

# Chapter 01: About Automation Anywhere

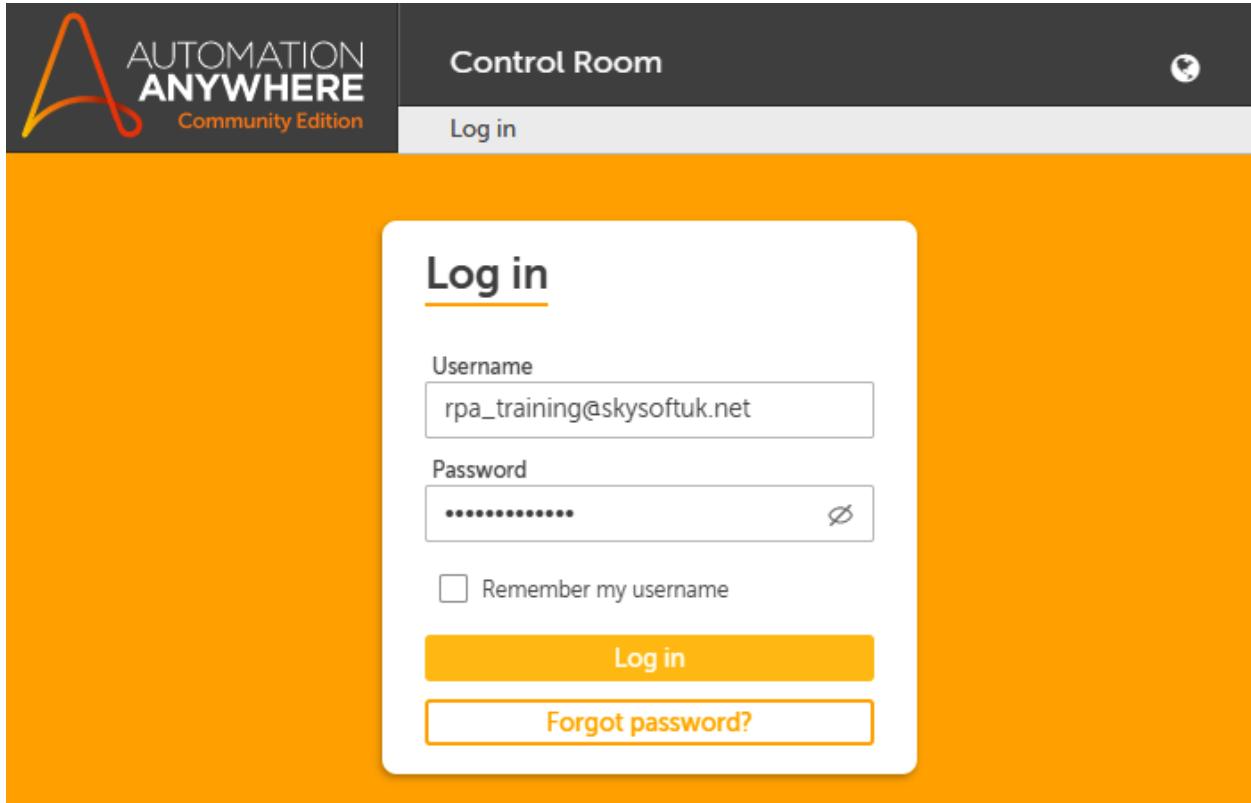
RPA	TRADITIONAL AUTOMATION
 Requires no modifications in the current IT infrastructure	 Requires certain customisations in current IT infrastructure
Lower costs of implementation when RPA is adopted	An option for companies with a flexible budget
A more efficient option since it can make improvements instantly	Requires more time, effort and considerable manpower
Eliminate the need to change the current processes in the system	Have to change the processes in the current system



	<b>BluePrism</b>	<b>UiPath</b>	<b>Automation Anywhere</b>
<b>Free Community Edition</b>	No	Yes	Yes
<b>Front Office Development</b>	No	Yes	Yes
<b>Back Office Development</b>	Yes	Yes	Yes
<b>User Friendly Interface</b>	Yes	Yes	Yes
<b>Drag &amp; Drop Development Feature</b>	Yes	Yes	Yes
<b>Interface Recorder Development Feature</b>	No	Yes	Yes
<b>Certification Available</b>	Yes	Yes	Yes
<b>Training Academy</b>	No	Yes	Yes
<b>Cloud Based Development</b>	No	Yes	Yes
<b>Bot Store Marketplace</b>	No	Yes	Yes

<b>ENTERPRISE VERSION 11</b>	<b>ENTERPRISE A2019</b>	<b>COMMUNITY EDITION A2019</b>
Designed as an on-premises enterprise level RPA platform	Designed as a cloud-based enterprise level RPA platform	Designed for the developer and student
Free trial for 30 days	Free trial for 30 days	Free for small businesses, developers, and students
Included components:  Enterprise – RPA on-premises IQ Bot, Bot Insight, Bot Store, Mobile App	Included components:  Enterprise – fully web-based RPA in the cloud IQ Bot, Bot Insight, Bot Store, Mobile App	Included components:  Enterprise – fully web-based RPA in the cloud IQ Bot, Bot Insight, Bot Store

# Chapter 02: Installing Automation Anywhere



A screenshot of the Automation Anywhere Control Room home page. The header includes the 'AUTOMATION ANYWHERE Community Edition' logo and a user profile with the email rpa\_training@skysoftuk.net. The main title 'Control Room' is at the top left, and 'Home' is selected. A central banner reads 'WELCOME TO AUTOMATION ANYWHERE COMMUNITY EDITION' and 'WORLD'S #1 DIGITAL WORKFORCE PLATFORM'. Below the banner are four main sections: 'ROBOTIC PROCESS AUTOMATION COMMUNITY EDITION' (with a 'Create a bot...' button), 'COGNITIVE AUTOMATION IQ BOT' (with a 'Launch IQ Bot' button), 'ANALYTICS BOT INSIGHT' (with a 'Open Bot Insight' button), and 'DIGITAL WORKFORCE MARKETPLACE BOT STORE' (with a 'COMING SOON' message). The left sidebar has navigation links for HOME, DASHBOARD, ACTIVITY, BOTS, MY DEVICES, and ADMINISTRATION.



A screenshot of a user profile screen. At the top, there are three icons: a globe, a document with a yellow exclamation mark, and a green circle with a white 'R'. To the right of these is the email address 'rpa\_training@skysoftuk.net'. Below this, the user's name 'rpa\_training@skysoftuk.net' is displayed, followed by the text 'RPA Training' and the same email address again. A horizontal line separates this from a blue button labeled 'Go to My\_profile'. Another horizontal line separates this from a yellow button labeled 'Log out'. A large red arrow points to the 'Go to My\_profile' button.

rpa\_training@skysoftuk.net  
RPA Training  
rpa\_training@skysoftuk.net

[Go to My\\_profile](#)

[Log out](#)

My profile 

General details

First name: RPA      Last name: Training  

Contact info

Email: rpa\_training@skysoftuk.net

Change password

Password: \*\*\*\*\*

Modified by:  rpa\_training@skysoftuk.net      Last modified: 14:40:10 BST 2020-10-15

My profile 

General details

First name (optional): RPA  

Last name (optional): Training 

Contact info

Contact email: rpa\_training@skysoftuk.net  Confirm contact email: rpa\_training@skysoftuk.net

Change password

Always log into my account using this username and password

Current password:   

New password: 

Confirm new password: 

8-15 characters; a-z, A-Z, 0-9, @, -, \_, !, #, \$, %, &, and . allowed. Requires at least one of each of the following:

- Number
- Capital letter
- Special character

**AUTOMATION ANYWHERE** Community Edition

Control Room

Devices > My devices

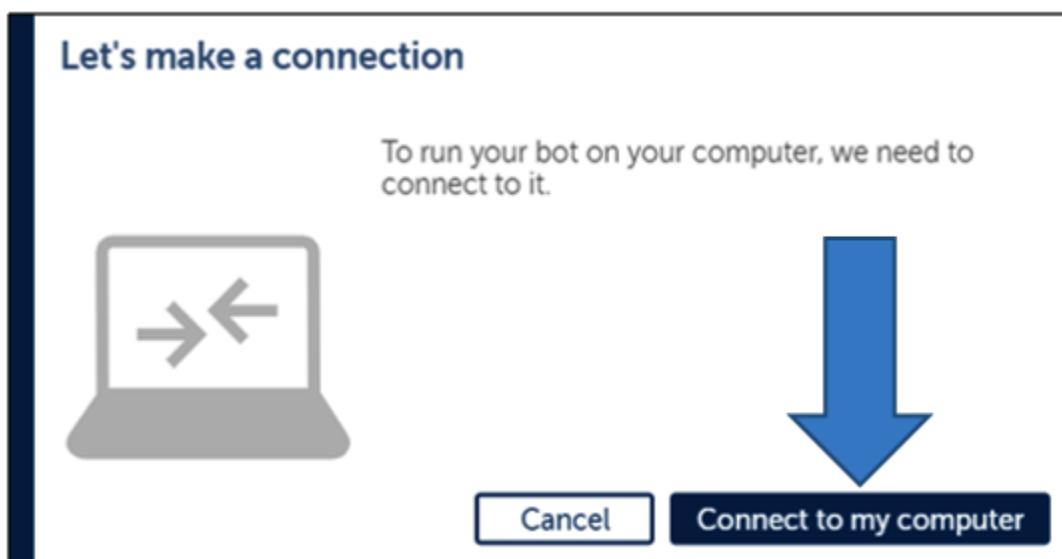
My devices

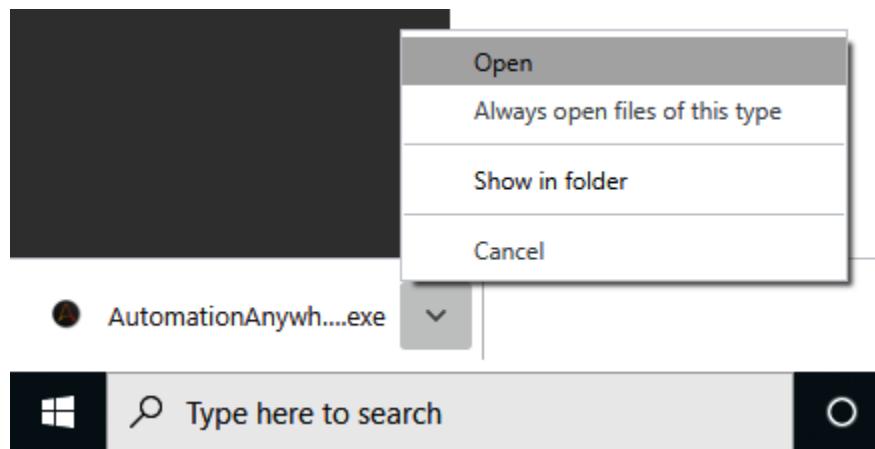
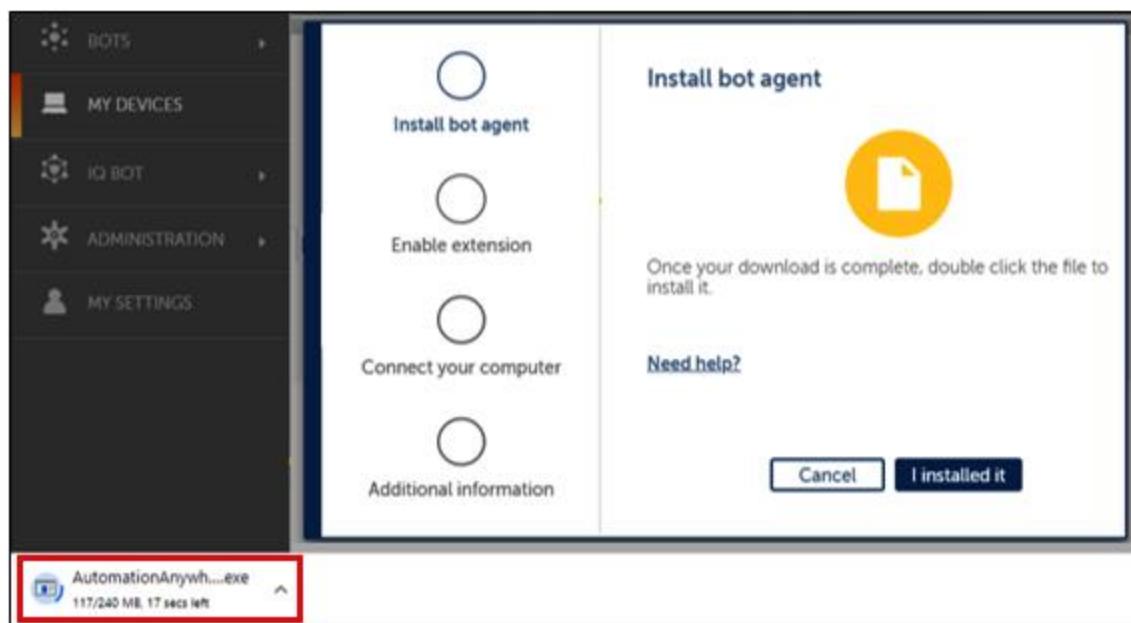
Device name ▾ Search Add local bot agent... Run bot now...

