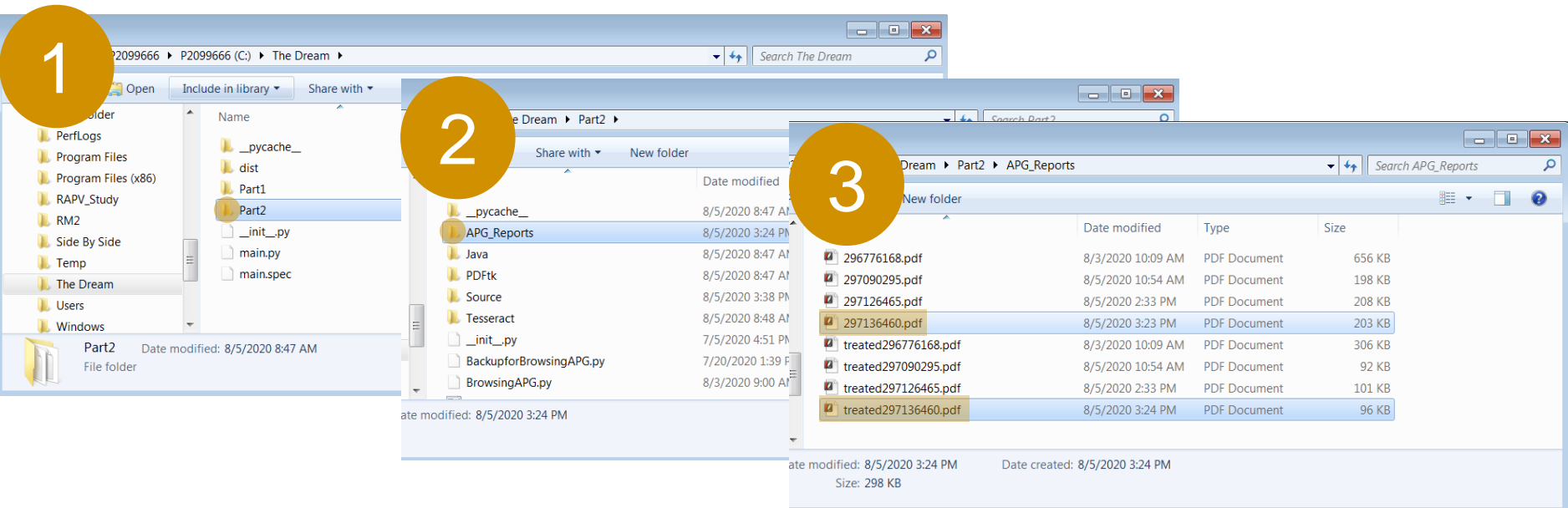
| ICAO | LATITUDE | LONGITUDE | AIRPORT TYPE | AIRPORT OF ENTRY | CUSTOMS | US-CUSTOMS | PRECLEARANCE | OPEN 24H |
|----------------------------|----------|-----------|--------------|------------------|---------|------------|--------------|----------|
| KASE | N39-13.3 | W106-52.1 | Civil | No | No | No | No | No |
| KAPF | N26-09.1 | W081-46.5 | Civil | No | Yes | Yes | No | No |
| EGLL | N51-28.7 | W000-27.7 | Civil | Yes | Yes | No | Restricted | Yes |
| OMDB | N25-15.2 | E055-21.9 | Civil | Yes | Yes | No | Yes | Yes |
| VHHH | N22-18.5 | E113-54.9 | Civil | Yes | Yes | No | Yes | Yes |
| Average time per URL parse | | | | | | | | 3.07 |

4. Extra functionalities - continued

Viewing APG reports

For proper tracking, you may want to view the downloaded APG reports yourself. You will find them in “The Dream” folder on C: drive. Navigate to Part 2, then to APG_Reports. You can view the most recent report(s), rename them, and copy/move them to new locations as desired.

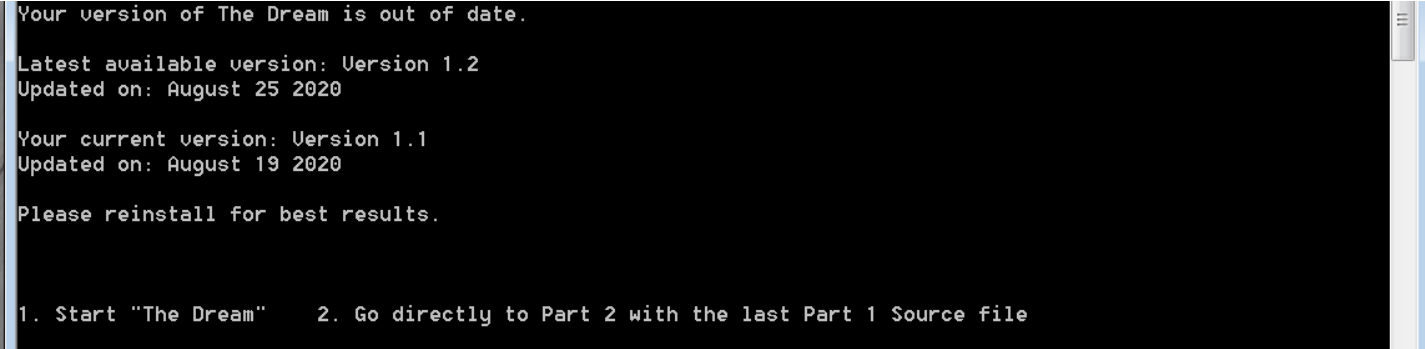
There is a “treated” pdf for every APG pdf downloaded. This treated pdf is for data processing purposes. You can delete them if you wish. If the APG_Reports folder looks cluttered, you can always delete all the pdfs inside.



