

# 1 INTRODUCTION

## 1.1 Overview

This project aims at developing a web based currency converter that serves the users to automate the process of converting currency.

## 1.2 Purpose

This application can automate the process of converting currencies in a given Excel file. Which results in less human effort and time consumption by improving efficiency.

# 2 LITERATURE SURVEY

Robotic process automation (RPA) emerges as a new technology which is focused on automation of repetitive, routine, rule-based human tasks, aiming to bring benefits to the organizations that decide to implement such software solution. Since RPA is a relatively new technology available on the market, the scientific literature on the topic is still scarce

## 2.1 Existing problem

Changes in the global economy driven by the development of new technologies require businesses to become more agile and to quickly respond to the needs, wishes, and demands from their customers. Moreover, competitive and financial pressures force organizations to be more efficient, thus constantly seeking for new technologies and methodologies that would help them become more productive, save costs and add value to their business. In this Project, we are addressing a mundane task of converting currencies which is time consuming and Return on effort is not sensible in this fast paced world.

## 2.2 Proposed solution

One of the solutions which is emerging as a new technology is robotic process automation (RPA) which can replace employees on repetitive tasks and automate them, and therefore, enable employees to be involved in more complicated tasks which can bring organization more value. According to the reports of consulting companies RPA is recognized as an emerging and disruptive technology that is already delivering value

### 3 THEORITICAL ANALYSIS

#### 3.1 Block diagram

Start the process

Read the Excel sheet  
and get data

Convert the currencies  
derived from excel  
sheet data by web

Write the converted  
currencies data in the  
excel sheet

End the process

## 3.2 Hardware / Software designing

### Hardware:

- 2.0 GHz 32 or 64-bit processor
  - 2 GB RAM
  - At least 10 GB of available hard-disk space
- 
- 2.0 GHz 32 or 64-bit processor
  - 2 GB RAM
  - At least 20 GB of available hard-disk space
- 
- 2.0 GHz 64-bit processor
  - 4 GB RAM
  - At least 20 GB of available hard-disk space
- 
- 2.0 GHz 64-bit processor
  - 4 GB RAM
  - Case insensitive, 1252 code page SQL Collation
  - Non-clustered or clustered architecture (includes support for AlwaysOn Availability Groups)
  - Allocate 10 GB Data File per connected runtime resource (minimum 100 GB)
  - Allocate 5 GB Data Log File per connected runtime resource (minimum 50 GB)
  - High performance disk array
  - Partially contained databases are supported

**Software:**

- Windows 10 Enterprise (32-bit/64-bit) versions 1909, 2004, 20H2, 21H1
- Windows Server 2019 (64-bit)
- SQL 2016 (64-bit)
- Microsoft .NET Framework 4.8
- Microsoft Excel

## **4 EXPERIMENTAL INVESTIGATIONS**

Analysis or the investigation made while working on the solution.