Devices (0)

STATUS	DEVICE NAME	DEVICE NICKNAME	DEVICE TYPE
--------	-------------	-----------------	-------------

To see a Bot runner or a Bot creator in the list, first create a user. Then, log onto the Bot runner or Bot creator using that username. The Bot runner/Bot creator will automatically appear here.







Install bot agent



Enable extension



Connect your computer



Additional information

## Enable Chrome extension

This will let bots run on this computer without device credentials. Without the extension a username and password will be required.

[Need help?](#)

[Cancel](#)

[I enabled it](#)



Install bot agent



Enable extension



Connect your computer



Additional information

## Chrome extension not enabled

It might help if you get the extension from the Chrome store:

1. [Get the Automation Anywhere extension](#).
2. Click "Add extension" to add it and enable it.
3. Once the extension is installed and enabled, we will automatically move to the next step.

[Skip this step](#). I will add my username and password manually.

[Cancel](#)



chrome web store



Sign in

[Home](#) > [Extensions](#) > Automation Anywhere A2019



## Automation Anywhere A2019

[Add to Chrome](#)

Offered by: Automation Anywhere

★★★★★ 3 | [Accessibility](#) | 10,000+ users



Add "Automation Anywhere A2019"?

x

It can:

Read and change all your data on the websites that you visit

Communicate with cooperating native applications

[Add extension](#)

[Cancel](#)



Automation Anywhere A2019

Automation Anywhere A2019 extension to  
automate web applications in Google Chrome.

[Details](#)

[Remove](#)



	<b>Install bot agent</b>	<input type="checkbox"/>
	<b>Enable extension</b>	<input type="checkbox"/>
	<b>Connect your computer</b>	<input type="checkbox"/>
	<b>Additional information</b>	<input type="checkbox"/>

**Additional information**

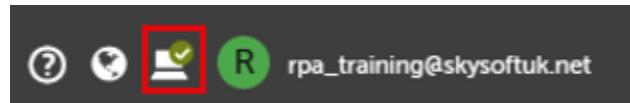
Nickname (optional)

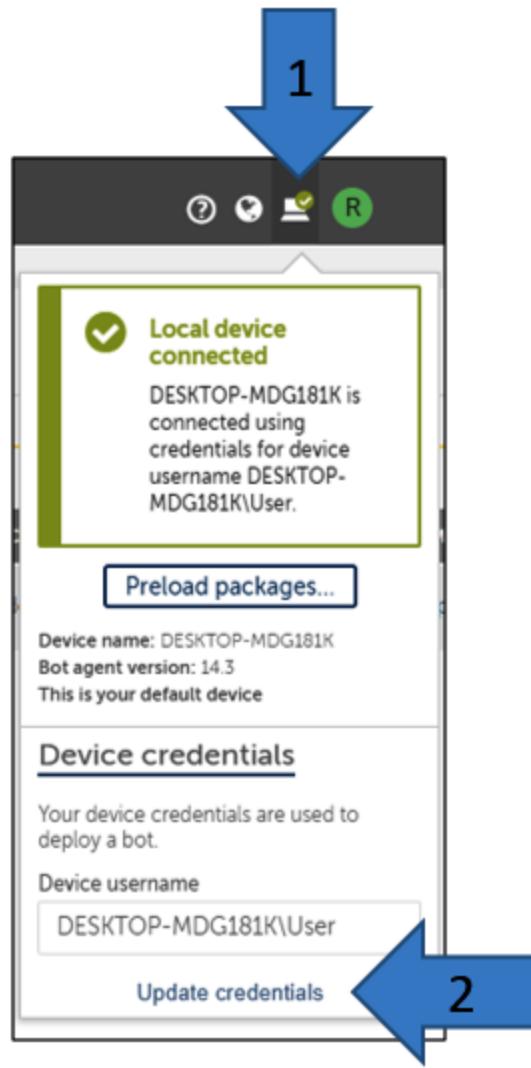
Device type  Single user  Multiple users  
If your device allows multiple users to log in at the same time, then select this option. Typically used with windows terminal servers.

Concurrent sessions supported  + -  
1-999 are allowed

**Done**

HOME		My devices						Run bot now...
DASHBOARD		Devices (1)						
ACTIVITY								
BOTS								
MY DEVICES		Device name	Search					
<input type="checkbox"/>	Connected	DESKTOP-MDG181K	--		Single user	rpa_training@skysoftuk...	14.3	⋮





## Device credentials

Your device credentials are used to deploy a bot.

Device username

DESKTOP-MDG181K\User 

Max characters = 255

Device password

Device password is used for remote login.

[Cancel](#)

[Update](#)

# Chapter 03: Overview of Automation Anywhere Control Room

The screenshot shows the 'Control Room' interface of the Automation Anywhere Community Edition. The left sidebar includes links for HOME, DASHBOARD, ACTIVITY, BOTS, MY DEVICES, and ADMINISTRATION. The main content area features a welcome message: 'WELCOME TO AUTOMATION ANYWHERE COMMUNITY EDITION' and 'WORLD'S #1 DIGITAL WORKFORCE PLATFORM'. It highlights four main components: ROBOTIC PROCESS AUTOMATION (Community Edition), COGNITIVE AUTOMATION (IQ BOT), ANALYTICS (BOT INSIGHT), and DIGITAL WORKFORCE MARKETPLACE (BOT STORE). Each component has a brief description and a call-to-action button: 'Create a bot...', 'Launch IQ Bot', 'Open Bot Insight', and 'COMING SOON' respectively. The top right corner shows the user email 'rpa\_training@skysoftuk.net'.



Access further documentation and help



Set your language preference for the application



View/Set local bot agent and device credentials



rpa\_training@skysoftuk.net

View/Set user profile

**AUTOMATION ANYWHERE**  
Community Edition

HOME DASHBOARD ACTIVITY BOTS MY DEVICES IQ BOT ADMINISTRATION MY SETTINGS

## Control Room

### Dashboard

**Getting started**

Create more bots that can help automate more of your workflows.

**Create a bot**

**Recently visited pages**

Home  
[\[xml\] Edit Task Bot](#)  
[My bots](#)  
[\[api\] Edit Task Bot](#)

**Insights**

Bot Insight provides real-time business insights and digital workforce performance measurement by leveraging massive amounts of content-level and productivity data.

[Explore Bot Insight ↗](#)

**My metrics**

36		1040	4 hr
# of Task Bots created	Most used actions	# of Task Bots run	Average time spent to create a Task Bot (across all users)

**AUTOMATION ANYWHERE**  
Community Edition

HOME DASHBOARD ACTIVITY BOTS MY DEVICES ADMINISTRATION

In progress

## Control Room

### In progress activity

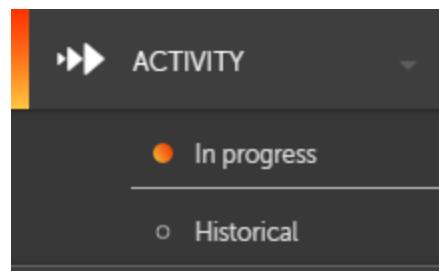
Status: Choose

Activity (0)

	STA...	ITEM NAME	PROGRESS	CURRENT ACTION	BOT	ACTIVITY TYPE	STARTED...	DEVICE	USERNAME

Run bot now...

When there is activity, it will automatically appear here.



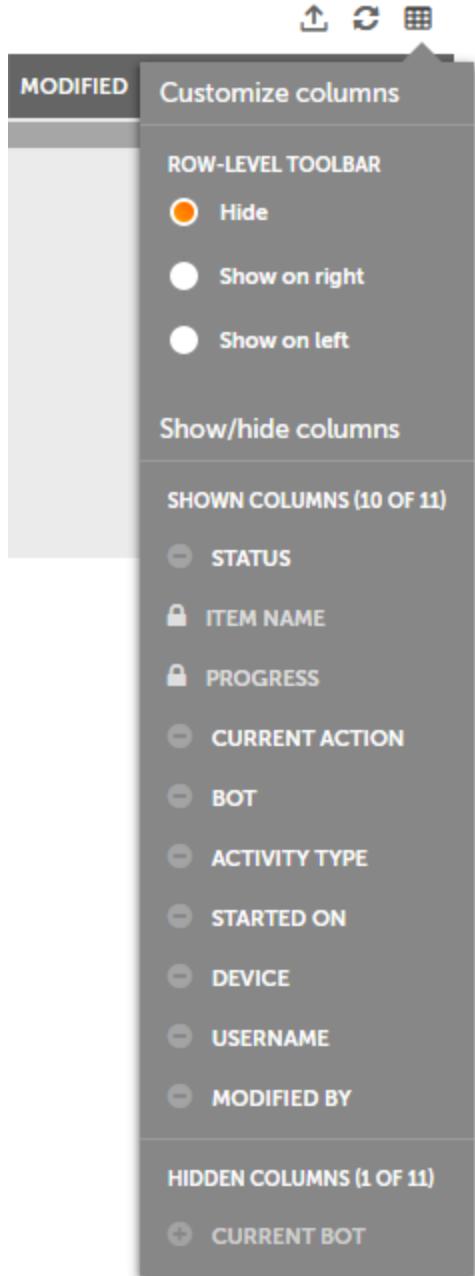
Export List to CSV file



Refresh List



View/Hide Columns in List



## In progress activity

Status ▼ Choose

Status

- Current action
- Current bot
- Bot
- Activity type
- Device

NAME	CURRENT ACTION	PROGRESS

BOTS

- My bots
- Credentials
- Global values
- Packages

Control Room

Bots > My bots

My bots

Create a bot...

Folders

Bots

Sample\_bots

Name	Search				
Sample_bots	N/A	N/A	12:23:57 GMT 2020-02-14	rpa_training@skysoftuk.net	⋮



Create new bot



Delete checked item



Create sub-folder



Refresh list



Upload files



View/Hide columns

## Credentials

MY CREDENTIALS

MY LOCKERS

CREDENTIAL REQUESTS

Search



## Create a credential

 Create locker with checked item

 Delete checked item

 Refresh list

 View/Hide columns

## Email

[< Back](#)

This page shows the package details of the selected version. You can also select a different package version and update the installed version.

### Versions

2.0.0-20200206-135926 (Default)



PACKAGE DETAILS				
Name	Description	Version	Status	
Email	Provides actions to perform email operations.	2.0.0-20200206-135926	Default	

ACTIONS	Actions (13)
ITERATORS	<ul style="list-style-type: none"><li> Change status</li><li> Check if folder exists</li><li> Delete all</li><li> Delete</li><li> Disconnect</li><li> Connect</li><li> Forward</li></ul>

The screenshot shows the 'ITERATORS' section of the RPA Designer. A single iterator named 'loop.iterators.email' is listed under the heading 'Iterators (1)'. The iterator is defined with the action 'For each mail in mail box'.

Name	Value
Name	loop.iterators.email

The screenshot shows the 'Control Room' interface under the 'Devices > My devices' section. It lists one device named 'DESKTOP-MDG181K' which is connected.

Status	Device Name	Device Nickname	Device Type	Default Users	Bot Agent Version	Device Pool
Connected	DESKTOP-MDG181K	--	Single user	rpa_training@skysoftuk...	14.3	--

The screenshot shows the 'Control Room' interface under the 'Administration > Users' section. It lists one user named 'rpa\_training@skysoftuk.net'.

