Robotic Process Automation

Development Specifications Document (DSD)

*Process Name: Calculate Client Security Hash*

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Version Control

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date | Version | Role | Name | Organization Department | Function | Comments |
| 27-Dec-2020 | 1.0 | Author | Jes Hunsballe | N/A | N/A |  |



# Document Overview

The Development Specifications Document (DSD) is created for every business process automated using RPA. The DSD needs to be reviewed and updated for every change requested and applied to the automated process. This document provides 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 completed by the RPA Solution architect and RPA developer who automates the business process. It is reviewed by the business process owner, application owner, and CoE design authority.

This document is meant to assist the RPA COE, IT operations and process owners by providing a snapshot of the automated process details and components. It can also serve developers to have a quick glance at the setup, before diving into the code, to troubleshoot or update changes. The purpose of the document is to record the outcome specific to the automated master project and its subcomponents: projects, workflows, sequences etc.

# Master Project Details

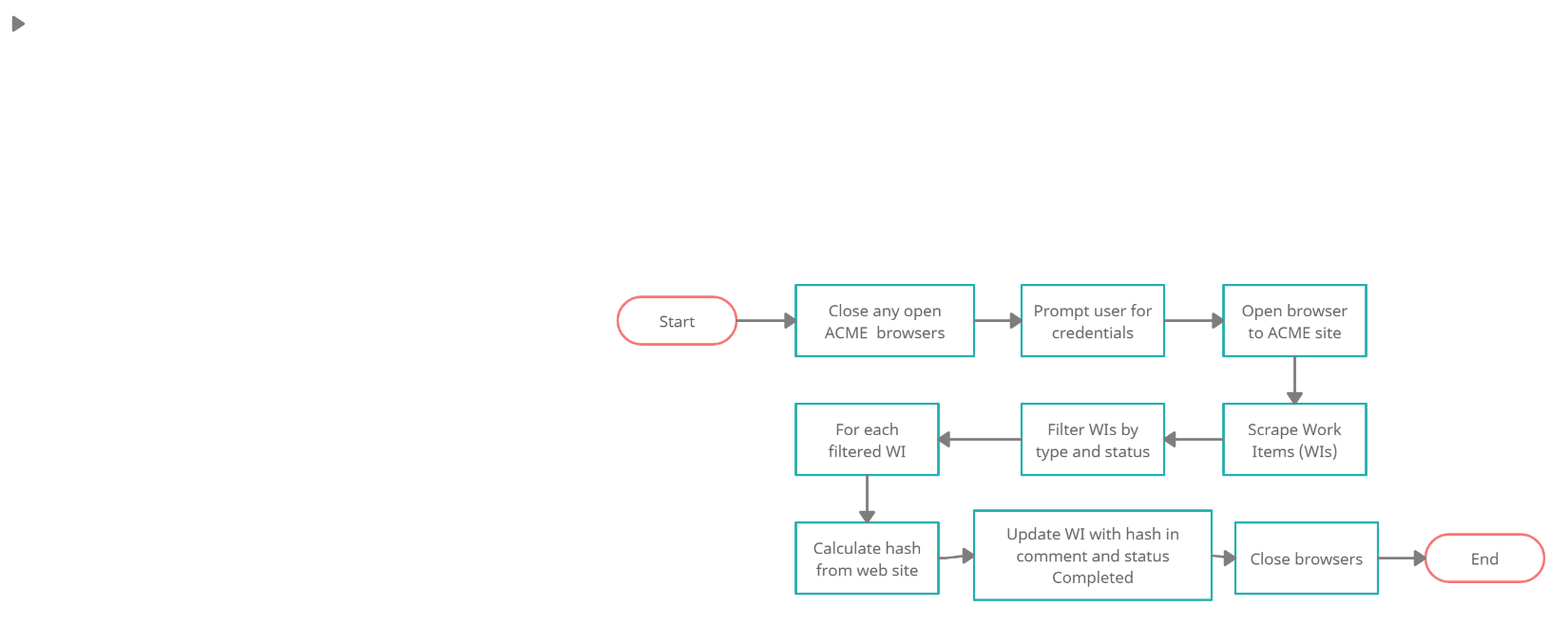
Details filled in by the developer reflect the actual information for the master project released for production.

|  |  |  |
| --- | --- | --- |
| # | Item | Details  Fill in with free text. If not applicable, mark the filed as "N/A". No empty fields. |
| 1 | Master Project Name and Version | Calculate Client Security Hash v1 |
| 2 | Robot Type (attended/unattended/mix) | Attended |
| 3 | Is Orchestrator used? (Yes/No) | No |
| 4 | Scalable? (Yes/No)  Can the process be run by multiple robots in parallel? | No |

# Runtime Guide

## Runtime Diagram

**Architectural Structure of the Master Project** Display the interaction between components (package / robots, Orchestrator queues, and running order).