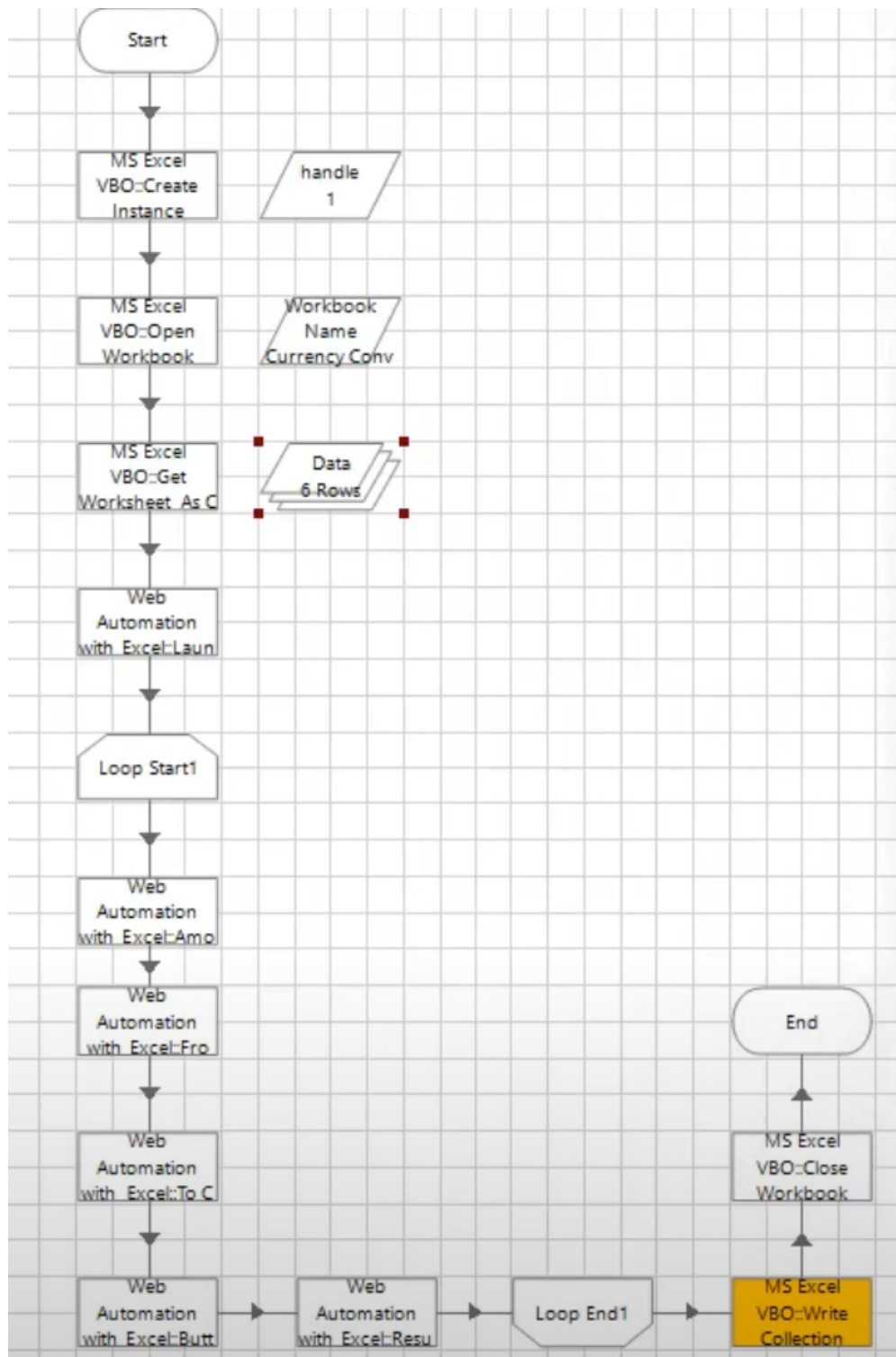
RPA is a software solution configured to interact with existing applications and systems the way like a human would do. RPA is an emerging technology which automates repetitive human tasks, both digital and physical, those tasks are usually error prone and therefore are suitable for automation.

Functionalities of the traditional RPA are:

- front office (attended) automation and back office (unattended) automation,
- script based designer and visual process designer, the openness of the platform,
- macro recorders for process mapping, control through coding,
- execution of automated test cases on remote machines,
- bot development and core functions,
- the control room, system management, reporting and resilience, and
- RPA analytical potential.

Recently, RPA definition is extended towards its conjunction with artificial intelligence (AI), cognitive computing, process mining, and data analytics. The introduction of advanced digital technologies allows RPA to be reallocated from performing repetitive and error-prone routines in business processes towards more complex knowledge intensive and value-adding tasks

## 5 FLOWCHART



## 6 RESULT

The screenshot displays the Process Studio interface for a workflow titled "Currency Converter - ICP Link". The workflow starts with a "Start" node, followed by a "MS Excel VBO: Create Instance" node, which triggers a "handle 1" event. This is followed by a "MS Excel VBO: Open Workbook" node, which triggers a "WORKBOOK Name Currency Converter" event. The workflow then proceeds to a "MS Excel VBO: Get Worksheet As C" node, which triggers a "Data <Row>" event. This is followed by a "Loop Start" node, which triggers a "Loop Start" event. The loop contains several "MS Excel VBO: Write" nodes, each triggered by a "Data <Row>" event. The loop ends with a "Loop End" node, which triggers a "Loop End" event. The workflow then proceeds to a "MS Excel VBO: Close Workbook" node, which triggers a "MS Excel VBO: Close Workbook" event. Finally, the workflow ends with an "End" node.