User	Username	First Name	Last Name	Description	Roles	Device License	User Status	License Status
	rpa_training@skysoftuk.net	RPA	Training	--	CE_user 1 more...	Bot creator	Enabled	Verified

**AUTOMATION ANYWHERE**  
Community Edition

Control Room

Administration > Users > View user

**rpa\_training@skysoftuk.net**

Edit Disable < Back

**USER DETAILS**

First name RPA	Last name Training	Description --
Email rpa_training@skysoftuk.net	Password ****	User status Enabled
License Bot creator	License status Verified	device DESKTOP-MDG181K
Auto login Cannot auto login		

Search

**Roles (2)**

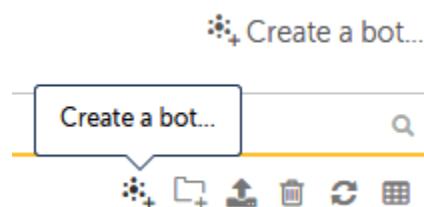
NAME ↑
AAE_Bot Insight Expert
CE_user

**GENERAL DETAILS**

Last modified 12:46:13 GMT 2020-02-14	Modified by rpa_training@skysoftuk.net	Object type User	User type Bot creator
---	---	---------------------	--------------------------

# Chapter 04: Overview of the Automation Anywhere Development Interface

The screenshot shows the 'Control Room' interface of Automation Anywhere. The left sidebar has a navigation menu with options: HOME, DASHBOARD, ACTIVITY, and BOTS (selected). Under BOTS, there are three sub-options: My bots (selected), Credentials, and Packages. The main area is titled 'My bots' and shows a list of files and folders. A folder named 'Bots' contains a single item named 'Sample\_bots'. The interface includes a search bar at the top and various icons for file operations like create, search, and refresh.



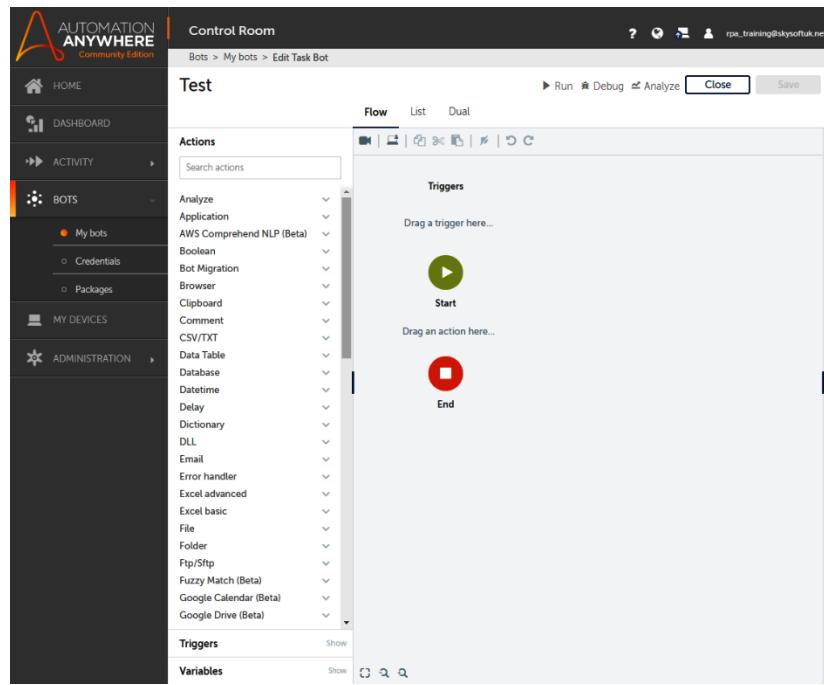
## Create Task Bot

**Name**  
Test  
Max characters = 50

**Description (optional)**  
Test Bot  
Max characters = 255

**Folder**  
\Bots\  
**Browse...**

**Cancel** **Create & edit**





AUTOMATION  
**ANYWHERE**  
Community Edition



HOME



DASHBOARD



ACTIVITY



BOTS

My bots



Control Room

My bots > Edit Task Bot



## Actions

Search actions

Analyze



Application



AWS Comprehend NLP (Beta)



## Actions

Search actions

- File ▾
- Folder ▾
- Ftp/Sftp ▾
- Fuzzy Match (Beta) ▾
- Google Calendar (Beta) ▾
- Google Drive (Beta) ▾
- Google Sheets (Beta) ▾
- G-Suite Apps (Beta) ▾
- IBM Watson Authentication (B... ▾
- IBM Watson Speech to Text (B... ▾
- If ▾
- Image Recognition ▾
- IQ Bot ▾

## ≡ Control Room

Bots > My bots > Edit Task Bot

### Test

Flow    **List**    Dual

#### Actions

Search actions



Triggers

Control Room

Bots > My bots > Edit Task Bot

## Test

Run Debug Analyze Close Save

Flow List Dual

**Actions**

Search actions

JavaScript  
List  
Log To File  
Loop  
Message box  
Message box (Displays a message box)  
Microsoft LUIS NLP (Beta)  
Mouse  
Number  
OCR  
Office 365 Calendar  
Office 365 Excel  
Office 365 OneDrive  
One Drive

**Triggers**

**Variables**

Trigger 1 (Up arrow)  
Action 2 (Down arrow)

Drag a trigger here...  
Drag an action here...

```
graph TD; subgraph Left [Actions]; A[Search actions]; B[JavaScript]; C[List]; D[Log To File]; E[Loop]; F[Message box]; end; subgraph Right [ ]; G[Trigger Placeholder]; H[Action Placeholder]; I[End Placeholder]; end; J[Trigger 1] --> G; K[Action 2] --> H;
```

Control Room

Bots > My bots > Private > Edit Task Bot

Test

Flow List Dual

Variables Show

Actions

Search actions

Legacy automation

- List
- Log To File
- Loop
- ML - Microsoft Anomaly Dete...
- MS Word
- Message box
- Message box
- Microsoft LUIS NLP (Beta)
- Mouse
- Number
- NumberUtils
- OCR
- Office 365 Calendar

Triggers Show

Triggers

Start

Message box

End

Message box

Displays a message box

Enter the message box window title

Automation Anywhere Enterprise Client

Enter the message to display

Scrollbar after lines

# 30

Close message box after

Seconds

#

```
graph TD; Start((Start)) --> MessageBox[Message box]; MessageBox --> End((End))
```

## Message box

Displays a message box

Enter the message box window title

„ Test Message Box 1 (x)

Enter the message to display

„ Hello World (x)

Scrollbar after lines

# 30 (x)

Close message box after

Seconds

# 2 (x)

## Message box

Displays a message box

Enter the message box window title

„ Test Message Box 1 (x)

Enter the message to display

„ Hello World (x)



Scrollbar after lines

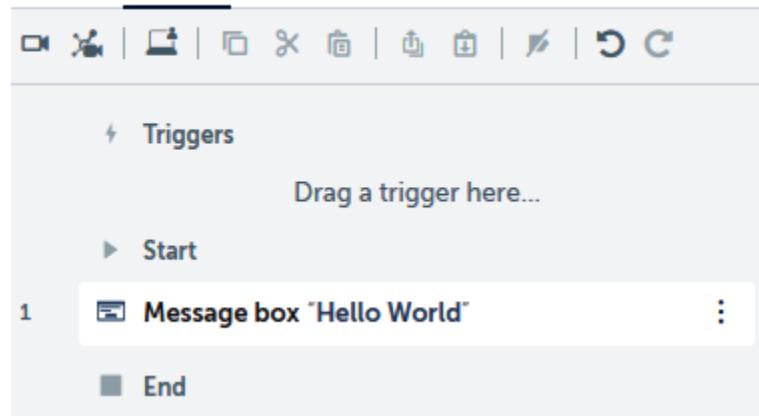
# 30 (x)