4. Extra functionalities - continued

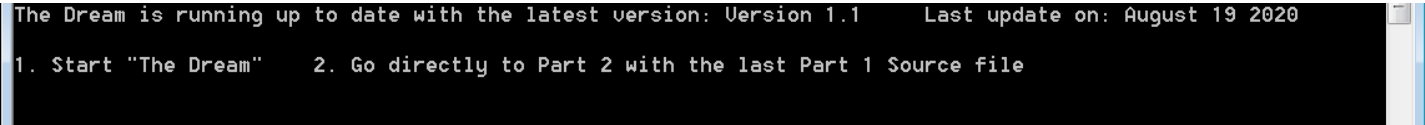
Notification for latest version

The first prompt printed upon opening the prompt window is information of the version number. If your version is out of date, you will see something like the following. It clearly lists your current version number against the latest version number, and advises the user to re-download the zipped folder and re-extract the tool.



```
Your version of The Dream is out of date.  
  
Latest available version: Version 1.2  
Updated on: August 25 2020  
  
Your current version: Version 1.1  
Updated on: August 19 2020  
  
Please reinstall for best results.  
  
1. Start "The Dream"    2. Go directly to Part 2 with the last Part 1 Source file
```

If your version of The Dream is up to date, you will receive the following prompt. Users with this prompt will clearly know that they have the latest version.



```
The Dream is running up to date with the latest version: Version 1.1    Last update on: August 19 2020  
  
1. Start "The Dream"    2. Go directly to Part 2 with the last Part 1 Source file
```

4. Extra functionalities - continued

Changing APG login username and password

The Dream reads information from a text file to input login information for APG (or APG EASA). If ever, in the future, the username or password changes, users can easily adapt.

Navigate to The Dream on your C: drive and open the Part2 folder. Here, you will see a text file called Login.txt. Simply open the text file and make the appropriate changes. Don't forget to save after you've finished!

The sequence of steps is as follows:

- Step 1:** A Windows File Explorer window showing the path `P2099666 > P2099666 (C:) > The Dream > Part2`. The file `Login.txt` is highlighted in the list of files.
- Step 2:** The `Login.txt` file is opened in Notepad. The current content is:
`APG
username: learict
password: acde

APGEASA
username: learicteasa
password: acde2`
- Step 3:** The `Login.txt` file is edited in Notepad. The content is updated to:
`APG
username: NEWusername
password: NEWpassword

APGEASA
username: learicteasa
password: acde2`
- Step 4:** A Notepad dialog box appears asking: "Do you want to save changes to C:\The Dream\Part2\Login.txt?". The "Save" button is highlighted.

4. Extra functionalities - continued

Non-ISA+15C takeoff temperatures

Sometimes, there may be requests for which you need to compute TOW at specific temperatures. Consider,

Range map for “KASE” with Global 5500, OAT of -10C.

You will proceed with steps as described before, until clicking on the first button of the Excel file (Import from Part 1 Source file). Then, change the temperature by simply typing -10 in cell I4. You can also change the title of the column to read “TEMP”, because it is no longer ISA+15C. Then, click the second button (Confirm temperatures). Complete the request as described before. TOWs will be computed at -10C.

1

```
\\lib\site-packages\PyInstaller\loader\pyimod03_importers.py:623: MatplotlibDeprecationWarning:
  The LIBDATA environment variable was deprecated in Matplotlib 3.1 and will be removed in 3.3.
  ...
The Dream" 2. Go directly to Part 2 with the last Part 1 Source file
1
2
3
4
5
6
7
8
```

2

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C |
|----------------|------|------|-----------|---------------|-------|-----------------|---------|
| Aspen, CO, USA | KASE | ASE | 7,838 | 8,006 | 100 | Asphalt/Grooved | 14 |

3

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | TEMP |
|----------------|------|------|-----------|---------------|-------|-----------------|------|
| Aspen, CO, USA | KASE | ASE | 7,838 | 8,006 | 100 | Asphalt/Grooved | -10 |

BOMBARDIER

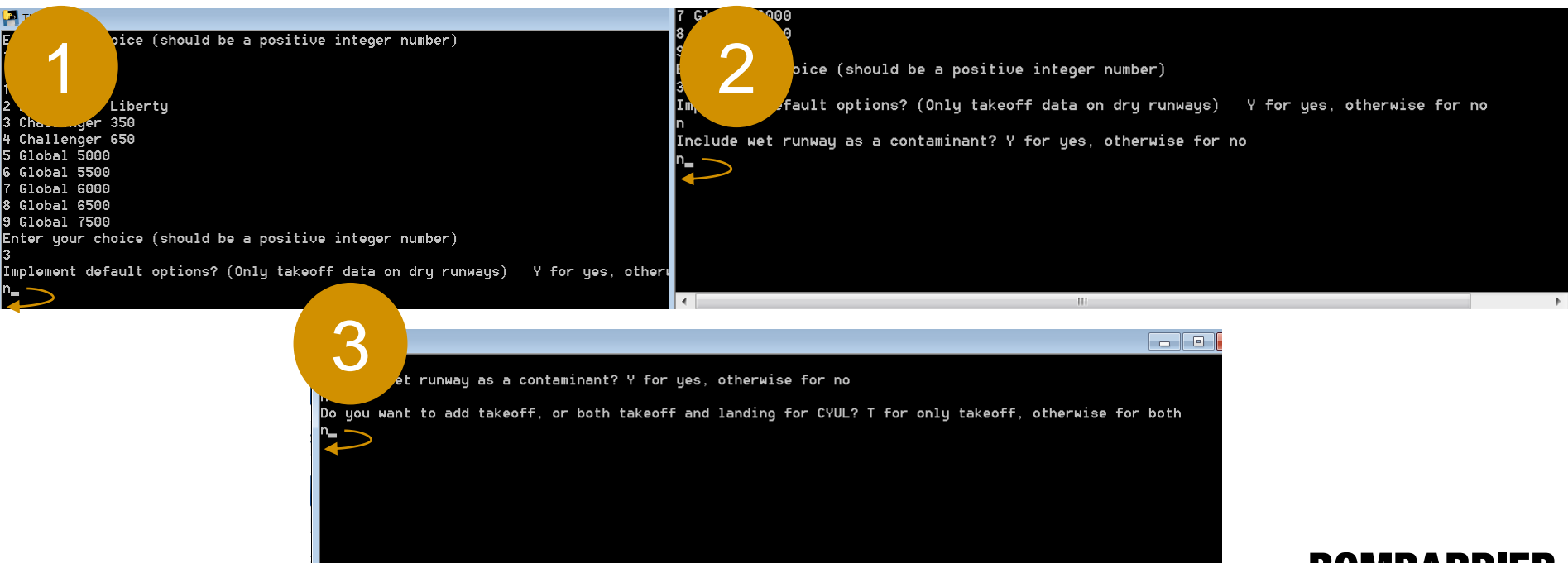
4. Extra functionalities - continued

Non-default choice: Including landing performance

Saying “y” to the default choice prompt means that APG will consider only takeoff performance and dry runway conditions. Consider,

Need TOW and landing performance numbers for CYUL with Challenger 650.