The "Collection Properties" dialog is open, showing the "Data" collection. The "Description" field is empty. The "Fields" tab is selected, showing the following fields:

Fields	Initial Values	Current Values
Amount (Text)	20	20
From Currency (Text)	AED	AED
To Currency (Text)	INR	INR
Result (Text)	408.706568 INR	408.706568 INR
Amount (Text)	26	26
From Currency (Text)	EUR	EUR
To Currency (Text)	INR	INR
Result (Text)	2,265.979119 INR	2,265.979119 INR
Amount (Text)	200	200
From Currency (Text)	USD	USD
To Currency (Text)	INR	INR
Result (Text)	15,009.748718 INR	15,009.748718 INR
Amount (Text)	3458	3458
From Currency (Text)	CAD	CAD
To Currency (Text)	INR	INR
Result (Text)	209,811.340158 INR	209,811.340158 INR
Amount (Text)	432	432
From Currency (Text)	SGD	SGD
To Currency (Text)	INR	INR
Result (Text)	24,071.116517 INR	24,071.116517 INR
Amount (Text)	2346	2346
From Currency (Text)	SGD	SGD
To Currency (Text)	INR	INR
Result (Text)	130,722.072333 INR	130,722.072333 INR

The "Reset to Initial Value whenever this page runs" checkbox is checked. The "Hide from other pages in the process" checkbox is also checked. The "Single Row" checkbox is unchecked. The "Add" and "Remove" buttons are visible. The "OK" and "Cancel" buttons are at the bottom right.

## 7 ADVANTAGES & DISADVANTAGES

### Advantages of RPA:

- RPA is easy to configure, so developers do not need programming skills.
- The RPA software is not invasive, it is based on existing systems, without the need to create, replace or develop expensive platforms.
- RPA is secure for the company, RPA is a robust platform that is designed to meet the IT requirements of the company in terms of security, scalability, auditability and change management.

### Disadvantage of RPA:

- The automated task increases unemployment. RPA is reducing the need for human power, so it has the potential to eliminate the jobs of repetitive tasks.
- The complexity of implementation in RPA has decreased day-by-day. According to a recent study, 30 to 50 percent of the RPA project fails initially.

- The RPA project or system needs regular reconfiguration.
- It is a costly technology as compare to any other technology.
- There is a lack of technical ability in the RPA projects.

## 8 APPLICATIONS

Industry type	Process type
Services	Recruitment (HRM services)
	Payroll process (outsourcing services)
	Financial process automation
	Payment receipt (outsourcing services)
	Process of promotion in HRM (outsourcing services)
	HRM, IT management, Public relations, Knowledge management (consulting services)
	HRM (audit, tax, and consulting services)
Telecommunications	Purchasing
	Sales (capacity check for bid processing)
	Subscription-based online service
	Back-office processes
Financial and Insurance	Healthcare claims adjudication process
	Administrative back-office process; Premiums processing; E-policies offshore process
Healthcare management	Administrative, back-office processes
Sales	Vendor information processing
Oil and Gas	Finance and accounting: the process of reconciliation the bank with the cash from the stations in the previous day

## **9 CONCLUSION**

The objective of this project is to offer a Web based Robotic Process Automated application that can convert currency. Conclusion summarizing the entire work and findings. For the academic scope, this work has been carried out following widely accepted processes in the field of research, thus granting high scientific rigor to the results obtained. For this, 3 scientific papers obtained from well-known bibliographic sources have been analyzed. Results showed that: (1) there is a high interest of the scientific community in this area and (2) there is an increasing tendency regarding publications related to RPA.

## **10 FUTURE SCOPE**

This can lead to the conclusion that the number of RPA researches will continue the growth in the future. Having in mind that RPA is a rather new and emerging field, the results identifying the appearance of 17 conference papers against 10 journal articles imply that the full research potential on RPA topic hasn't been achieved yet. Hence, it can be concluded that the studies on RPA have only begun to emerge and it is expected they will achieve its proliferation in the next few years.