Close message box after

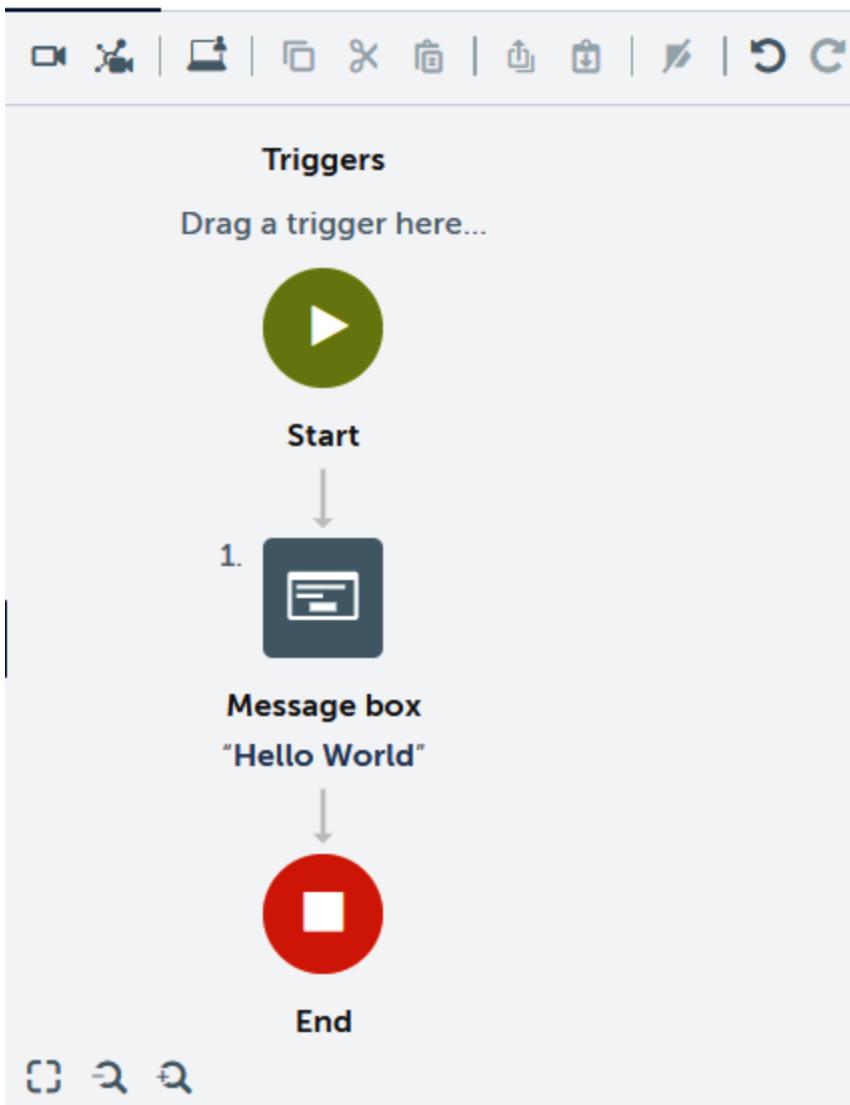
Seconds

# (x)

Flow    **List**    Dual



Flow    List    Dual





Zoom fit

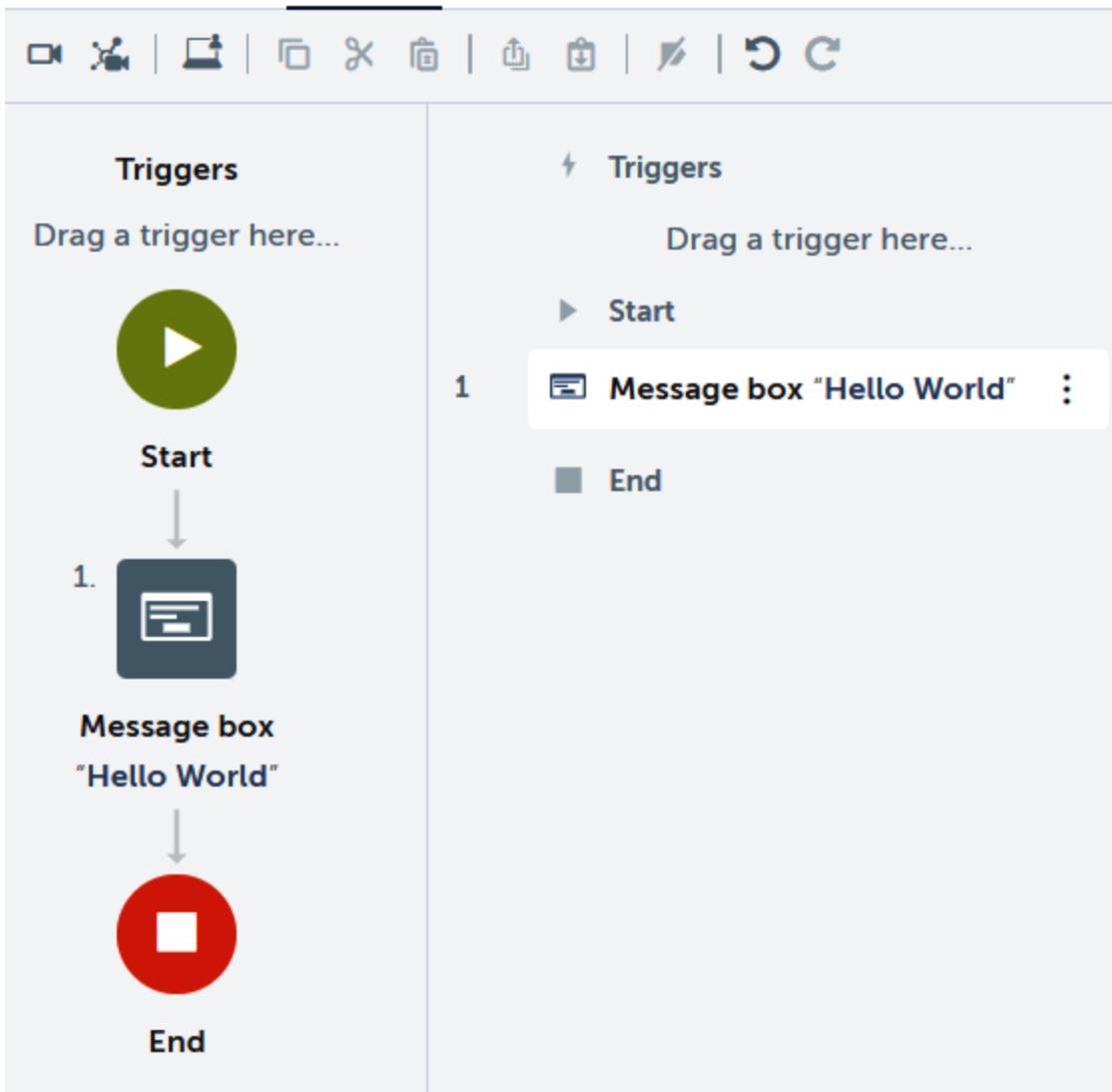


Zoom in

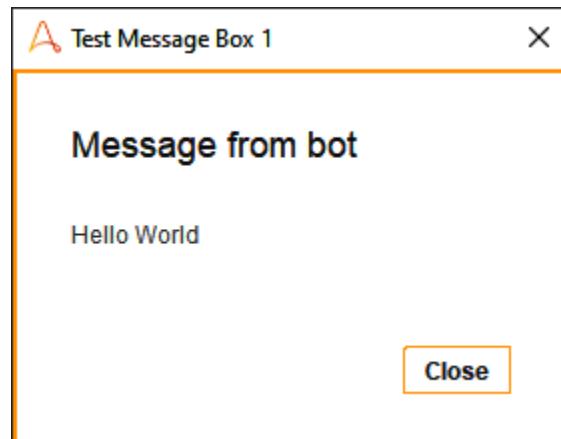
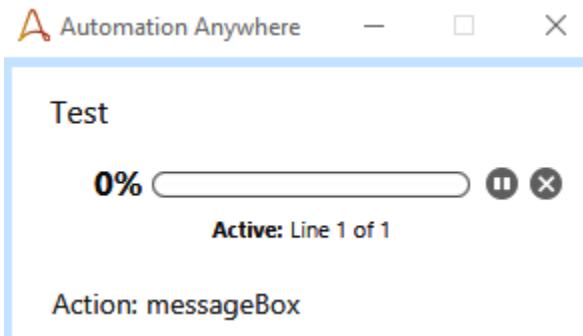


Zoom out

Flow    List    Dual



▶ Run ⚙ Debug ✎ Analyze Cancel Save ⋮



Your bot has run successfully!



[Close](#)

**Variables** [Show](#)

---

**Actions**

Search actions

- Legacy automation ▼ ▲
- List ▼
- Log To File ▼

## Variables



Search variables

### User-defined ^

„ prompt-assignment :

A2019DemoPackage ▼

A2019DemoPackage ▼

Clipboard ▼

String ▼

System ▼

## Create variable

[Cancel](#)

[Create](#)

### Name

Max characters = 50

### Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

### Type

▼

### Default value

- Any
- String
- Number
- Datetime
- Boolean
- File
- List
- Dictionary
- Record
- Table
- Window
- Form

## Create variable

Cancel

Create

Name

strName

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

Type

String



Default value

Husan

Flow List Dual

The screenshot shows a software interface with a toolbar at the top and three tabs: Flow, List (selected), and Dual. Below the tabs is a toolbar with various icons. The main area has sections for Triggers, Start, and a list of steps. Step 1 is highlighted and labeled "Message box 'Hello World'". To the right is a configuration panel for the "Message box" step.

**Message box**

Displays a message box

Enter the message box window title  
"Test Message Box" (x)

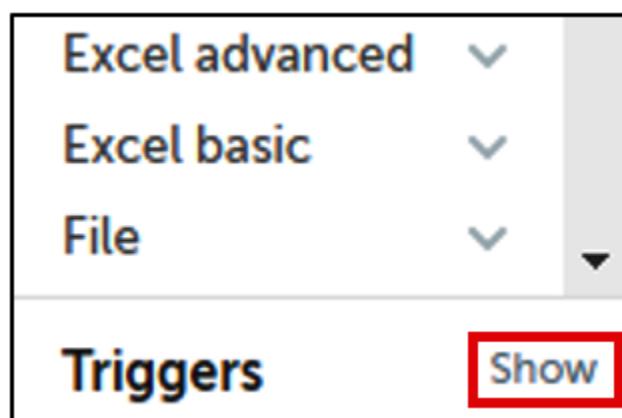
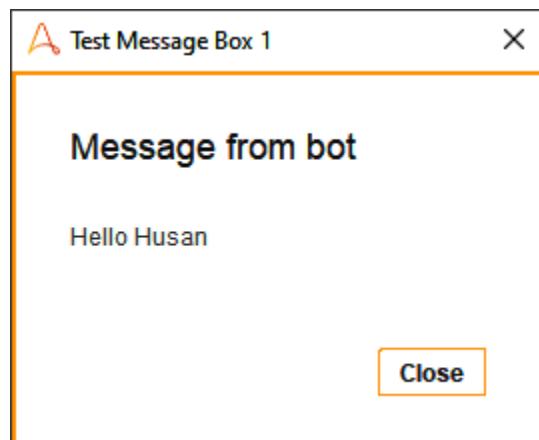
Enter the message to display  
"Hello World" (x)

Scrollbar after lines  
# 30 (x)

Close message box after  
Seconds  
#

Enter the message to display

"Hello \$strName\$" (x)



## Triggers

Search triggers

A2019DemoPackage ▾

A2019DemoPackage ▾

Email trigger ▾

Files & folders ▾

 File trigger

 Folder trigger

Hot key ▾

Interface trigger ▾

Flow List Dual

<b>Variables</b>	Show
<b>Actions</b>	Show
<b>Triggers</b>	
Search triggers	
A2019DemoPackage	▼
A2019DemoPackage	▼
Email trigger	▼
Files & folders	▲
File trigger	
Folder trigger	
Hot key	▼
Interface trigger	▼

↳ **Triggers**

1 **Files & folders: File trigger when a file is created** A :

▶ Start

Message box "Hello \$strName\$"

End

### Files & folders: File trigger

Triggers on a file event.

#### File

C:\RPA\TriggerFile.txt

**Browse...**

Start the bot when the file is...

modified

▶ Run ▾

Debug

Analyze

Close

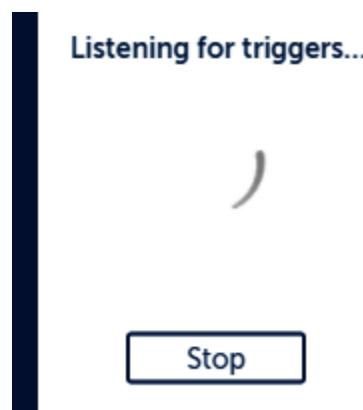
Save

⋮

Run now

Run with triggers

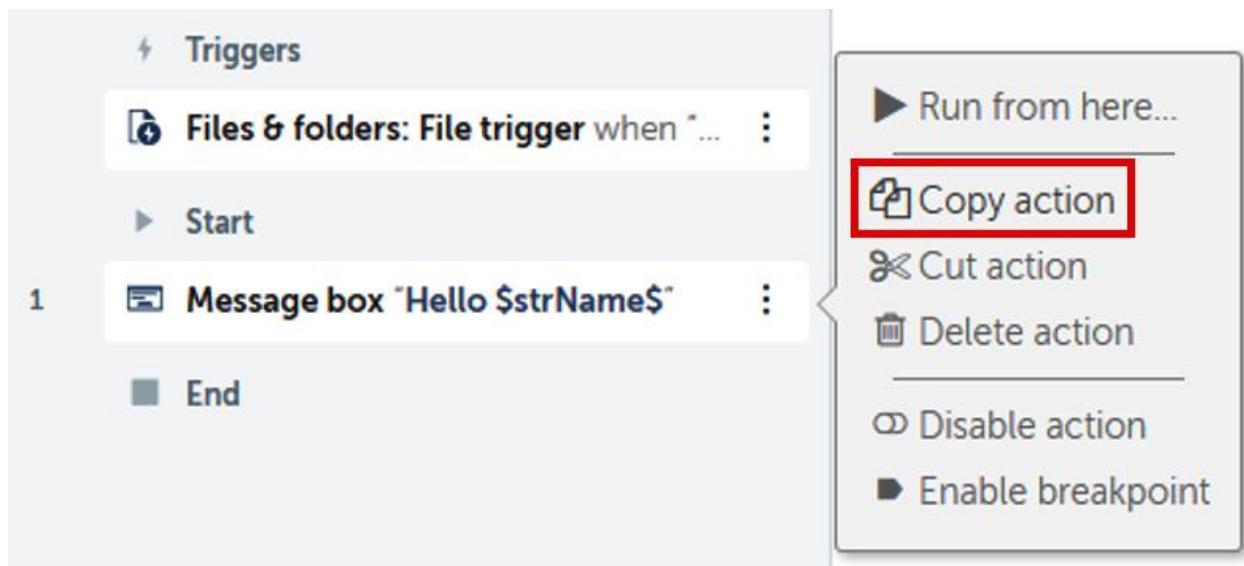
es & folders: File trigger

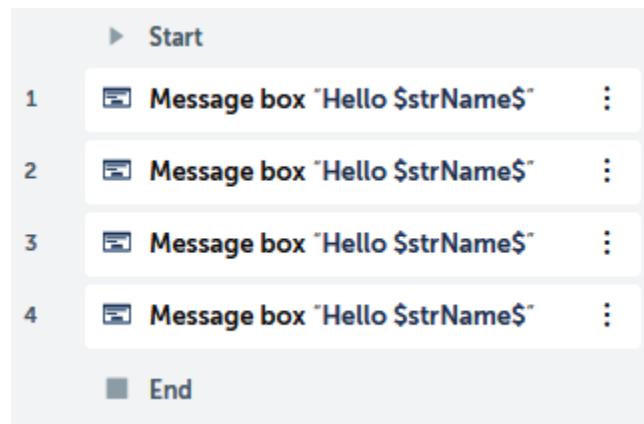
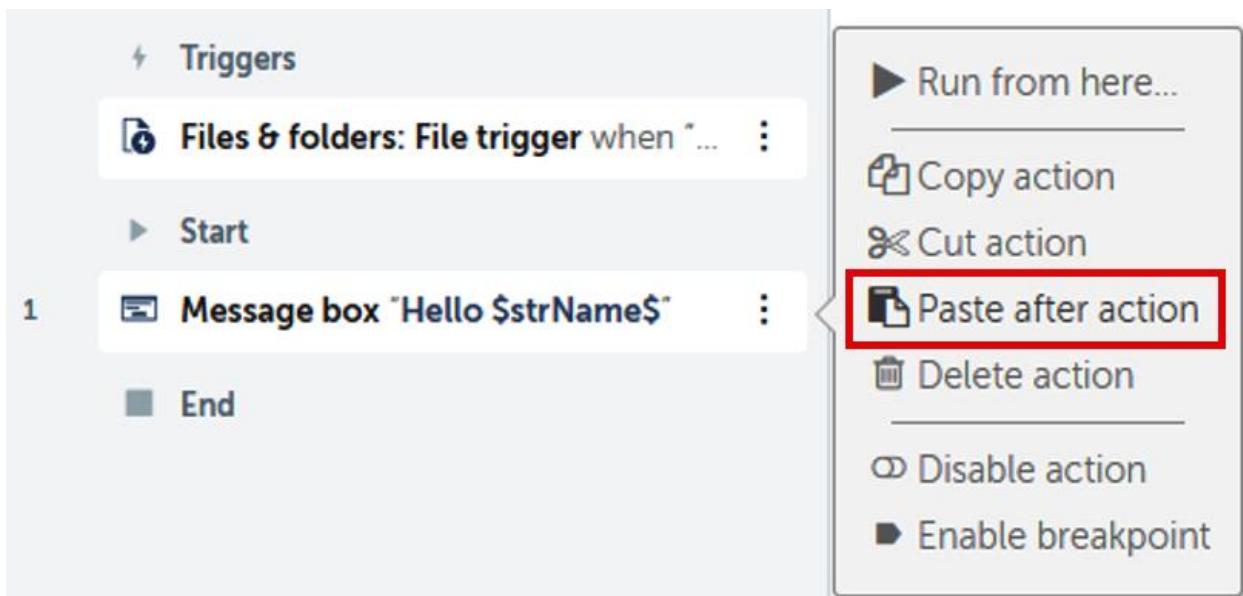


Your bot has run successfully!