Do the same steps as explained before, till you reach the default choice prompt. Then, type “n” and hit ENTER. For the wet runway prompt, type “n” and hit ENTER (we are not analyzing wet conditions). Finally, when prompted for takeoff or both takeoff and landing, type “n” (anything not starting with “t”) and hit ENTER. Now, the APG report will include landing performance for CYUL. Complete the request as before. Landing weights are not auto-searched and maximized. If you’re searching for optimal landing numbers, you will have to look for it manually in the APG report downloaded.



BOMBARDIER

4. Extra functionalities - continued

Non-default choice: Including wet conditions performance (only non-grooved or only grooved)

Now consider,

Need TOW for LSZS (Samedan) with Global 5500 in both dry and wet.

Do the same steps as explained before, till you reach the default choice prompt. Then, type “n” and hit ENTER. For the wet runway prompt, type “y” or “Yes” or anything starting with “Y” (case-insensitive) and hit ENTER. Since Samedan is not grooved, it auto-chooses the non-grooved takeoff condition. When prompted for takeoff or both takeoff and landing, type “t” (we only need TOW) and hit ENTER. Complete the request as before. If the request was instead for KJFK (New York), it would auto-choose the grooved takeoff condition.

If the request involved a list of airfields that are all grooved (or all non-grooved), this auto-condition applies to all those airfields.

1

```
1 Learjet 75
2 Learjet 75 Liberty
3 Challenger 350
4 Challenger 650
5 Global 5000
6 Global 5500
7 Global 6000
8 Global 6500
9 Global 7500
Enter your choice (should be a positive integer number)
```

2

```
6
Implement default options? (Only takeoff data on dry runways) Y for yes, otherwise for no
n
Include wet runway as a contaminant? Y for yes, otherwise for no
y
```

3

```
6
Implement default options? (Only takeoff data on dry runways) Y for yes, otherwise for no
n
Include wet runway as a contaminant? Y for yes, otherwise for no
y
Do you want to add takeoff, or both takeoff and landing for LSZS? T for only takeoff, otherwise for t
t
```

GLOBAL5500 BR700-710D5-21 (Tail#: GLOBAL5500)

Select Aircraft

TO Contaminants

- WET RUNWAY (TO)
- WET - GROOVED (TO)
- 0.125in (3.2mm) WATER (TO)

BOMBARDIER

4. Extra functionalities - continued

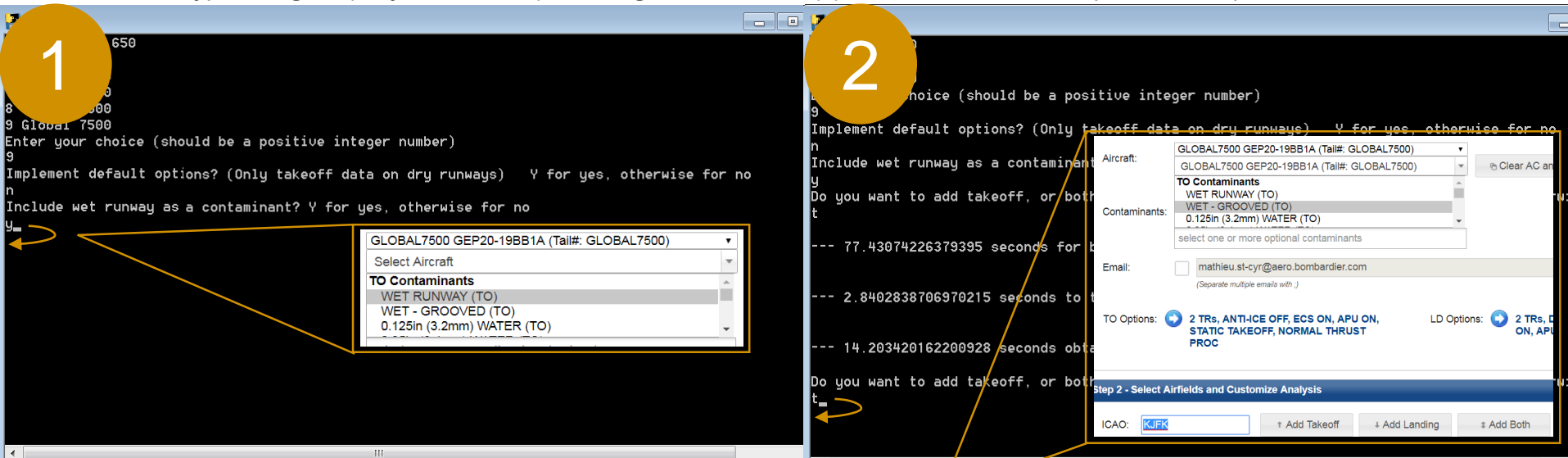
Non-default choice: Including wet conditions performance (mixed non-grooved and grooved)

Now consider,

Need TOW for LSZS (Samedan) and KJFK with Global 7500 in both dry and wet.

Do the same steps as explained before, till you reach the default choice prompt. Then, type “n” and hit ENTER. For the wet runway prompt, type “y” or “Yes” or anything starting with “Y” (case-insensitive) and hit ENTER. Since Samedan (LSZS) is not grooved, it auto-chooses the non-grooved takeoff condition and only analyzes for LSZS. When prompted for takeoff or both takeoff and landing, type “t” (we only need TOW) and hit ENTER. It will produce a pdf and process data for the non-grooved airfield(s).

After, it will automatically re-open APG and repeat the aircraft for wet conditions for grooved airfield(s) (KJFK in this case). You will need to type “t” again (only need TOW) for the grooved airfield(s) and hit ENTER. Complete the request as before.