## 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 |
| 1 | UiPath.Excel.Activities v2.8.6 | N/A |
| 2 | UiPath.Mail.Activities v1.8.6 | N/A |
| 3 | UiPath.System.Activities v20.4.0 | System activities |
| 4 | UiPath.UiAutomation.Activities v20.4.2 | Browser activities |

\*Add more rows to the table to include all the project names and versions. No fields should be left empty. Use “N/A” for the items that don't apply to your project.

## Master Project Runtime Details

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 | OS: MS Windows 10  CPU: Intel Core i7  GPU: N/A  RAM: 8 GB  Browser: Chrome  UiPath: UiPath Studio |
| 2 | Prerequisites to run | ACME test site (acme-test.uipath.com) account credentials,  UiPath Web Automation plugin for Chrome,  Chrome browser  UiPath Studio |
| 3 | Input Data | Client ID, name, country (Work Item details) |
| 4 | Expected Output (output data) | Client security hash |
| 5 | How to start the automated process? | Manually by user from user’s Windows PC |
| 6 | Resuming the process from a particular step | N/A |
| 7 | Reporting  queues reporting, Kibana or another platform | N/A |
| 8 | Manual Error Handling  roll back or manually complete failed transactions. Procedures to reset the item. Ex “set status as investigating” | Failed transactions are left unprocessed. |
| 1. How to resume the process in case of error | Run the process again and the failed transactions (Work Items) will be identified and processed. |
| 1. How to manually fix transactions with error | N/A |
| 9 | Use of Orchestrator | N/A |
| 1. Password Policies   specific compliance requests? | N/A |
| 1. Stored Credentials   Never hard code credentials in the workflow | N/A |
| 1. List of Asset Names | N/A |
| 1. List of Queues Name | N/A |
| 1. Schedule Details | N/A |
| 10 | Recommended Resolution | 1920 x 1080 |

# 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.

If the automated process is composed of multiple projects, copy paste and fill in the table below for each project with its specific details (there are 2 here already, assuming a dispatcher and performer project)

## Project Name: Calculate Client Security Hash

General information about the process selected for RPA prior to automation.

|  |  |  |
| --- | --- | --- |
| # | 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 | OS: MS Windows 10 Home 64bit v10.0.19042 Build 19042  CPU: Intel(R) Core(TM) i7-8565U  GPU: Intel(R) UHD Graphics 620  RAM: 16 GB  Browser: Chrome v87.0.4280.88 (Official Build) (64-bit)  UiPath Studio 2019.10.5 |
| 2 | Environment prerequisites  OS details, libraries, required apps | ACME test site (acme-test.uipath.com) account credentials,  UiPath Web Automation plugin v9.0.6824 for Chrome,  Chrome browser,  UiPath Studio |
| 3 | Logging level | Info: Custom log when processing updates  Warn: No Work Items of type/status found (BR exception)  Error: Failed to load login or log in (BR exception), System exception while processing Work Items |
| 4 | Details about automation  if the apps were automated using UI Automation, Image & Text | UI automation via Chrome |
| 5 | In case of attended bot, can the user operate the computer while the robot is running? | No |
| 6 | Repository for project  where the developed project is stored | N/A |
| 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 | **LogInACME.xaml**:   * Error level message on page failing to load BR exception – *“ACME Log In page not loaded.”* * Error level message on login failure BR exception – *“ACME Log In failed. Check user credentials.”*   **IterateWorkItems**:   * Info level messages when WI extraction begins – *“Starting extraction of Work Items...”* and finishes *“Finished extracting Work Items. Extracted <n> in total.”* * Warn level message on zero Work items matching type and status BR exception – *“No work items with Type <type> and Status <status>.”* * Info level messages when WI processing begins – *“Starting processing of filtered Work Items (<n> found)...”* and finishes *“Finished processing Work Items.”* * Error level message in Try/Catch processing Work Items – *"Error occurred when processing Work Item <work item id> at: <exception.Source> with error message: <exception.Message>”*   **ProcessWorkItem**:   * Info level message when a client id has been scraped – *“Client ID: <id>, Client Name: <name>, Client Country: <country>”*   **ACME\_LogOut.xaml**:   * Info level log message when logging off/closing browsers begins – *“Logging off and closing open ACME windows...”* and finishes – *“Finished logging out and closing ACME windows.”*   **SHA1\_Close.xaml**:   * Info level log message when logging off/closing browsers begins – *“Logging off and closing open ACME windows...”* and finishes – *“Finished logging out and closing ACME windows.”* |
| 9 | Frequent errors found in the development phase | N/A |
| 10 | Workarounds used in the automation phase | N/A |
| 11 | Configuration method  assets, excel file, Json file | N/A |
| 12 | Configuration details  path for input files, configuration Orchestrator assets used | N/A |