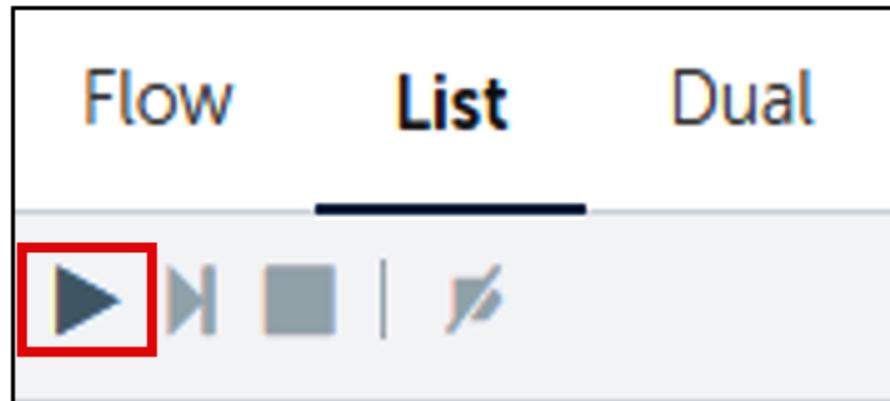


Close





► Run ▾ **Debug** ↲ Analyze

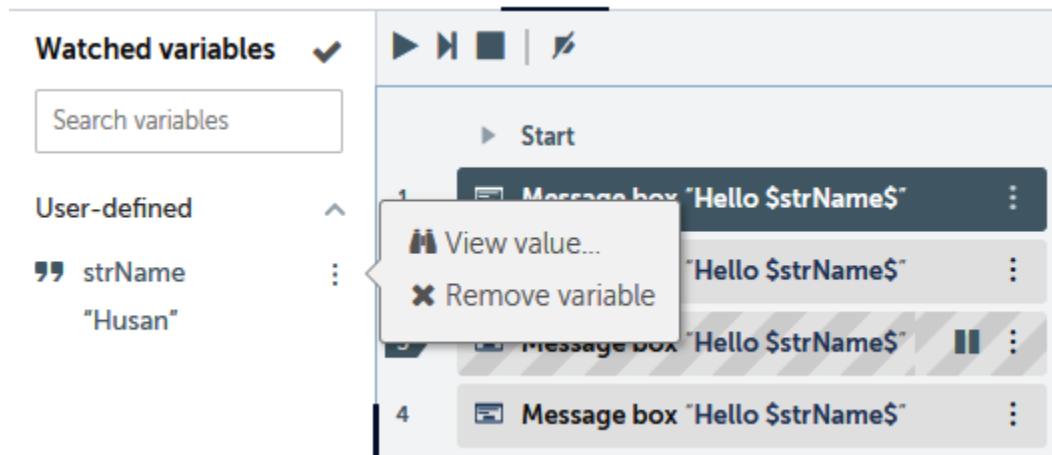


The 'List' view shows the following sequence:

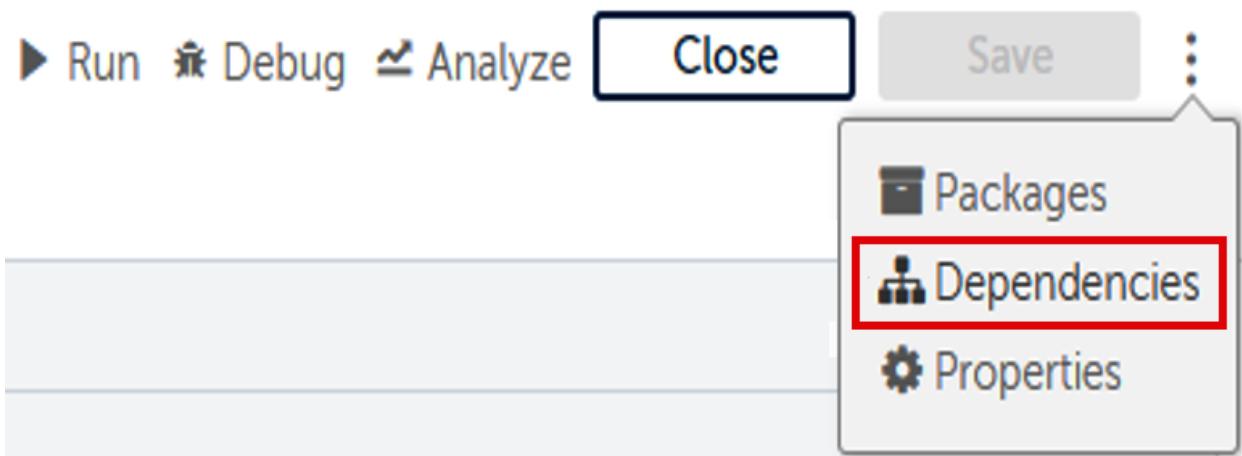
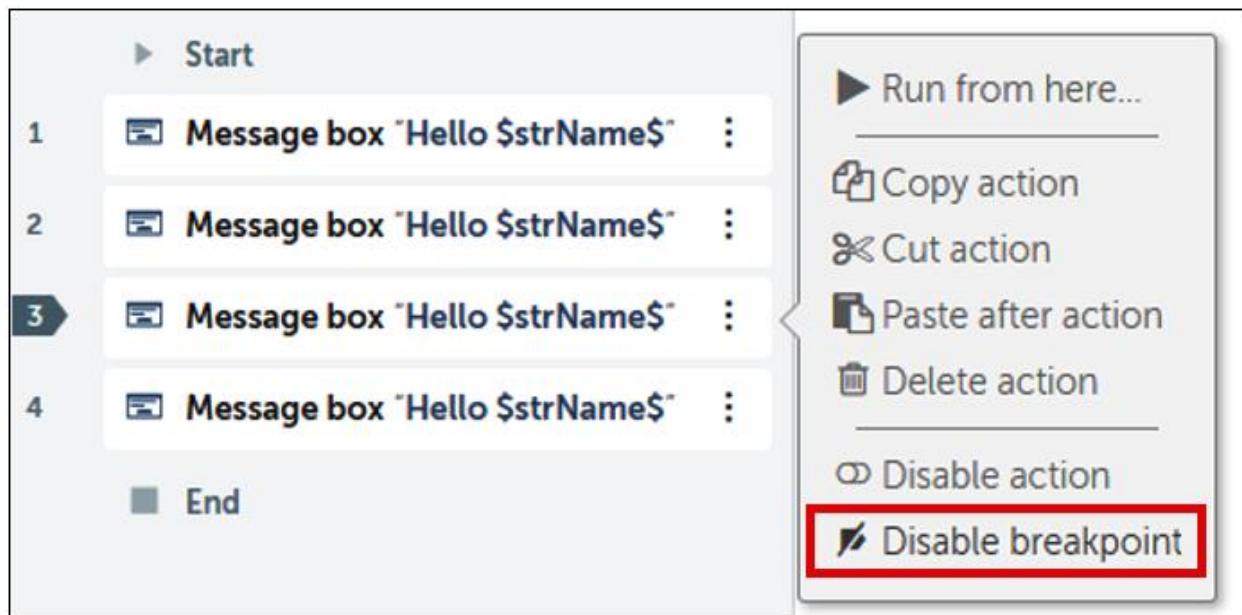
- Start
- 1 Message box "Hello \$strName\$"
- 2 Message box "Hello \$strName\$"
- 3 Message box "Hello \$strName\$" ⏸ ⋮
- 4 Message box "Hello \$strName\$"
- End

**Action details**

A window titled "Automation Anywhere" is open, showing a progress bar at 50% and the text "Active: Line 3 of 4". The message "Action: messageBox" is also displayed.



Exit debug Analyze



**Control Room**

Bots > My bots > Edit Task Bot

**Test**

[Return to editor](#)

If we automatically detect a dependency, it will be in the selected list and it cannot be removed. If you choose to add a bot as a dependency, all of its dependencies will automatically be selected and cannot be removed.

**Folders**

	Name	Search
▼ Bots		
Sample bots		

**Available files (0)**

	Type	Name ↑	Path	Size

**Selected (0)**

	Type	Name ↑	Path	Size

**GENERAL DETAILS**

Last modified 12:47:10 BST 2020-04-01	Modified by rpa_training@skysoftuk.net	Object type Task Bot
---	---	-------------------------

# Chapter 05: Building your First Bot

The screenshot shows a GitHub repository page for 'Hands-On-RPA-with-AA'. The top navigation bar includes links for Why GitHub?, Team, Enterprise, Explore, Marketplace, Pricing, and Sign in/Sign up. The repository name 'RPA-Training / Hands-On-RPA-with-AA' is displayed, along with metrics: Watch (1), Star (0), Fork (0). Below the header are tabs for Code, Issues (0), Pull requests (0), Actions, Projects (0), Security, and Insights. A large central area features a 'Join GitHub today' banner with a 'Sign up' button. To the left is a code editor interface with a green checkmark icon. To the right is a dismissible modal with a yellow arrow icon. Below the banner, a message states: 'GitHub is home to over 40 million developers working together to host and review code, manage projects, and build software together.' At the bottom, there's a summary of repository stats: 5 commits, 2 branches, 0 packages, 0 releases, and 1 contributor. A pull request summary indicates the branch is 4 commits ahead of master. A file list shows 'Chapter05\_InputData.csv' was added 4 minutes ago.

No description, website, or topics provided.

5 commits 2 branches 0 packages 0 releases 1 contributor

Branch: Sample-Data ▾ New pull request Find file Clone or download ▾

This branch is 4 commits ahead, 1 commit behind master. Pull request Compare

RPA-Training Add files via upload Latest commit 23e206a 4 minutes ago

Chapter05\_InputData.csv Add files via upload 4 minutes ago

[Find file](#)[Clone or download ▾](#)

### Clone with HTTPS ⓘ

Use Git or checkout with SVN using the web URL.

<https://github.com/RPA-Training/Hands-On>

[Open in Desktop](#)[Download ZIP](#)

▶ Start

1    // Comment 'Task: Calculate Monthly Loan Payment to new CSV File' :

■ End

	▶ Start
1	#[ Comment 'Task: Calculate Monthly Loan Payment to new CSV File'
2	#[ Comment 'Create output csv file'
3	#[ Comment 'Open csv file'
4	#[ Comment 'Loop through records'
5	#[ Comment 'Read record to variables'
6	#[ Comment 'Calculate values'
7	#[ Comment 'Add new record to output file'
8	#[ Comment 'End Looping'
9	#[ Comment 'Close csv File'
	▀ End

Variables Show

Actions

Search actions

Legacy automation ▼ ▲

List ▼

Log To File ▼

<b>Actions</b>	Show 
<b>Triggers</b>	<a href="#">Create variable...</a>
<b>Variables</b>	
<input type="text" value="Search variables"/>	

## Create variable

[Cancel](#)[Create](#)

Name

Description (optional)

 Constant (read-only) Use as input Use as output

Type



Default value

## Variables +

Search variables

### User-defined ^

- ” strRef
- # numAmount
- # numYears
- # numInterest
- # numMonthly
- recLoan
- ” strMonthly

Flow    List Dual

Actions	
Search actions	
IQ Bot	
JavaScript	
Legacy automation	
List	
Log To File	
Log to file	
Loop	
Message box	
Microsoft LUIS NLP (Beta)	
Mouse	
Number	
NumberUtils	
OCR	
Office 365 Calendar	
Triggers	Show
Variables	Show

Drag a trigger here...