## **11 BIBILOGRAPHY**

References:

1. [https://www.researchgate.net/publication/339341848\\_Robotic\\_Process\\_Automation\\_A\\_Scientific\\_and\\_Industrial\\_Systematic\\_Mapping\\_Study](https://www.researchgate.net/publication/339341848_Robotic_Process_Automation_A_Scientific_and_Industrial_Systematic_Mapping_Study)
2. <https://www.ops.gov.ie/app/uploads/2021/01/RPA-SystematicLiteratureSurvey.pdf>
3. [https://www.researchgate.net/publication/335400552\\_Robotic\\_Process\\_Automation\\_Systematic\\_Literature\\_Review](https://www.researchgate.net/publication/335400552_Robotic_Process_Automation_Systematic_Literature_Review)



# APPENDIX

## A. Source Code:

```
<process name="Currency  
Converter - ICP Link"  
version="1.0"  
bpversion="7.0.0.40580"  
narrative=""  
byrefcollection="true"  
preferredid="3ba5e969-  
9db2-4b55-8600-  
803f07225c50">
```

```
<view>  
  <camerax>150</camerax>  
  <cameray>135</cameray>  
  <zoom version="2">1.25</zoom>  
</view>  
<preconditions />  
<endpoint narrative="" />  
<stage stageid="0d3f462f-cda2-4c71-9b95-68982ef53a60" name="Start"  
type="Start">  
  <display x="15" y="-165" />  
  <onsuccess>d20b70cf-1626-4f5c-9510-feeb95a08c3a</onsuccess>  
</stage>  
<stage stageid="ad4b01fe-27ac-4b1d-8446-1dfe5321b9b8" name="End"  
type="End">  
  <display x="285" y="240" />  
</stage>  
<stage stageid="13f739ce-eca9-462f-9178-309957ccaa1f" name="Stage1"  
type="ProcessInfo">  
  <display x="-195" y="-105" w="150" h="90" />  
</stage>  
<stage stageid="d20b70cf-1626-4f5c-9510-feeb95a08c3a" name="MS  
Excel VB0::Create Instance" type="Action">  
  <loginhibit onsuccess="true" />  
  <display x="15" y="-105" />  
  <inputs>  
    <input type="flag" name="Enable Events" friendlyname="Enable  
Events" narrative="Flag to indicate that events should be enabled /  
disabled on the attached instance - defaulted to True" expr="" />  
  </inputs>
```

```

        <outputs>
            <output type="number" name="handle" friendlyname="handle"
narrative="An integer which can be used to identify the created
instance in subsequent actions" stage="handle" />
        </outputs>
        <onsuccess>1f8b71f6-f955-4b5f-8f93-fe7f54bf8008</onsuccess>
        <resource object="MS Excel VB0" action="Create Instance" />
    </stage>
    <stage stageid="79db4bcf-fad4-441d-9d72-d179d4813e59" name="handle"
type="Data">
        <display x="90" y="-105" />
        <datatype>number</datatype>
        <initialvalue />
        <private />
        <alwaysinit />
    </stage>
    <stage stageid="1f8b71f6-f955-4b5f-8f93-fe7f54bf8008" name="MS
Excel VB0::Open Workbook" type="Action">
        <loginhibit onsucces="true" />
        <display x="15" y="-45" />
        <inputs>
            <input type="number" name="handle" friendlyname="handle"
narrative="The integer handle identifying the instance on which the
required workbook should be opened. The default of zero indicates the
currently active instance." expr="[handle]" />
            <input type="text" name="File name" friendlyname="File name"
narrative="The path and name of the file which should be opened."
expr="&quot;C:\Users\hp\Desktop\Currency Conversion ICP.xlsx&quot;"
/>
        </inputs>
        <outputs>
            <output type="text" name="Workbook Name" friendlyname="Workbook
Name" narrative="The name used by Excel to identify the workbook -
usually this is the file name (without the path)." stage="Workbook
Name" />
        </outputs>
        <onsuccess>24cf5eac-66ec-4d7b-a382-b61ff7b90e70</onsuccess>
        <resource object="MS Excel VB0" action="Open Workbook" />
    </stage>
    <stage stageid="72316f96-4828-4c42-9e42-5c9963d94bda"
name="Workbook Name" type="Data">
        <display x="90" y="-45" />
        <datatype>text</datatype>
        <initialvalue />
        <private />
        <alwaysinit />