Automated APG choice, aircraft choice, and appropriate wet condition chosen if there are “mixed” airfields

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4. Extra functionalities - continued

Excel - Wet conditions

If wet conditions are chosen with the tool, upon clicking the third button (Import from Part 2 Source file) on the Excel file, you will obtain a clear TOW list in the following form seen in the picture. You can then click on the fourth button (Range map). Again, the final result is a clear range map table.

The screenshot displays an Excel spreadsheet with the following components:

- Workflow Buttons:** A sequence of four buttons: "Import from Part 1 Source file", "Confirm temperatures", "Import from Part 2 Source file" (highlighted with a yellow circle), and "Range map". Arrows indicate the flow from left to right.
- Left Panel:** A vertical menu with "Merge" and "Unmerge" options.
- Table 1: Airport Data**

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C |
|----------------------|------|------|-----------|---------------|-------|------------------|---------|
| Samedan, SWITZERLAND | LSZS | SMV | 5,602 | 6,037 | 131 | Asphalt | 19 |
| New York, NY, USA | KJFK | JFK | 13 | 14,511 | 200 | Concrete/Grooved | 30 |
- Table 2: Aircraft Performance Data**

| AIRCRAFT | CITY | SPEED | PAX/PAX WGT | RANGE |
|-------------|----------|-------|-------------|-------|
| Global 7500 | LSZS-DRY | | | |
| | LSZS-WET | | | |
| | KJFK-DRY | | | |
| | KJFK-WET | | | |
- Table 3: Performance Summary**

| | Global 7500 |
|----------|-------------|
| LSZS-DRY | 93578 |
| LSZS-WET | 91437 |
| KJFK-DRY | 114850 |
| KJFK-WET | 114850 |
- Bottom Panel:** A tabbed interface with "DataEntry" (active) and "MiscEntry" tabs.

4. Extra functionalities - continued

Excel - Merge/unmerge button

Because the Excel file is protected, you cannot use the normal Excel merge/unmerge button in the toolbar. Instead, you can use the button on the side. Select whichever cells you want and click the button. To unmerge, select the merged cells, and click the button again.

1

The Dream Siddharth Raghavan July 2020

Import from Part 1 Source file → Confirm temperatures → Import from Part 2 Source file →

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C | | Global 7500 |
|----------------------|------|------|-----------|---------------|-------|------------------|---------|----------|-------------|
| Samedan, SWITZERLAND | LSZS | SMV | 5,602 | 6,037 | 131 | Asphalt | 19 | LSZS-DRY | 93578 |
| New York, NY, USA | KJFK | JFK | 13 | 14,511 | 200 | Concrete/Grooved | 30 | LSZS-WET | 91437 |
| | | | | | | | | KJFK-DRY | 114850 |
| | | | | | | | | KJFK-WET | 114850 |

| AIRCRAFT | CITY | SPEED | PAX/PAX WGT | RANGE |
|-------------|----------|-------|-------------|-------|
| Global 7500 | LSZS-DRY | | | |
| | LSZS-WET | | | |
| | KJFK-DRY | | | |
| | KJFK-WET | | | |

2

Merge Unmerge

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C | | Global 7500 |
|----------------------|------|------|-----------|---------------|-------|------------------|---------|----------|-------------|
| Samedan, SWITZERLAND | LSZS | SMV | 5,602 | 6,037 | 131 | Asphalt | 19 | LSZS-DRY | 93578 |
| New York, NY, USA | KJFK | JFK | 13 | 14,511 | 200 | Concrete/Grooved | 30 | LSZS-WET | 91437 |
| | | | | | | | | KJFK-DRY | 114850 |
| | | | | | | | | KJFK-WET | 114850 |

| AIRCRAFT | CITY | SPEED | PAX/PAX WGT | RANGE |
|-------------|----------|-------|-------------|-------|
| Global 7500 | LSZS-DRY | | | |
| | LSZS-WET | | | |
| | KJFK-DRY | | | |
| | KJFK-WET | | | |

3

Merge Unmerge

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C | | Global 7500 |
|----------------------|------|------|-----------|---------------|-------|------------------|---------|----------|-------------|
| Samedan, SWITZERLAND | LSZS | SMV | 5,602 | 6,037 | 131 | Asphalt | 19 | LSZS-DRY | 93578 |
| New York, NY, USA | KJFK | JFK | 13 | 14,511 | 200 | Concrete/Grooved | 30 | LSZS-WET | 91437 |
| | | | | | | | | KJFK-DRY | 114850 |
| | | | | | | | | KJFK-WET | 114850 |

| AIRCRAFT | CITY | SPEED | PAX/PAX WGT | RANGE |
|-------------|----------|-------|-------------|-------|
| Global 7500 | LSZS-DRY | | | |
| | LSZS-WET | | | |
| | KJFK-DRY | | | |
| | KJFK-WET | | | |

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4. Extra functionalities - continued

Modular programming – Part 1 only

Once the tool is started, you need not necessarily run through it from start to finish. That is, it is very modular. What if a request was,

I need info on type of surface for KLAX,KSJC,KAPF,KASE,KEYW,TKPN,LSZS.

Clearly Part 2 (computing TOW) is not required. You need to only run Part 1 of the program! Once prompted to go into Part 2, you can type “n” or anything not starting with “y” and hit ENTER. When you click the first button (Import from Part 1 Source file) on the Excel file, you’ll have the required information to complete this request. The rest of the buttons should not be pressed as Part 2 is not being used.

The screenshot displays the program's interface, which includes a terminal window on the left and an Excel spreadsheet on the right. The terminal window shows the program's prompts and user input. The Excel spreadsheet contains a table of airport data and a flowchart for navigating between parts of the program.

Terminal Window (1):

```
Dream" 2. Go directly to Part 2 with the last Part 1 Source file

Enter ICAO codes or the Cities of desired airports.
Type 'E' to end the list.

1. klax
2. ksjc
3. kapf
4. kase
5. keyw
6. tkpn
7. lszs
8. escape

--- 13.494349241256714 seconds (excluding initial list input) ---

Part 1 Source file ready.
Make sure you CONFIRM TEMPERATURES in Part 1!
Go into Part 2? Y for yes, otherwise for no.
n
```

Excel Spreadsheet (2):

The Excel spreadsheet contains a table of airport data and a flowchart for navigating between parts of the program.