▶ Triggers

▶ Start

1 # Comment 'Task: Calculate Monthly Loan Payment to new CSV File' ⋮

2 # Comment 'Create output csv file' ⋮

3 Log to file ⋮

4 # Comment 'Open csv file' ⋮

5 # Comment 'Loop through records' ⋮

6 # Comment 'Read record to variables' ⋮

7 # Comment 'Calculate values' ⋮

8 # Comment 'Add new record to output file' ⋮

9 # Comment 'End Looping' ⋮

10 # Comment 'Close csv File' ⋮

## Log to file

Logs any text into a file

File path

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05\_Output.csv (x) Browse...

Enter text to log

“ Reference,Monthly Amount (x)

Append timestamp

When logging

Append to existing log file

Overwrite existing log file

Encoding

ANSI ▼

	▶ Start	
1	// Comment 'Task: Calculate Monthly Loan Payment to new CSV File'	⋮
2	// Comment 'Create output csv file'	⋮
3	Log to file 'Reference,Monthly Amount' to 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_Output.csv'	⋮
4	// Comment 'Open csv file'	⋮
5	CSV/TXT: Open	⚠ ⋮
6	// Comment 'Loop through records'	⋮
7	// Comment 'Read record to variables'	⋮
8	// Comment 'Calculate values'	⋮
9	// Comment 'Add new record to output file'	⋮
10	// Comment 'End Looping'	⋮
11	// Comment 'Close csv File'	⋮
12	CSV/TXT: Close csv/txt "Default"	⋮
	■ End	

## CSV/TXT: Open

Opens a CSV/TXT file

Session name

InputDialog1 (x)

File path

Control Room file Desktop file Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05\_InputData.csv (x)

Browse...

Required extensions: ".csv", ".txt", ".tsv"

Contains header

Delimiter

Comma

Tab

Regional list separator

Newline

Other

Specific Delimiter (optional)

“ ”

Trim leading spaces

Trim trailing spaces

Encoding

UTF-8 ▼

	▶ Start	
1	// Comment "Task: Calculate Monthly Loan Payment to new CSV File"	⋮
2	// Comment "Create output csv file"	⋮
3	Log to file "Reference,Monthly Amount" to "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_Output.csv"	⋮
4	// Comment "Open csv file"	⋮
5	CSV/TXT: Open "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_InputData.csv"	⋮
6	// Comment "Loop through records"	⋮
7	// Comment "Read record to variables"	⋮
8	// Comment "Calculate values"	⋮
9	// Comment "Add new record to output file"	⋮
10	// Comment "End Looping"	⋮
11	// Comment "Close csv File"	⋮
12	CSV/TXT: Close csv/txt "InputData"	⋮
	■ End	

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each row in CSV/TXT



Iterator for each row in CSV/TXT

#### Session name

InputData

(x)

#### Assign the current row to this variable

recLoan - Record

(x)

While

#### Condition



Add condition

Check the condition at the end of the iteration

	▶ Start	
1	#[ Comment 'Task: Calculate Monthly Loan Payment to new CSV File'	⋮
2	#[ Comment 'Create output csv file'	⋮
3	Log to file 'Reference,Monthly Amount' to "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_Output.csv"	⋮
4	#[ Comment 'Open csv file'	⋮
5	CSV/TXT: Open 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_InputData.csv'	⋮
6	#[ Comment 'Loop through records'	⋮
7	Loop for each row in csv/txt	⋮
8	#[ Comment 'Read record to variables'	⋮
9	#[ Comment 'Calculate values'	⋮
10	#[ Comment 'Add new record to output file'	⋮
11	#[ Comment 'End Looping'	⋮
12	#[ Comment 'Close csv File'	⋮
13	CSV/TXT: Close csv/txt 'InputData'	⋮
	▀ End	

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

\$recLoan[0]\$ (x)

Select the destination string variable

strRef - String ▼ (x) +

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# \$recLoan[1]\$

(x)

Specify value to assign to number

Select the destination number variable

numAmount - Number

▼

(x)<sub>+</sub>

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# \$recLoan[2]\$

(x)

Specify value to assign to number

Select the destination number variable

numYears - Number

▼

(x)<sub>+</sub>

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# \$recLoan[3]\$

(x)

Specify value to assign to number

Select the destination number variable

numInterest - Number

▼

(x)<sub>+</sub>

	▶ Start
1	〃 Comment 'Task: Calculate Monthly Loan Payment to new CSV File'
2	〃 Comment 'Create output csv file'
3	Log to file 'Reference,Monthly Amount' to 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_Output.csv'
4	〃 Comment 'Open csv file'
5	CSV/TXT: Open "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_InputData.csv"
6	〃 Comment 'Loop through records'
7	Loop for each row in csv/txt
8	〃 Comment 'Read record to variables'
9	〃 String: Assign \$recLoan[0]\$ to \$strRef\$
10	〃 Number: Assign \$recLoan[1]\$ to \$numAmount\$
11	〃 Number: Assign \$recLoan[2]\$ to \$numYears\$
12	〃 Number: Assign \$recLoan[3]\$ to \$numInterest\$
13	〃 Comment 'Calculate values'
14	〃 Comment 'Add new record to output file'
15	〃 Comment 'End Looping'
16	〃 Comment 'Close csv File'
17	CSV/TXT: Close csv/txt "InputData"
	End

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# (\$numAmount\$ + \$numInterest\$) / (12 \* \$numYears\$)

Specify value to assign to number

Select the destination number variable

numMonthly - Number

## Number: To string

Converts a user specified number to a string

Enter a number

# \$numMonthly\$

(x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 2

(x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

strMonthly - String

▼

(x)

## Log to file

Logs any text into a file

File path

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05\_Output.csv

(x)

**Browse...**

Enter text to log

“ \$strRef\$, \$strMonthly\$

(x)

Append timestamp

When logging

Append to existing log file

Overwrite existing log file

Encoding

ANSI

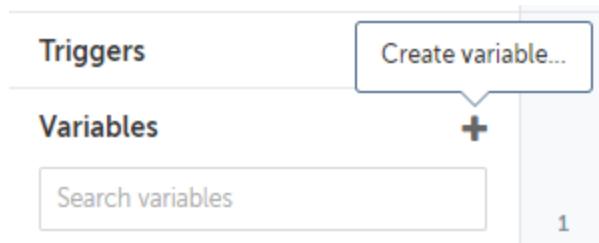
	▶ Start	
1	COMMENT 'Task: Calculate Monthly Loan Payment to new CSV File'	
2	COMMENT 'Create output csv file'	
3	LOG TO FILE 'Reference,Monthly Amount' TO 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_Output.csv'	
4	COMMENT 'Open csv file'	
5	CSV/TXT: OPEN 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_InputData.csv'	
6	COMMENT 'Loop through records'	
7	LOOP for each row in csv/txt	
8	COMMENT 'Read record to variables'	
9	String: Assign \$recLoan[0]\$ to \$strRef\$	
10	Number: Assign \$recLoan[1]\$ to \$numAmount\$	
11	Number: Assign \$recLoan[2]\$ to \$numYears\$	
12	Number: Assign \$recLoan[3]\$ to \$numInterest\$	
13	COMMENT 'Calculate values'	
14	Number: Assign '(\$numAmount\$ + \$numInte...)' to \$numMonthly\$	
15	COMMENT 'Add new record to output file'	
16	Number: To string convert \$numMonthly\$ to a string datatype and assign output to \$strMonthly\$	
17	LOG TO FILE '\$strRef\$', '\$strMonthly\$' TO 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05_Output.csv'	
18	COMMENT 'End Looping'	
19	COMMENT 'Close csv File'	
20	CSV/TXT: CLOSE CSV/TXT 'InputData'	
	End	

	A	B
1	Reference	Monthly Amount
2	508-001	176.66
3	523-679	147.22
4	524-602	110.41
5	534-001	265.00
6	302-170	298.33
7	230-614	53.00
8	550-205	176.66

# Chapter 06: Introducing Variables in A2019

- |                 |               |
|-----------------|---------------|
| FLAG Boolean    | LIST List     |
| KEY Credential  | NUMBER Number |
| CLOCK Datetime  | RECORD Record |
| BOOK Dictionary | STRING String |
| PAPER File      | TABLE Table   |
| FORM Form       | WINDOW Window |

A2019 Data Type	Variable name Prefix
Number	num
String	str
Boolean	bln
Date\Time	dte
Record	rec
List	lst
Table	tbl
Dictionary	dct



## Create variable

[Cancel](#) [Create](#)

Name  
strFirstName  
Max characters = 50

Description (optional)  
Max characters = 255

Use as input

Use as output

Constant (read-only)

Type  
String

Default value

## Variables

Search variables

### User-defined ^

- „ strFirstName
- „ strFullname
- „ strSurname

1	 Comment "String Variables"	⋮
2	 Comment "Merge variables"	⋮
3	 Comment "Show Output"	⋮
4	 Comment "-----"	⋮

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

„ John

(x)

Select the destination string variable

strFirstName - String

(x) +

### **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ Smith (x)

Select the destination string variable

strSurname - String (x) +

### **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ \$strFirstName\$ \$strSurname\$ (x)

Select the destination string variable

strfullname - String (x) +

## Message box

Displays a message box

Enter the message box window title

” Merged Variables

(x)

Enter the message to display

” \$strFullscreen\$

(x)

- 1 Comment 'String Variables' ⋮
- 2 String: Assign "John" to \$strFirstName\$ ⋮
- 3 String: Assign "Smith" to \$strSurname\$ ⋮
- 4 Comment 'Merge variables' ⋮
- 5 String: Assign "\$strFirstName\$ \$strSurname\$" to \$strFullscreen\$ ⋮
- 6 Comment 'Show Output' ⋮
- 7 Message box \$strFullscreen\$ ⋮
- 8 Comment "-----" ⋮

## Create variable

[Cancel](#)

[Create](#)

Name

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

Type

Default value (optional)

 12/25/2019

 12:00 AM

BST (UTC+1:00) London, Europe

9	 Comment "Datetime Variables"	
10	 Comment "Add 2 Weeks to Date"	
11	 Comment "Show Output"	
12	 Comment "-----"	

## Datetime: Add

Adds a specified time unit to a given date and time

Source date and time variable

dteChristmas - Datetime ▼ (x) +

Time value to add

# 2 (x)

Maximum value for addition is "69948627" hours

Time unit to add

Weeks ▼

---

Assign the output to a variable

dteChristmasPlus2Weeks - Datetime ▼ (x) +

## Datetime: To string

Converts a datetime value to a string value and assigns it to a string variable

Source date and time variable

dteChristmasPlus2Weeks - Datetime (x) 

Select date time format

Formats

▼

Custom format

(x)

Assign the output to a variable

strDate - String (x) 

## Message box

Displays a message box

Enter the message box window title

(x)

Enter the message to display

(x)

- 9    Comment "Datetime Variables" ⋮
- 10    Comment "Add 2 Weeks to Date" ⋮
- 11    Datetime: Add 2 Weeks to \$dteChristmas\$ and assign result to \$dteChristmasPlus2Weeks\$ ⋮
- 12    Comment "Show Output" ⋮
- 13    Datetime: To string Convert \$dteChristmasPlus2Weeks\$ and assign result to \$strDate\$ ⋮
- 14    Message box \$strDate\$ ⋮
- 15    Comment "-----" ⋮

## Create variable

[Cancel](#)

[Create](#)

Name

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

Type



Default value

16	// Comment "Boolean Variables"	:
17	// Comment "Assign Boolean Value"	:
18	// Comment "Invert Boolean Value"	:
19	// Comment "Show Output"	:
20	// Comment "-----"	:

## Boolean: Assign

Assigns the source boolean variable's value or the user defined value to the destination boolean variable

Select the source boolean variable/ value

Constant values

True

False

Variable value

Select the destination boolean variable

▼ (x) 

## Boolean: Invert

Inverts a boolean variable's value i.e. converts True to False and False to True and assigns the output to a variable (same or different)

Select the boolean variable to be inverted

False    True    Variable

 \$blnLeapYear\$ (x)

Assign the output to

blnLeapYear - Boolean ▼ (x) +

## Boolean: To string

Converts a boolean value to string and assigns it to a string variable

Select boolean variable

blnLeapYear - Boolean ▼ (x) +

Select the string variable to store the result

strLeapYear - String ▼ (x) +

## Message box

Displays a message box

Enter the message box window title

Boolean Variables (x)

Enter the message to display

\$strLeapYear\$ (x)

16	Comment "Boolean Variables"	⋮
17	Comment "Assign Boolean Value"	⋮
18	Boolean: Assign True to \$blnLeapYear\$	⋮
19	Comment "Invert Boolean Value"	⋮
20	Boolean: Invert value of boolean variable \$blnLeapYear\$ and assign result to \$bl...	⋮
21	Comment "Show Output"	⋮
22	Boolean: To string \$blnLeapYear\$ and assign result to a \$strLeapYear\$	⋮
23	Message box \$strLeapYear\$	⋮
24	Comment "-----"	⋮

- ```
25  // Comment "Number Variables" ...
26  // Comment "Assign Random Value" ...
27  // Comment "Apply Formula" ...
28  // Comment "Show Output" ...
29  // Comment "-----" ...
```

## Number: Random

Assigns a random number to a number variable

Beginning of range:

# 1 (x)

Accepts decimal and negative value.