```

```

</stage>
<stage stageid="24cf5eac-66ec-4d7b-a382-b61ff7b90e70" name="MS
Excel VB0::Get Worksheet As Collection" type="Action">
  <loginhibit onsucces="true" />
  <display x="15" y="15" />
  <inputs>
    <input type="number" name="handle" friendlyname="handle"
narrative="The integer handle identifying the instance on which the
worksheet which should be retrieved resides. The default of zero
indicates the currently active instance." expr="[handle]" />
    <input type="text" name="Workbook Name" friendlyname="Workbook
Name" narrative="The name of the workbook which contains the sheet
required. The default empty text indicates the currently active
workbook on the specified instance." expr="[Workbook Name]" />
    <input type="text" name="Worksheet Name"
friendlyname="Worksheet Name" narrative="The name of the worksheet
within the specified workbook which should be written to a
collection. The default empty text indicates the currently active
worksheet within the specified workbook." expr=""Sheet1"";"
/>
    <input type="text" name="Fetch Data With Method"
friendlyname="Fetch Data With Method" narrative="The method used to
fetch data from cells in the worksheet. Options include Text, Value,
and Value2. The default indicates Value will be used." expr="" />
  </inputs>
  <outputs>
    <output type="collection" name="Data" friendlyname="Data"
narrative="The collection containing the data from the specified
worksheet - the column IDs will be gleaned from the first row on the
sheet being retrieved." stage="Data" />
  </outputs>
  <onsuccess>d49ba060-3be3-42ff-81f6-0641ae1161ab</onsuccess>
  <resource object="MS Excel VB0" action="Get Worksheet As
Collection" />
</stage>
<stage stageid="b29eaac6-14ec-4a48-a3c9-6e76b8b0195b" name="Data"
type="Collection">
  <display x="90" y="15" />
  <datatype>collection</datatype>
  <private />
  <alwaysinit />
</stage>
<stage stageid="d49ba060-3be3-42ff-81f6-0641ae1161ab" name="Web
Automation with Excel::Launch" type="Action">
  <loginhibit onsucces="true" />
  <display x="15" y="75" />
  <onsuccess>2be21f0f-d77d-475b-9b01-61bfe269b067</onsuccess>

```

```

        <resource object="Web Automation with Excel" action="Launch" />
    </stage>
    <stage stageid="6b244a5d-4552-47cf-bbe2-b9adc1f2dc4f" name="Web
Automation with Excel::Amount" type="Action">
        <loginhibit onsucces="true" />
        <display x="15" y="195" />
        <inputs>
            <input type="number" name="Amount" friendlyname="Amount"
expr="[Data.Amount]" />
        </inputs>
        <onsuccess>6bb2c533-244c-42c2-8af0-e78f380727f0</onsuccess>
        <resource object="Web Automation with Excel" action="Amount" />
    </stage>
    <stage stageid="6bb2c533-244c-42c2-8af0-e78f380727f0" name="Web
Automation with Excel::From Currency" type="Action">
        <loginhibit onsucces="true" />
        <display x="15" y="240" />
        <inputs>
            <input type="text" name="From Currency" friendlyname="From
Currency" expr="[Data.From Currency]" />
        </inputs>
        <onsuccess>f94f4163-8c31-4f34-a5f7-9395630178db</onsuccess>
        <resource object="Web Automation with Excel" action="From
Currency" />
    </stage>
    <stage stageid="f94f4163-8c31-4f34-a5f7-9395630178db" name="Web
Automation with Excel::To Currency" type="Action">
        <loginhibit onsucces="true" />
        <display x="15" y="300" />
        <inputs>
            <input type="text" name="To Currency" friendlyname="To
Currency" expr="[Data.To Currency]" />
        </inputs>
        <onsuccess>c378df2d-de8f-4f2d-a482-8485a7176050</onsuccess>
        <resource object="Web Automation with Excel" action="To Currency"
/>
    </stage>
    <stage stageid="c378df2d-de8f-4f2d-a482-8485a7176050" name="Web
Automation with Excel::Button" type="Action">
        <loginhibit onsucces="true" />
        <display x="15" y="360" />
        <onsuccess>8d810bef-9059-4328-ba8a-61c258b9e1d5</onsuccess>
        <resource object="Web Automation with Excel" action="Button" />
    </stage>
    <stage stageid="8d810bef-9059-4328-ba8a-61c258b9e1d5" name="Web
Automation with Excel::Result" type="Action">