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH | RUNWAY SURFACE | ISA+15C |
|-----------------------------|------|------|-----------|---------------|-------|------------------|---------|
| Los Angeles, CA, USA | KLAX | LAX | 128 | 12,923 | 150 | Concrete/Grooved | 30 |
| San Jose, CA, USA | KSJC | SJC | 62 | 11,000 | 150 | Concrete/Grooved | 30 |
| Naples, FL, USA | KAPF | APF | 8 | 6,600 | 150 | Asphalt/Grooved | 30 |
| Aspen, CO, USA | KASE | ASE | 7,838 | 8,006 | 100 | Asphalt/Grooved | 14 |
| Key West, FL, USA | KEYW | EYW | 3 | 5,076 | 100 | Asphalt/Grooved | 30 |
| Nevis Isl, ST KITTS & NEVIS | TKPN | NEV | 25 | 4,006 | 99 | Asphalt | 30 |
| Samedan, SWITZERLAND | LSZS | SMV | 5,602 | 6,037 | 131 | Asphalt | 19 |

The flowchart shows the following steps:

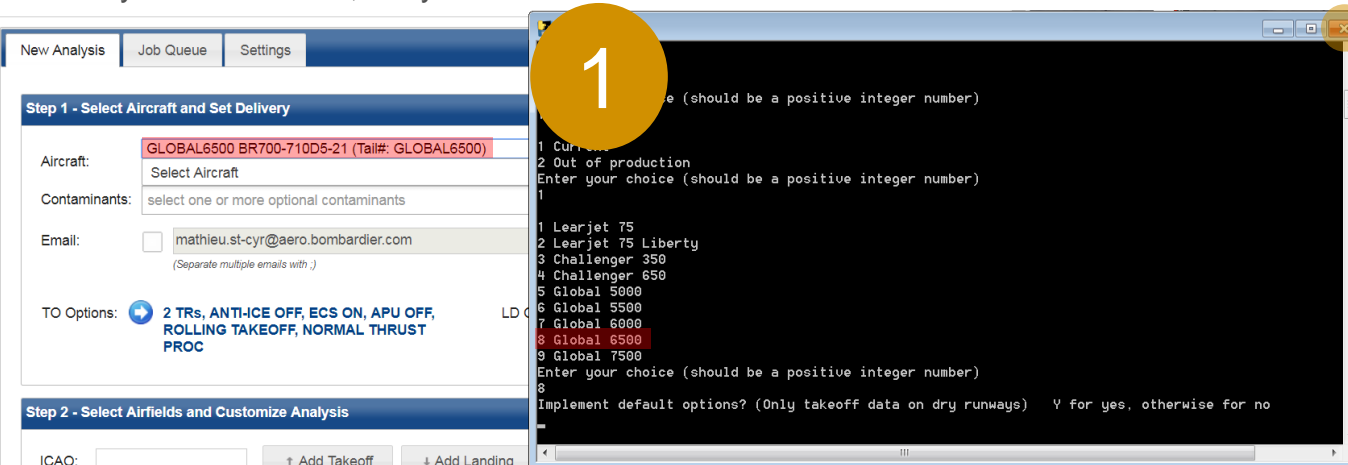
- Import from Part 1 Source file
- Confirm temperatures
- Import from Part 2 Source file

A 'Merge Unmerge' button is also visible in the bottom left corner of the Excel spreadsheet.

4. Extra functionalities - continued

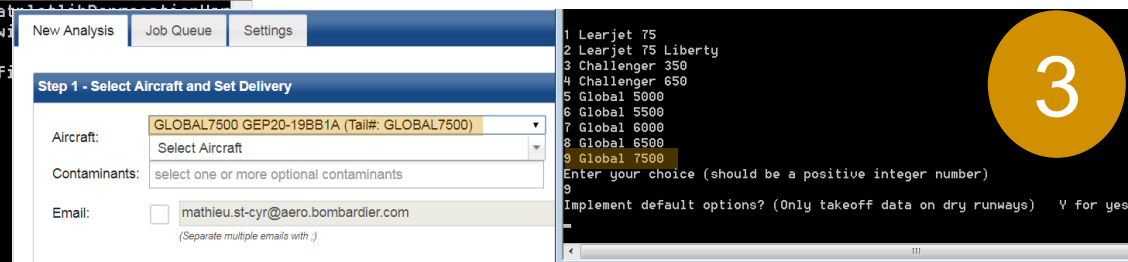
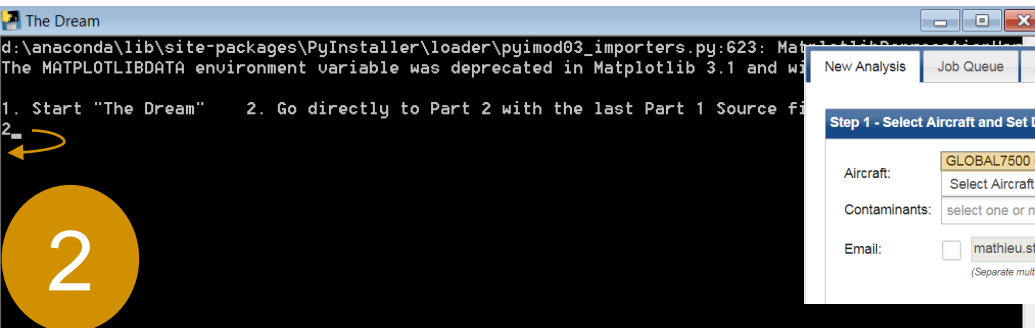
Modular programming – Part 2 only

You can also directly jump to Part 2. This is useful when you accidentally choose a wrong aircraft. Say you are meant to analyze Global 7500, but you chose Global 6500 instead.



Exit the tool ('X' on top right), close the browser window, and relaunch the tool.