### Workflow(s) specific to the Project

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # | Workflow File Name | Description | Arguments | Comments |
| 1 | Main.xaml | Main workflow | N/A | Sequence |
| 2 | ACME\_PromptForCredentials.xaml | Prompt user for credentials | Out\_username - string,  Out\_password - string | Sequence |
| 3 | ACME\_LogIn.xaml | Logs in to ACME test site | In\_username - string,  In\_password - string | Sequence |
| 4 | OpenBrowser.xaml | Open Chrome browser at given url | In\_Url - string | Sequence |
| 5 | ACME\_IterateWorkItems.xaml | Extract Work Items and filter them. | In\_URLAcmeWI – string,  In\_URLSHA1Generator – string,  In\_WIType – string,  In\_WIStatus - string | Sequence |
| 6 | ACME\_ProcessWorkItem.xaml | Process one Work Item scraping Client Data, calculate hash and update the Work item with hash and new status. | in\_URL\_AcmeWI – string,  in\_WIID – string,  in\_HashBrowser - browser | Sequence |
| 7 | ACME\_LogOutAndClose.xaml | Log out of and close any open ACME browser tabs. | in\_ACMEUrl - string | Sequence |
| 8 | SHA1\_Close.xaml | Close any open SHA1 browser tabs. | N/A | Sequence |

# Compliance Considerations and Reporting Requirements

* Passwords/credentials
* Personal information, e.g. scraped client details

# Other Details

## Future Improvements

* Move master project to REFramework for better allround exception handling and logging
* Create a Dispatcher of filtered Work Item Client Details to queue items
* Use Orchestrator to store the ACME credentials, making the automation unattended
* Retry when unexpected exceptions occur (e.g. with the Retry Scope activity or being handled with the REFramework)

## Debugging Tips

* Gradually built main.xaml adding one workflow at a time and debugging them until working
* Had a temporary test.xaml workflow and tried smaller parts out during development to identify errors in the initial workflow parts, e.g. experimented with Browser instances to enable correct catching and closing of ACME browsers in a While loop instead of hard-coding a delay to avoid re-catching an already closed window
* Hard-coded ACME credentials into the workflow temporarily to allow for swifter running
* Added temporary logging in the workflow files to state when certain places were successfully run
* Tested selector validation with various ACME web pages open to ensure appropriate identification for the steps where certain Element Exists or Attach Browser were required
* OpenBrowser.xaml: Had an incorrect direction of its argument *in\_Url*
* LogInACME.xaml: Had an argument naming issue, variable naming being unspecific, static selector problems and general lack of activity descriptions
* IterateWorkItems.xaml: Suffered from too unspecific ACME browser selector, unspecific logging messages, incorrect condition for checking if any filtered Work Items were found. ACME login page was hard-coded as input to argument of ProcessWorkitem.xaml

## Other Remarks

# Post UAT Specifications

* Average duration per transaction (varies depending on the Test environment): 1 min.
* Recommended number of robots for the specified volumes: 1
* Specified schedule: Daily

# 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** - a 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.
* **BOR** - Back office robot
* **FOR** – Front office robot
* **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.