```

```

        <loginhibit onsuccess="true" />
        <display x="105" y="360" />
        <outputs>
            <output type="text" name="Result " friendlyname="Result "
stage="Data.Result" />
        </outputs>
        <onsuccess>9e106ad6-498c-458e-9e5d-85c7f7c8fc02</onsuccess>
        <resource object="Web Automation with Excel" action="Result" />
    </stage>
    <stage stageid="8692a5bc-4d3d-457b-bfd3-2d97be4477fc" name="MS
Excel VB0::Write Collection" type="Action">
        <loginhibit on success="true" />
        <display x="285" y="360" />
        <inputs>
            <input type="number" name="handle" friendly name="handle"
narrative="The integer handle identifying the instance on which the
specified collection should be written. The default of zero indicates
the currently active instance." expr="[handle]" />
            <input type="text" name="Workbook Name" friendlyname="Workbook
Name" narrative="The name of the workbook within which the data
should be written. The default empty value indicates the current
workbook within the specified instance." expr="[Workbook Name]" />
            <input type="collection" name="Collection"
friendlyname="Collection" narrative="The collection containing the
data which should be written to the worksheet." expr="[Data]" />
            <input type="text" name="Worksheet Name"
friendlyname="Worksheet Name" narrative="The name of the worksheet on
which the given data should be written. The default empty value
indicates the current sheet within the specified workbook."
expr="[Sheet1]" />
            <input type="text" name="Cell Reference" friendlyname="Cell
Reference" narrative="The reference at which the collection should be
written." expr="&quot;A2&quot;" />
            <input type="flag" name="Include Column Names"
friendlyname="Include Column Names" narrative="True to indicate that
the column names from the collection should be written out as the
first row; False to ignore the column names and just write out the
data." expr="False" />
        </inputs>
        <onsuccess>e4a55216-7e87-45e3-b506-e223e70cf20b</onsuccess>
        <resource object="MS Excel VB0" action="Write Collection" />
    </stage>
    <stage stageid="e4a55216-7e87-45e3-b506-e223e70cf20b" name="MS
Excel VB0::Close Workbook" type="Action">
        <loginhibit onsuccess="true" />
        <display x="285" y="300" />
        <inputs>

```

```

        <input type="number" name="handle" friendlyname="handle"
narrative="The integer handle identifying the instance on which the
workbook which should be closed resides. The default of zero
indicates the currently active instance." expr="[handle]" />
        <input type="text" name="Workbook Name" friendlyname="Workbook
Name" narrative="The name of the workbook which should be closed."
expr="[Workbook Name]" />
        <input type="flag" name="Save Data" friendlyname="Save Data"
narrative="True to save the data before closing the workbook; The
default of False will discard any changes before closing the
workbook." expr="True" />
    </inputs>
    <onsuccess>ad4b01fe-27ac-4b1d-8446-1dfe5321b9b8</onsuccess>
    <resource object="MS Excel VB0" action="Close Workbook" />
</stage>
<stage stageid="2be21f0f-d77d-475b-9b01-61bfe269b067" name="Loop
Start1" type="LoopStart">
    <loginhibit onsuccess="true" />
    <display x="15" y="135" />
    <onsuccess>6b244a5d-4552-47cf-bbe2-b9adc1f2dc4f</onsuccess>
    <groupid>058b854b-8e63-45f4-b45b-6a637e792d87</groupid>
    <looptype>ForEach</looptype>
    <loopdata>Data</loopdata>
</stage>
<stage stageid="9e106ad6-498c-458e-9e5d-85c7f7c8fc02" name="Loop
End1" type="LoopEnd">
    <loginhibit onsuccess="true" />
    <display x="195" y="360" />
    <onsuccess>8692a5bc-4d3d-457b-bfd3-2d97be4477fc</onsuccess>
    <groupid>058b854b-8e63-45f4-b45b-6a637e792d87</groupid>
</stage>
</process>

```