Once relaunched, you don't need to go through Part 1 again (entering all your airfields). You can directly proceed to Part 2 provided you did go through Part 1 at some point prior. To do this, type 2 and hit ENTER for the very first prompt. Proceed as normal and enter the correct aircraft choice!



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5. Link to RAPV

Pre-requirements

Make sure you have downloaded the latest version of the template Excel file (from Sharepoint). This has the Range Calculator RAPV button. Then, make sure that you download the .mdb file on The Dream in Sharepoint. Then, move the Route_Analysis.mdb file to the Route_Program folder. Choose the Move and Replace option. To navigate to the Route_Program folder, go on your C: drive, click RAPV_Study, and then on Route_Program.

1

Download Delete Move to Copy to Properties

Documents > Sales Engineering - DO NOT SYNC > Performance Tools > The Dream

| Name | Content Type |
|-------------------------------|---------------|
| Manuals | Folder |
| Synced Files | Folder |
| Installation instructions.txt | _Unclassified |
| Route_Analysis.mdb | _Unclassified |
| TemplateV3.xlsm | _Unclassified |

2

P2099666 > P2099666 (C:) > RAPV_Study > Route_Program

Recent Places

Libraries

Box Sync

OneDrive - Bombardier

Bombardier

Libraries

Documents

Music

Pictures

Videos

P2099666

P2099666 (C:)

SNAPSHOT (\\CLP/

PDdrive (\\aero.aerc

UTIL (\\CLPACK1.C

Name

Date

Help and information

Output

Report_templates

ReportGenerator

Saved_Study

Route_Analysis.mdb

Route_Analysis.mde

Study.bat

Move File

There is already a file with the same name in this location.
Click the file you want to keep

Move and Replace

Replace the file in the destination folder with the file you are moving:

Route_Analysis.mdb

Route_Analysis (C:\Users\b0621585\Downloads)

Size: 1.95 MB

Date modified: 8/26/2020 9:30 AM (newer)

Don't move

No files will be changed. Leave this file in the destination folder:

Route_Analysis.mdb

Route_Analysis (C:\RAPV_Study\Route_Program)

Size: 1.95 MB

Date modified: 8/26/2020 9:24 AM

Move, but keep both files

The file you are moving will be renamed "Route_Analysis (2).mdb"

Cancel

5. Link to RAPV - continued

Inputs required and sanity checks

After downloading and placing the .mdb file in the correct location, you are ready to use this newest functionality! Notice the inclusion of the Range calculator RAPV button on the Excel file. After filling up the inputs, and clicking on the button, simply keep clicking OK (or Open) and hitting ENTER on RAPV. RAPV will automatically close after finishing.

The Dream
Siddharth
Raghavan

Import from Part 1
Source file

➡

Confirm temperatures

➡

Merge
Unmerge

| LOCATION | ICAO | IATA | ELEVATION | RUNWAY LENGTH | WIDTH |
|-------------------------------------|------|------|-----------|---------------|-------|
| Karachi, PAKISTAN | OPKC | KHI | 100 | 11,155 | 148 |
| Lahore, PAKISTAN | OPLA | LHE | 712 | 11,024 | 150 |
| Chennai, TN, INDIA | VOMM | MAA | 52 | 12,001 | 148 |
| Mumbai/Bombay, MH, INDIA | VABB | BOM | 40 | 10,000 | 197 |
| Delhi, DL, INDIA | VIDP | DEL | 778 | 14,534 | 197 |
| Kabul, KAB, AFGHANISTAN | OAKB | KBL | 5,877 | 11,520 | 148 |
| Muscat, OMAN | OOMS | MCT | 49 | 13,123 | 197 |
| Salalah, OMAN | OOSA | SLL | 78 | 13,113 | 197 |
| Dubai, DU, UNITED ARAB EMIRATES | OMDB | DXB | 62 | 14,590 | 198 |
| Abu Dhabi, AZ, UNITED ARAB EMIRATES | OMAA | AUH | 88 | 13,451 | 197 |
| Doha, QATAR | OTHH | DOH | 13 | 15,910 | 197 |

Range
Calculator
RAPV

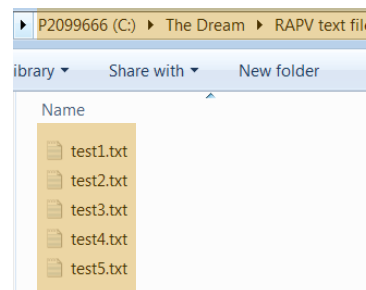
| AIRCRAFT | CITY | SPEED PAX/PAX WGT | RANGE | FUEL RESERVE |
|-------------|------|-------------------|--------|--------------|
| Global 6000 | OPKC | 0.85 5/200 | 5855.2 | EU OPS 3 |
| | OPLA | 0.85 5/200 | 5855.2 | |
| | VOMM | 0.85 5/200 | 5855.2 | |
| | VABB | 0.85 5/200 | 5855.2 | |
| | VIDP | 0.85 5/200 | 5855.2 | |
| | OAKB | 0.85 5/200 | 5382.3 | |
| | OOMS | 0.85 5/200 | 5855.2 | |
| | OOSA | 0.85 5/200 | 5855.2 | |
| | OMDB | 0.85 5/200 | 5855.2 | |
| | OMAA | 0.85 5/200 | 5855.2 | |
| | OTHH | 0.85 5/200 | 5855.2 | |

Inputs

For any group of 2 cells of speed and payload, if there isn't a filled value, the code skips those airfields.

| AIRCRAFT | CITY | SPEED PAX/PAX WGT | RANGE | FUEL RESERVE |
|-------------|------|-------------------|--------|--------------|
| Global 6000 | OPKC | 0.85 5/200 | 5855.2 | EU OPS 3 |
| | OPLA | 0.85 | | |
| | VOMM | 0.85 5/200 | 5855.2 | |
| | VABB | 0.85 | | |
| | VIDP | 0.85 5/200 | 5855.2 | |
| | OAKB | 5/200 | | |
| | OOMS | 5/200 | | |
| | OOSA | 5/200 | | |
| | OMDB | 5/200 | | |
| | OMAA | 0.85 5/200 | 5855.2 | |
| | OTHH | 5/200 | | |

If you want to verify these ranges, you can refer to the text files that automatically pop up during the running of RAPV. These can also be accessed at The Dream under the RAPV text file folder.