End of range:

# 100 (x)

Must be larger than beginning of range.

---

Save the outcome to a number variable

numRandom - Number ▼ (x) +

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# (\$numRandom\$/2) + 25

(x)

Specify value to assign to number

Select the destination number variable

numResult - Number

▼

(x)

## Number: To string

Converts a user specified number to a string

Enter a number

# \$numResult\$

(x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 2

(x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

strResult - String

▼

(x)

## Message box

Displays a message box

Enter the message box window title

„ Number Variables

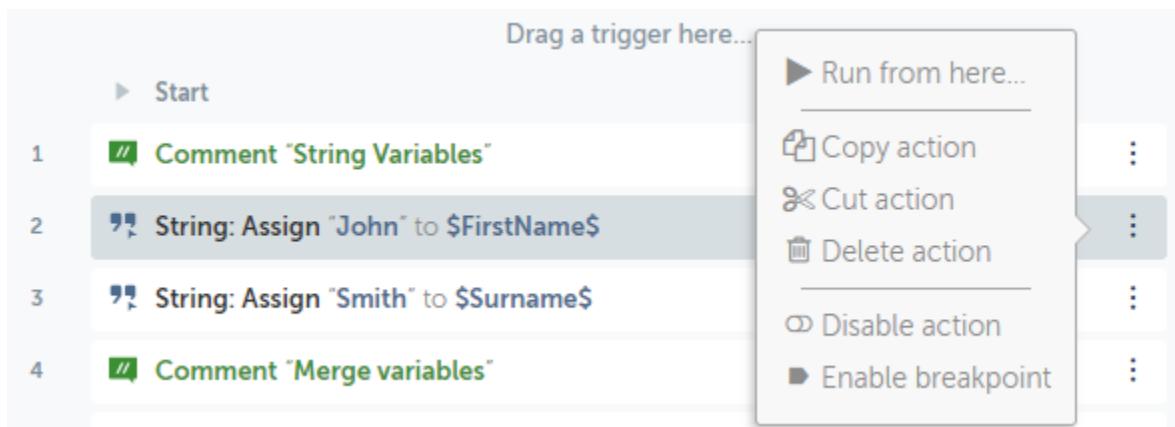
(x)

Enter the message to display

„ \$strResult\$

(x)

|    |                                                                                                        |   |
|----|--------------------------------------------------------------------------------------------------------|---|
| 25 | ## Comment 'Number Variables'                                                                          | : |
| 26 | ## Comment 'Assign Random Value'                                                                       | : |
| 27 | # Number: Random Assign a random number from beginning of range 1 to end of range 100 to \$numRandom\$ | : |
| 28 | ## Comment 'Apply Formula'                                                                             | : |
| 29 | # Number: Assign `(\$numRandom\$/2) + 25` to \$numResult\$                                             | : |
| 30 | ## Comment 'Show Output'                                                                               | : |
| 31 | # Number: To string convert \$numResult\$ to a string datatype and assign output to \$strResult\$      | : |
| 32 | ## Message box \$strResult\$                                                                           | : |
| 33 | ## Comment '-----'                                                                                     | : |



### Prompt: For value

Prompts user for entering a value

Prompt window caption

Prompt for String

Prompt message

Enter Firstname:

Mask keystroke

Assign the value to a variable

strFirstName - String

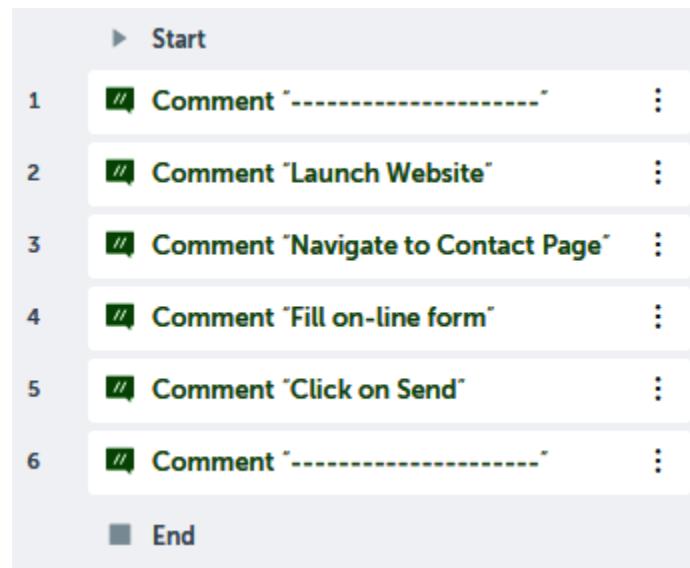
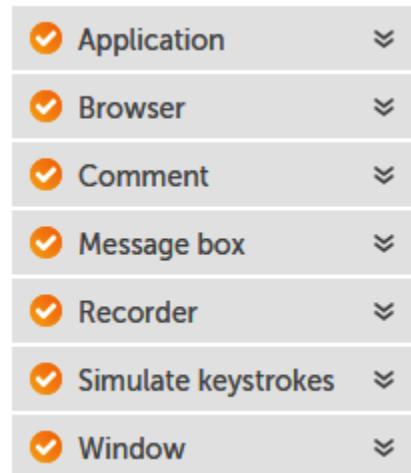
- 1 Comment "String Variables" ⋮
- 2 String: Assign "John" to \$strFirstName\$ ∅ ⋮
- 3 Prompt: For value ⋮
- 4 String: Assign "Smith" to \$strSurname\$ ∅ ⋮
- 5 Prompt: For value ⋮
- 6 Comment "Merge variables" ⋮
- 7 String: Assign "\$strFirstName\$ \$strSurname\$" to \$strFullname\$ ⋮
- 8 Comment "Show Output" ⋮
- 9 Message box \$strFullname\$ ⋮
- 10 Comment "-----" ⋮

15 Datetime: To string Convert \$dteChristmasPlus2Weeks\$ and assign result to \$strDate\$ ⋮

24 Boolean: To string \$blnLeapYear\$ and assign result to a \$strLeapYear\$ ⋮

33 Number: To string convert \$numResult\$ to a string datatype and assign output to \$strResu...\$ ⋮

# Chapter 07: Interacting with Applications



## Browser: Launch website

This command can be used to open website in browser

URL

http://skysoftuk.net/ (x)

e.g. http://...

Browser

Google Chrome ▼

## Recorder: Capture

This command can be used to simulate an object's click event.

⚠ Object detail

Window Variable

1

2



## Recorder: Capture

This command can be used to simulate an object's click event.

Object detail

**Window** Variable

Home - Google Chrome ▾ ⌂

Window title

Home - Google Chrome

Use \* as a wildcard

Window application path

C:\Program Files (x86)\Google\Chrome\Application\chrome.exe



SkySoft UK Ltd

RPA TRAINING & CONSULTANCY



The WorkSpace  
All Saints Road  
Wolverhampton WV2 1EL



mail@skysoftuk.net  
+44 7898 599337



## The Bots Are Coming...



## Are you ready for the Digital Workforce?

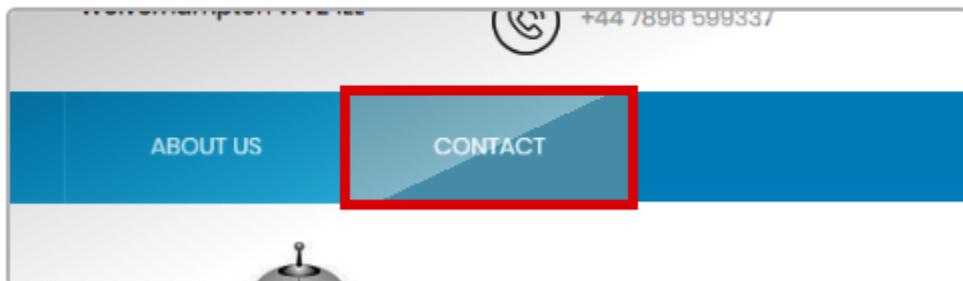
Robotic Processing Automation (RPA) is currently one of the fastest growing technologies around the world. Automation of repetitive, tedious and boring tasks can help your business get most out of your workforce.

### What is Robotic Process Automation?

Commonly known as RPA it enables organisations and businesses to 'teach' computers to execute repetitive and time consuming tasks. Being a software based tool, it is easily able to connect and integrate with most desktop applications as well as integration with back-end systems via API's.

## Recapture object

### Preview



### ► Object properties (8 of 48)

| Name            | Value                                                                                      |
|-----------------|--------------------------------------------------------------------------------------------|
| Control Type    | LINK                                                                                       |
| Technology Type | HTML                                                                                       |
| HTML Tag        | ” A <span style="float: right;">(x)</span>                                                 |
| DOMXPath        | ” /html/body/div[4]/div[3]/div[1]/div[1]/div[1] <span style="float: right;">◀ ▶ (x)</span> |
| HTML HasFrame   | ” false <span style="float: right;">(x)</span>                                             |
| HTML InnerText  | ” CONTACT <span style="float: right;">(x)</span>                                           |
| HTML Href       | ” http://skysoftuk.net/contact.html <span style="float: right;">(x)</span>                 |
| Path            | ” 5 3 1 1 1 1 1 1 1 -1 1 <span style="float: right;">(x)</span>                            |

Action

Click



Run in the background

- |   |                                                                                           |  |
|---|-------------------------------------------------------------------------------------------|--|
| 2 | Comment "Launch Website"                                                                  |  |
| 3 | Browser: Launch website "http://skysoftuk.net/"                                           |  |
| 4 | Comment "Navigate to Contact Page"                                                        |  |
| 5 | Recorder: Capture Click on link HTML InnerText "CONTACT" in window "Home - Google Chrome" |  |



The WorkSpace  
All Saints Road  
Wolverhampton WV2 1EL



mail@skysoftuk.net  
+44 7896 599337

[HOME](#)[SERVICES](#)[TRAINING](#)[ABOUT US](#)[CONTACT](#)

## Get In Touch With Us

We are more than happy to help however we can so, please do not hesitate to contact us



**SkySoft UK Ltd**  
The WorkSpace  
All Saints Road  
Wolverhampton  
WV2 1EL



+44 7896 599337



mail@skysoftuk.net

Name \*

Email \*

Message \*

Send



**SkySoft UK Ltd**

RPA TRAINING & CONSULTANCY



**SKYSOFT UK LTD**  
The WorkSpace  
All Saints Road  
Wolverhampton WV2 1EL



+44 7896 599337



mail@skysoftuk.net

## Recorder: Capture

This command can be used to simulate an object's click event.

Object detail

**Window**   Variable

Contact - Google Chrome

Window title

Contact - Google Chrome

Use \* as a wildcard

Window application path

C:\Program Files (x86)\Google\Chrome\Application\chrome.exe

Name \*

Email \*

Message \*

Send

## Recapture object

Preview

Name \*

Email \*

Action

Set text



Run in the background

Keystrokes

Enter keystrokes here or use the on-screen keyboard

Husan Mahey

Select a credential

Credential Variable

Pick...

