

**Arrival Baggage Presentation Daily Report Generation & Sending to Senior Management**

**(AM\_AOPA\_ArrivalBaggage\_DailyReport\_CEO)**

AIRSIDE DEVELOPMENT & BAGGAGE (ADB),

AIRPORT OPERATIONS PLANNING & AIRSIDE (AOP&A)

**ROBOTICS PROCESS AUTOMATION**

Solution Design Document

Solution Design Document History

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Date | Document Version | Package Version | Role | Name | Organisation/ Division/ Unit | Function | Comments |
| 15/10/22 | 1.0 |  | Author | Goh Siak Wei | AOP&A | Champion & Power User | Created document v 1.0 |
| 15/10/22 | 1.0 |  | Author | Goh Siak Wei | AOP&A | (Former)  Process Owner | Created document v 1.0 |
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Table of Contents

[1. Document Overview 1](#_Toc121148215)

[2. Automated Master Project details 1](#_Toc121148216)

[3. Runtime Guide 2](#_Toc121148217)

[3.1 Architectural structure of the Master Project 2](#_Toc121148218)

[Figure 3.1.1: High-level Process Maps 2](#_Toc121148219)

[3.2 List of packages 3](#_Toc121148220)

[3.3 Master Project Runtime details 4](#_Toc121148221)

[Table 3.3.1: Details of the automated process 4](#_Toc121148222)

[4. Project Details 5](#_Toc121148223)

[4.1. Project Name: AM\_AOPA\_ABPDailyReportCEO 5](#_Toc121148224)

[4.1.2 Screenshot(s) of workflow in UiPath Studio specific to ABPDailyReportCEO 8](#_Toc121148225)

[5. Other Details 9](#_Toc121148226)

[5.1 Future Improvements 9](#_Toc121148227)

[5.2 Debugging Tips 9](#_Toc121148228)

[5.3 Other Remarks 10](#_Toc121148229)

[6. Post-UAT Specifications 10](#_Toc121148230)

[7. Document Approval 10](#_Toc121148231)

[8. Glossary 11](#_Toc121148232)

## Document Overview

The Solution Design Document (SDD) is created for every business process that is automated using the RPA technology. The SDD needs to be reviewed and updated for every change requested and applied to the automation process. This document will provide a technical snapshot and must always reflect the latest design and key features of the automated workflow.

The document naming convention will follow the naming convention and the version of the automated process. This can be “business process name version” or it can be defined, case by case, as part of the larger RPA project design.

This document is filled in by the RPA Developer who automates the business process and reviewed by the QA Developer & RPA Solution Architect prior to development. This document ensures alignment of the automation solution with process governance and steps outlined in the related Process Design Document (PDD).

The purpose of the document is to record the outcome specific to the automated master project and its subcomponents: projects, workflows, sequences etc.

This document is meant for the Automation CoE, IT Support and division RPA Champion Lead/ Champions to help by providing a snapshot of the automated process details and components. It can as well serve developers to have a quick glance at the setup, before diving into the code, to troubleshoot or update changes.

## Automated Master Project details

Details filled in by the developer reflect the actual information for the master project released for production.

|  |  |  |
| --- | --- | --- |
| **#** | **Item** | **Details**  *(Fill in with free text. If not applicable, mark the field as “n/a. No empty fields.)* |
| **1** | **Master project name and version** | AM\_AOPA\_ArrivalBaggage\_DailyReport\_CEO |
| **2** | **Robot type** | Unattended |
| **3** | **Robot ID, name and version** | EAZYBOT |
| **4** | **Computer name** *(for where the Robot resides)* | AO\_PC0SNS1T |
| **5** | **User account name, owner** *(for where the process runs)* | EAZYBot |
| **6** | **Is Orchestrator used?** *(Yes/ No)* | Yes |
| **7** | **Scalable?** *(Yes/ No)*  *(can the process be run by multiple robots in parallel)* | No |

## Runtime Guide

### Architectural structure of the Master Project

Display the interaction between components (package / robots, Orchestrator queues, and running order) and data flows in a diagram.



*\*Double-click object to edit process map template*

### 

### Figure 3.1.1: High-level Process Maps

### List of packages

Include **the list of packages and the high-level description** for each of them, to explain each one`s purpose:

|  |  |  |
| --- | --- | --- |
| **#** | **Package name** | **High Level description** |
|  | UiPath.Excel.Activities = v2.16.0 | Execute Excel related operations using the Open Office XML format (XLSX) or Excel.Interop |
|  | UiPath.UIAutomation.Activities = v22.10.1 | IMPORTANT: This package version requires Studio 21.10 or higher. On lower versions some functionality may be missing, or unexpected behaviours may occur.  Package contains core activities which enable the automation of desktop applications, browsers, and virtual machines. Please check the documentation for more details. |
|  | UiPath.Testing.Activities = v22.10.0 | IMPORTANT: This package version requires Studio v2020.4 or above, as well as an Orchestrator instance running v2020.4 or above. Installing it on versions lower than the recommended ones may cause unexpected behavior.  Testing activities which enable users to verify expression values and control states in test case workflows. |
|  | UiPath.System.Activities = v22.10.1 | IMPORTANT: This package version requires Studio v2018.4.4 / v2019.2 or above. Installing it on versions lower than the recommended ones may cause unexpected changes in your workflows.  Core activities which enable the robots to manipulate data tables and collections, work with files and folders, communicate with Orchestrator. Package also contains workflow operators, dialog forms, debugging and invoking methods. |
|  | UiPath.Mail.Activities = v1.18.1 | Retrieve and send mail using POP3, IMAP, SMTP and Exchange protocols |
|  |  |  |