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5. Link to RAPV - continued

Disclaimers

Upon clicking the Range Calculator RAPV button for the first time, the code may break. This is because when the RAPV file opens, it will prompt you to “Enable macros”. Click OK on “Enable macros” and close the RAPV window. Re-try clicking on the Range Calculator RAPV button, and it should work. It is important to note that the code behind this functionality is **semi-stable** (i.e. it will not work for any and all aircraft).

Currently, it works for 1 or more aircrafts if the aircrafts are:

1. Challenger 300
2. Challenger 350
3. Challenger 650
4. Global 5000
5. Global 6000

Valid TOW table from Part 2

| | Global 6000 | Global 5000 | Challenger 300 | Challenger 350 | Challenger 650 |
|------|-------------|-------------|----------------|----------------|----------------|
| OPKC | 99500 | 92500 | 38850 | 40600 | 48200 |
| OPLA | 99500 | 92500 | 38850 | 40600 | 48200 |
| VOMM | 99500 | 92500 | 38850 | 40600 | 48200 |

Ranges can be computed

| AIRCRAFT | CITY | SPEED | PAX/PAX WGT | RANGE | FUEL RESERVE |
|----------------|------|-------|-------------|--------|--------------|
| Global 6000 | OPKC | 0.82 | 12/200 | 5830.1 | EU OPS 5 |
| | OPLA | 0.82 | 11/200 | 5842.4 | |
| | VOMM | 0.82 | 10/200 | 5854.9 | |
| Global 5000 | OPKC | 0.82 | 12/200 | 5154 | |
| | OPLA | 0.82 | 11/200 | 5165.9 | |
| | VOMM | 0.82 | 10/200 | 5177.8 | |
| Challenger 300 | OPKC | 0.78 | 12/200 | 2777.3 | |
| | OPLA | 0.78 | 11/200 | 2835.7 | |
| | VOMM | 0.78 | 10/200 | 2894.2 | |
| Challenger 350 | OPKC | 0.78 | 12/200 | 2995.8 | |
| | OPLA | 0.78 | 11/200 | 3053.9 | |
| | VOMM | 0.78 | 10/200 | 3111.3 | |
| Challenger 650 | OPKC | 0.74 | 12/200 | 3532.9 | |
| | OPLA | 0.74 | 11/200 | 3582.9 | |
| | VOMM | 0.74 | 10/200 | 3633.2 | |

It may or may not work for other aircraft (more testing is required).

However, if the TOW table has improper TOWs (because the user altered the table) then the button (macro) may fail or give wrong results. Also, the button may fail if the aircrafts involved are any but the ones listed above. For example, the button gives **wrong ranges** for **Global 5500** and **Global 6500**. The button also is not able to run **Global 7500 at a speed below M 0.85**. This is because the Global 5500, Global 6500 and Global 7500 use slightly different programs and the link established has not properly included those programs.

6. Troubleshooting/FAQ

Installation and pre-requirements

- Q. After downloading, I clicked on the shortcut I had, and the prompt window briefly pops up and disappears.
- A. You likely had a previous version of “The Dream” which that shortcut was linked to. You need to delete all previous versions of “The Dream” on your C: drive before extraction. You will also need to delete previous shortcuts. You will need to create a new shortcut after extracting the new version. See [Installation](#) for proper guidance.
- Q. In Part 1, after typing my ICAO codes and city names, and ending the list by typing “escape” and hitting ENTER, a quick error message shows up and closes the prompt window.
- A. This is likely because you did not properly link the shared database. Make sure you have the database synced as explained [here](#). If the database is properly synced, make sure your name and ID number are entered in the text doc as explained [here](#).
- Q. In Part 2, after my browser window closes, and data is processing, a long error message shows up and closes the prompt window.
- A. This is likely because you did not properly set the path to Java. You may be missing a semicolon ‘;’ before the path to-be-pasted. See [setting Java path](#) for proper guidance.

6. Troubleshooting/FAQ - continued

Part 1

- Q. The following message shows up “**entered code/city* ICAO code does not exist on the ACU-KWIK website OR Airport city is not present in database*”.
- A. When this message pops up, it means the ICAO code you typed in does not have a webpage on ACU-KWIK. Unfortunately, such ICAO code(s) will not be processed by the tool, meaning you won't be able to obtain TOWs from those airfields. For the adventurous, there is a workaround for this problem that involves altering Part 1's Source file.
- If you entered a city name (not an ICAO code) and you receive this message, this means that the city is not yet on the database. If you type in this city's ICAO code once into the tool, for all future requests, you will be able to enter the city name and receive the option for the corresponding ICAO code!
- The last possibility is that the code/city name was incorrectly entered (typo).
- Q. I mistyped an ICAO code/city name. Do I need to close the program and relaunch?
- A. No need! If you mistyped an ICAO code/city name, you can just enter the correct code/city on the next line. The program automatically disregards any codes/cities that are invalid.

```
1. Start "The Dream"      2. Go directly to Part 2 with the last Part 1 Source file
1
Enter the ICAO codes or the Cities of desired airports.
Type ESCAPE to end the list.
1. kase
2. ksjc
3. los angels
4. los angeles
5. escape
'LOS ANGELS' ICAO code does not exist on the ACU-KWIK website OR Airport city is not present in data

The corresponding ICAO code(s) for 'los angeles' listed on the database include:
1. SCGE      2. KWHF      3. KLAX

Enter the corresponding number. 3
```

BOMBARDIER

6. Troubleshooting/FAQ - continued

Part 2 and Excel options

- Q. Once part 2 begins, and I input my choices, nothing is happening!
- A. Make sure that the browser window that opened is **not minimized** and is **not clicked on**. It should simply be in the background.

- Q. Once part 2 begins, and the prompt 2 window suddenly closes and the tool stops working.
- A. This is most likely because the Chromedriver.exe file in the Part 2 folder is not corresponding with the current version of your Chrome browser. To rectify this, check the current version of your Chrome browser, and then download a Chromedriver file of this specific version (just google search Chromedriver download). Then, copy this Chromedriver.exe file into the Part 2 folder of The Dream and select copy and replace file option. Part 2 should now be functional.

- Q. I cannot delete cells in the Excel template file.
- A. This is because it is a protected sheet. The workaround to this is selecting the cells you want to delete, format them as a blank cell, and then manually move your cell blocks to wherever you want. It takes slightly longer but is not cumbersome. However, you can still delete rows and columns as normal.

7. Goals

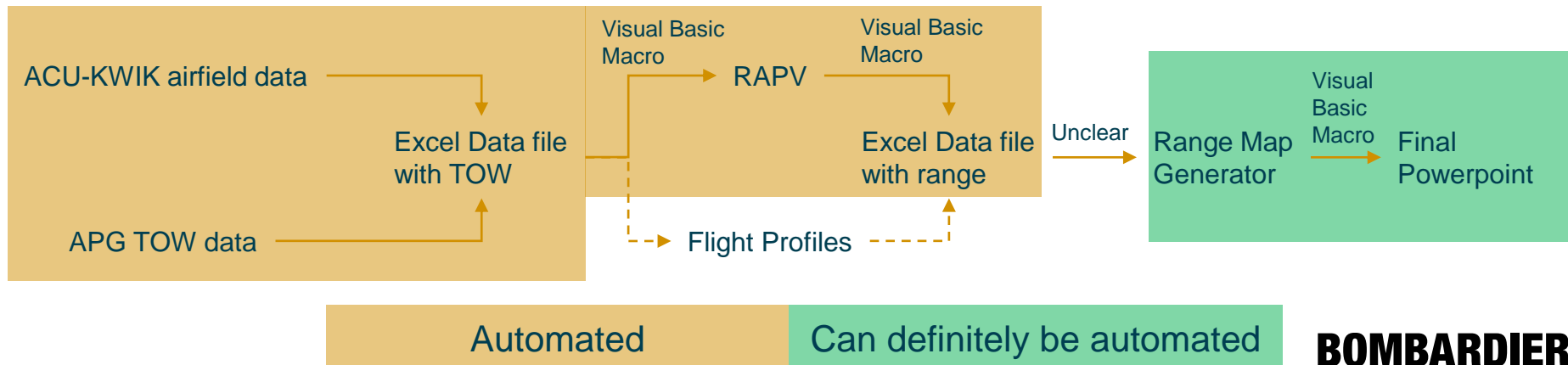
Current and future

Current

1. To **reduce** human error and **increase** time savings in all general performance requests.
2. To make the job **easier**.

Future

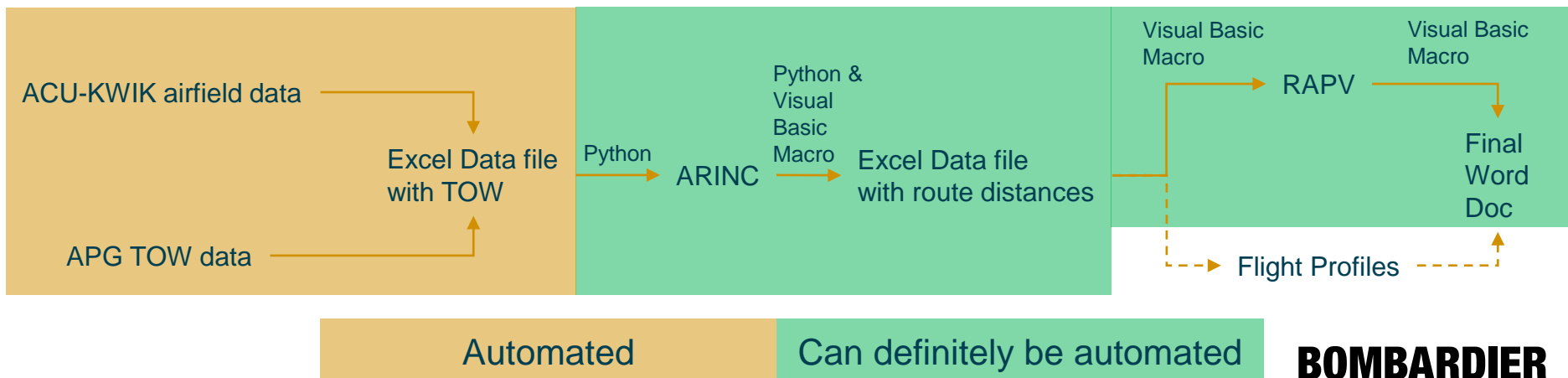
1. Automated range maps. First, the data on the template Excel should be linked to RAPV (and Flight Profiles). More macros can be programmed, and a connection can be established at least to RAPV (because we can access the Visual Basic code behind RAPV). No research has been done into linking the Excel to Flight Profiles yet. After obtaining range values, some link can hopefully be made to the Range Map generator tool. After, this can be programmed through a PowerPoint template to directly give the final result – a range map with correct title, legend, assumptions and a pretty range map png.



7. Goals - continued

Future

2. To include additional information along with the maximum TOW obtained, like the Flap setting used and the weight limitation type (Structural – ST, Field Length – FL, etc.).
3. To fully stabilize the code for the Link to RAPV (i.e. the macro behind the Range calculator RAPV button on the Excel template file).
4. Automated route studies. This involves slightly different steps. After obtaining TOW, users have to input information on ARINC and obtain route distances. This could be automated in the same way APG was automated (via Python's Selenium module for web control). After, it would send the distances to the Excel data file, and after inputting some assumptions, a link would have to be made to RAPV (and Flight Profiles). These tools already generate the final report word docs conveniently. The automation of route studies in RAPV/Flight Profiles would be hard, because route studies sometimes require a lot of decisions. Still, the straightforward routes could potentially be completely automated.



8. Author

Contact details

This project was undertaken by Siddharth Raghavan. All instruction manuals, technical documents, Visual Basic code for Excel, and underlying Python executable files are written by me. Please feel free to contact me for any questions you may have concerning the project. I will be happy to answer them if I can, even long after my internship ends (end of August 2020).

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