*\*Add more rows to the table to include all the project names and version. No fields should be left empty. Use “n/a” for the items that don`t apply to your project.*

### Master Project Runtime details

### Table 3.3.1: Details of the automated process

|  |  |  |
| --- | --- | --- |
| **#** | **Item** | **Details**  ***(Fill in with free text. If the section does not apply to your automation, mark the field as “n/a”. No empty fields.)*** |
| **1** | **Production environment details** | EAZYBOT Laptop |
| **2** | **Prerequisites to run** | Chrome Browser, Tableau Access (AOCBI Site), MS Outlook |
| **3** | **Input Data** | Downloaded report from Tableau AOCBI Site (.pdf) |
| **4** | **Expected Output (output data)** | Email sent from MS Outlook to Baggage Operations POCs |
| **5** | **How to start the automated process?** | Scheduled process on OC |
| **6** | **Resuming the process from a step? If yes, specify.** | N/A |
| **7** | **Reporting**  *(queues reporting, Kibana or another platform)* | Yes |
| **8** | **Manual Error Handling**  *(roll back or manually complete failed transactions).*  *Include procedures to reset the item. Ex “set status as investigating”* | N/A |
| **8a. How to resume the process in case of error** | Process cannot be resumed. EAZYBot will send error email to the developer. |
| **8b. How to manually fix transactions with error** | N/A |
| **9** | **Use of Orchestrator** | Yes |
| **Password policies**  *(specific compliance requests?)* | N/A |
| **Stored Credentials:**  *(Never hardcode credentials in the workflow)* | Yes |
| **List of Asset Names:**  *(Follow naming convention ProcessName\_AssetName)* | AM\_AOPA\_ ABPDailyReportCEO \_AssetName |
| **List of Queues Names**  *(Follow naming convention ProcessName\_QueueName)* | AM\_AOPA\_ ABPDailyReportCEO \_Queue |
| **Schedule details:** | Daily at 14:00H |
| **10** | **Multiple resolutions supported**  *(in case of image automation/ Citrix)* | Yes |
| **Recommended resolution** | EAZYBot computer resolution (1920x1080) |

## Project Details

In this section describe all the projects that compose the automated process. For each project, describe the workflow(s) in the logical order that they are called in. If the workflow is a flowchart, also include the exported image from Studio.

### 4.1. Project Name: AM\_AOPA\_ABPDailyReportCEO

|  |  |  |
| --- | --- | --- |
| **#** | **Item name** | **Details**  (Fill in with free text. If not applicable, mark the field as “n/a. No empty fields.) |
| **1** | **Environment used for development**  (name, location, configuration details etc) | EAZYBOT |
| **2** | **Environment prerequisites**  (OS details, libraries, required apps) | Windows 10, Chrome Browser, Folder to store UiPath process and files, Outlook |
| **3** | **Logging level** | Information |
| **4** | **Details about automation** (if the apps were automated using UI Automation, Image & Text) | This process |
| **5** | **In case of Attended, can the user operate the computer while the robot is running?** | No |
| **6** | **Repository for project**  (where the developed project is stored) | Store at GitHub as a backup. |
| **7** | **List of reused components** | N/A |
| **8** | **Custom logs defined in the workflows**  **(**where Throw Activity was used or custom log message was defined**)** | Log message are used when process started & process ended. |
| **9** | **Frequent errors found in the development phase** | Tableau server error (login error or page loading error), rendering .PDF download unsuccessfully. Rarely happens. |
| **10** | **Workarounds used in the automation phase** | Try catches have been built into the code to ensure the business process owner is informed of the error. The business process owner has the flexibility to entering Tableau separately to download the report himself/herself. |
| **11** | **Configuration method**  (assets, excel file, Json file)  \*Assets = ask Ryan, since its involves Ochestrator | Arguments and assests declared in Studio  Config file found in EAZYBot.   1. NOTAM\_Checker\_Receipients1, 2. NOTAM\_Checker\_Receipients2 3. Timing\_Receive\_NOTAMEmail |
| **12** | **Configuration details**  (path for input files, configuration Orchestrator assets used) | Arguments and assests declared in Studio, exact.. X = “”   1. NOTAM\_Checker\_Receipients1 = XXX@changiairport.com 2. NOTAM\_Checker\_Receipients2 = XXX@changiairport.com 3. Timing\_Receive\_NOTAMEmail = 0.5hour |
| **13** | **Workflow File Export List**  (Use this [TOOL](https://drive.google.com/open?id=0B_Ti7JQEeRYvS3ktRHJiUzhJa0U)) | Compile the whole process folder into zip file. |

*\*Duplicate table above to fill in if there are more than one project in the process.*

#### 4.1.1. Workflow(s) specific to <insert project name\*>

Define below all the workflow files (xaml files) used in the project, with the Input and Output data.

*\*Add to the title of this section the actual project name to which the workflows are specific to. The name should normally coincide with the Project name mentioned at Section 4.1*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Workflow file name** | **Description** | **Input Argument** | **Output Argument** |
| 1 | Main.xaml | Runs the | in\_EAZYBotEmail, in\_userYear,  in\_NOTAMEmail1, in\_NOTAMEmail2 | N/A |
| 2 | OpenExtractTableau.xaml | This process opens AOCBI Tableau online site on Chrome Browser; logins to the site using credentials (w/o 2FA); and downloads a .PDF of the set-up Tableau report via pre-determined selection of various manual settings to the computer’s download folder.  In the case of business exceptions experienced in this flow, the process will send an email to the AOP&A Baggage Operations POC describing the issue identified by the ‘try-catch’ mechanism. In such situations, the POC will manually download or generate the report for CEO and Senior Management’s consumption. |  |  |
| 3 | RenameMovePDF.xaml | This process moves the .PDF generated from OpenExtractTableau.xaml to a specified folder and saves it by a specified file name header followed by yesterday’s date. |  |  |
| 4 | CreateOutlookMailNew.xaml | This process attaches the moved and renamed .PDF in RenameMovePDF.xaml to a curated draft email (with date updated to yesterday’s date) to AOP&A Baggage Operations POCs for their review and further inputs, before they send it off to CEO and Senior Management. The circulation list for the email will be the POCs. |  |  |

*\*Add more rows to the table to include all the workflow file names. No fields should be left empty. Use “n/a” for the items that don`t apply to your project.*

### 4.1.2 Screenshot(s) of workflow in UiPath Studio specific to AM\_AOPA\_ArrivalBaggage\_DailyReport\_CEO

Graphical user interface, application

Description automatically generated

Main.xaml

## Other Details

### Future Improvements

|  |  |  |
| --- | --- | --- |
| No | Additional Considerations | Importance |
| 1. | N/A | N/A |

### Debugging Tips

|  |  |
| --- | --- |
| No | Debugging Tips |
| 1. | Check where the error stop at. |
| 2. | Use write line or message box to print the value at the step that you want to troubleshoot. |

### Other Remarks

|  |  |
| --- | --- |
| No | Remarks |
| 1. | N/A |

## Post-UAT Specifications

|  |  |
| --- | --- |
| Specifications | Remarks |
| Average duration per transaction | (varies depending on the Test environment): within 2 minutes |
| Recommended number of robots for the specified volumes | 1 |
| Specified schedule | Process starts at 14:00 daily and runs once per day |

## Document Approval

This document requires serial approval (sign off) from the roles defined in the table below. Changes to the requirements must be documented in an updated version (i.e. v 2.0) and requires a new signature flow. *(Please check the box accordingly.)*

The design of this process automation has been reviewed to be built with no personal data involved, adhering to safeguards outlined in the Process Design Document and Risk Register document.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Flow | Role | Name | Signature and Approval Date: |
| 1.0 | **Document Completed by:** | **RPA Developer & Champion** | Goh Siak Wei |  |
| 1.0 | **Document Approved by:** | **Champion Lead** | Yeo Kia Thye |  |
| 1.0 | **Document Approved by:** | **Automation RoC Lead** | Jason Chaw |  |

## Glossary

**Master project** - the overall output of the development, containing one or multiple projects that together cover the scope of the robotic process automation.

**Project** - an UiPath Studio project containing one or multiple workflow files. A project can be converted to a package and run independently, covering a particular scope within the master project. The project is used when defining the development and support phase of the automation.

**Package** - the output of compiling a project. A package can be deployed on the robot machine and be executed by the robot service. Only one package can be executed at a given time by a robot. The package is used when defining the running phase of the automation

**Workflow** - a component of the package, the workflow encapsulates a part of the project logic. The workflow can be of type: sequence, flowchart or state machine. a workflow is saved as an .xaml file inside the project folder. A workflow file can be invoked from another workflow and by default there is an initial workflow file that will run when executing the package.

**Activity** - an action that the robot executes.

**Sequence** - a workflow where activities are executed one after another, in a sequential order

**Flowchart** - a workflow where activities are connected by arrows and the logic of the workflow can be easily followed in a visual manner. The flowchart can also be exported as an image from UiPath studio

**State machine** - a more advanced way of organizing a workflow, similar to a flowchart.

**Attended Bot** – A robot that works with human agents side by side, and assist them in completing processes automatically

**Unattended Bot** – A robot that works in an unattended manner, independently of any human action

**Orchestrator** – Enterprise architecture server platform supporting: release management, centralized logging, reporting, auditing and monitoring tools, remote control, centralized scheduling, queue/robot workload management, assets management.