Name \*

Email \*

Message \*

Send

Action

Set text



Run in the background

Keystrokes

Enter keystrokes here or use the on-screen keyboard

“ rpa\_training@skysoftuk.net



Name \*

Email \*

Message \*

**Send**

Action

Set text



Run in the background

Keystrokes

Enter keystrokes here or use the on-screen keyboard

Having lots of fun learning Automation Anywhere  

- 6 Comment 'Fill on-line form' ⋮
- 7 Recorder: Capture Set text on textbox HTML Name 'Name' in window 'Contact - Google ...' ⋮
- 8 Recorder: Capture Set text on textbox HTML Name 'Email' in window 'Contact - Google C...' ⋮
- 9 Recorder: Capture Set text on textbox HTML Name 'Message' in window 'Contact - Googl...' ⋮

Name \*

Email \*

Message \*

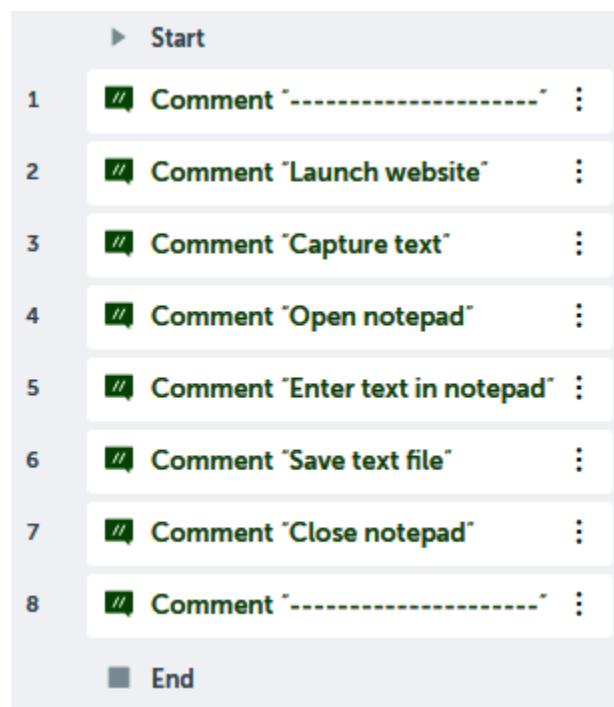
Send

Action

Click ▼

Run in the background

|    |                                                                       |   |
|----|-----------------------------------------------------------------------|---|
| 10 | Comment "Click on Send"                                               | : |
| 11 | Recorder: Capture Click on button in window "Contact - Google Chrome" | : |
| 12 | Message box "Bot has sent an email successfully"                      | : |
| 13 | Comment "-----"                                                       | : |



## Browser: Launch website

This command can be used to open website in browser

URL

(x)  
e.g. http://...

Browser

▼

## Recorder: Capture

This command can be used to simulate an object's click event.

Object detail

Window Variable

Home - Google Chrome



Window title

Home - Google Chrome

Use \* as a wildcard

Window application path

C:\Program Files (x86)\Google\Chrome\Application\chrome.exe



SkySoft UK Ltd

RPA TRAINING & CONSULTANCY



The WorkSpace  
All Saints Road  
Wolverhampton WV2 1EL



mail@skysoftuk.net  
+44 7896 599337

HOME

SERVICES

TRAINING

ABOUT US

CONTACT

## The Bots Are Coming...



### Are you ready for the Digital Workforce?

Robotic Processing Automation (RPA) is currently one of the fastest growing technologies around the world. Automation of repetitive, tedious and boring tasks can help your business get most out of your workforce.

#### What is Robotic Process Automation?

Commonly known as RPA it enables organisations and businesses to 'teach' computers to execute repetitive and time consuming tasks. Being a software based tool, it is easily able to connect and integrate with most desktop applications as well as integration with back-end systems via API's.

HTML InnerText

” Commonly known as RPA it enables organisations

Name

” Commonly known as RPA it enables organisations

Action

Get property

Run in the background

Property name

HTML InnerText (x)

---

Wait for control

# 15 (x)

---

Assign the output to variable

prompt-assignment - String (x)

- |   |                                                                          |   |
|---|--------------------------------------------------------------------------|---|
| 1 | Comment "-----"                                                          | : |
| 2 | Comment "Launch website"                                                 | : |
| 3 | Browser: Launch website "http://skysoftuk.net/"                          | : |
| 4 | Comment "Capture text"                                                   | : |
| 5 | Recorder: Capture Get property on Label in window "Home - Google Chrome" | : |

## Application: Open program/file

Opens program/file

Location of the program/file

“ C:\Windows\System32\notepad.exe

e.g. "...\\excel.exe"

Start in path (optional)

“

e.g. "C:\\My Folder"

Parameters (optional)

“

e.g. /r "E:\\My Folder\\test.xls"

## Recorder: Capture

This command can be used to simulate an object's click event.

Object detail

Untitled - Notepad

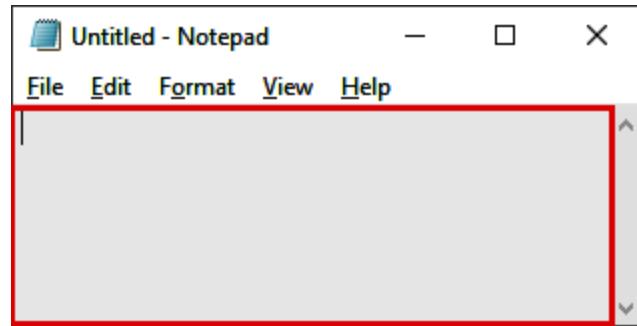
Window title

Untitled - Notepad

Use \* as a wildcard

Window application path

C:\\Windows\\System32\\notepad.exe



#### Action

Set text

Run in the background

#### Keystrokes

Enter keystrokes here or use the on-screen keyboard

„ \$prompt-assignment\$ „



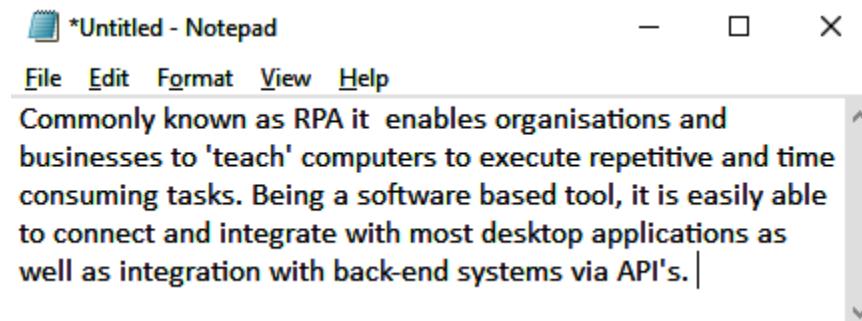
(x)

Select a credential

Credential Variable

Pick...

- 6 Comment "Open notepad" ⋮
- 7 Application: Open program/file "C:\Windows\System32\notepad.exe" ⋮
- 8 Comment "Enter text in notepad" ⋮
- 9 Recorder: Capture Set text on textbox in window "Untitled - Notepad" ⋮



## Simulate keystrokes

Inserts keystrokes into a selected window

Select window

Window    Variable

\*Untitled - Notepad ↻

Window title  
\*Untitled - Notepad

Use \* as a wildcard

Window application path  
C:\Windows\System32\notepad.exe

### Keystrokes

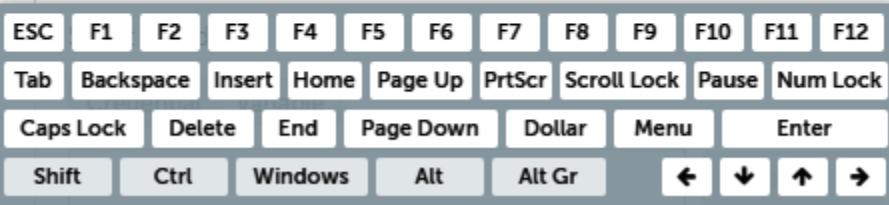
- Enter keystrokes here or use the on-screen keyboard

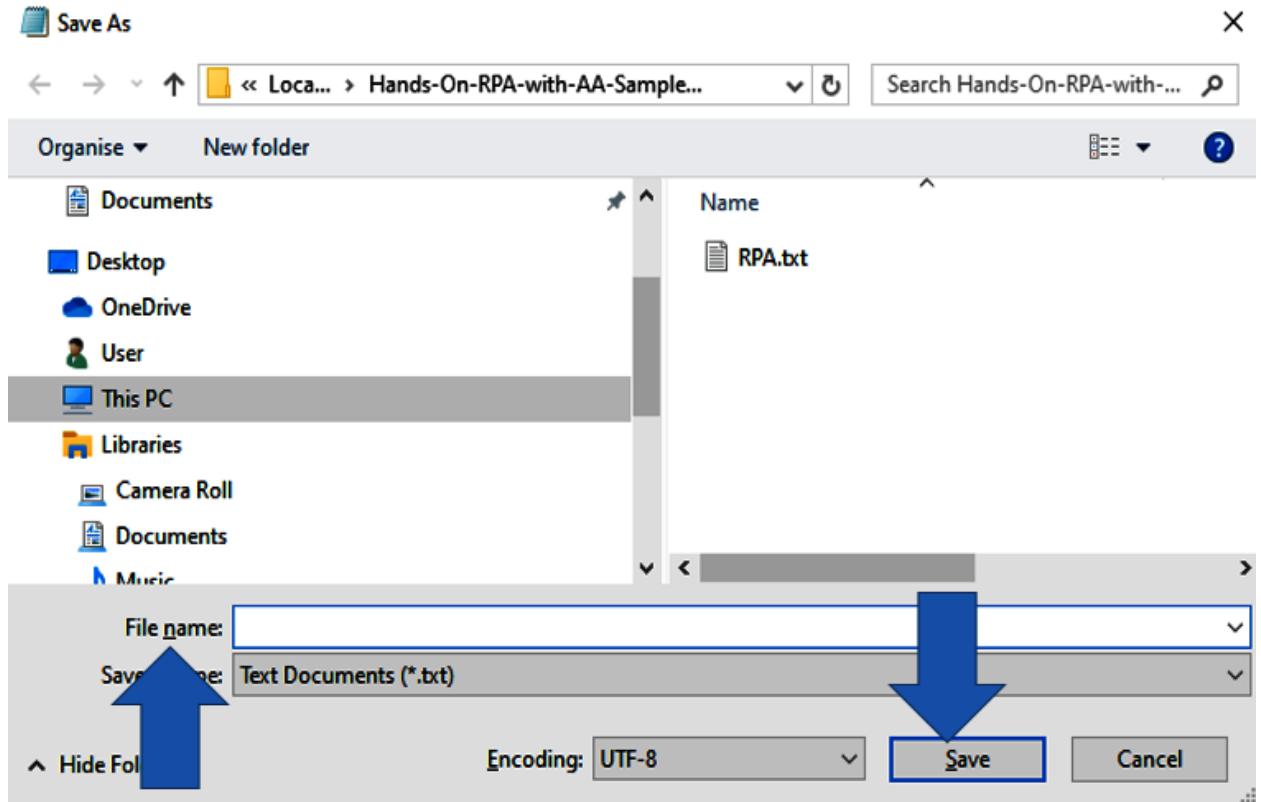
Insert Keystroke  

### Keystrokes

- Enter keystrokes here or use the on-screen keyboard





## Simulate keystrokes

Inserts keystrokes into a selected window

Select window

Window    Variable

Save As



Window title

Save As

Use \* as a wildcard

Window application path

C:\Windows\System32\notepad.exe

Window type

Dialog

### Keystrokes

Enter keystrokes here or use the on-screen keyboard



[ALT DOWN] n [ALT UP]



## Keystrokes

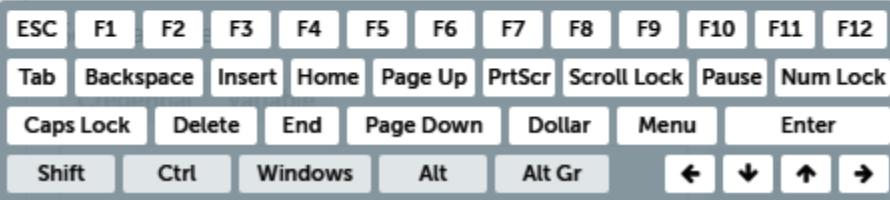
- Enter keystrokes here or use the on-screen keyboard

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter07.txt  

## Keystrokes

- Enter keystrokes here or use the on-screen keyboard

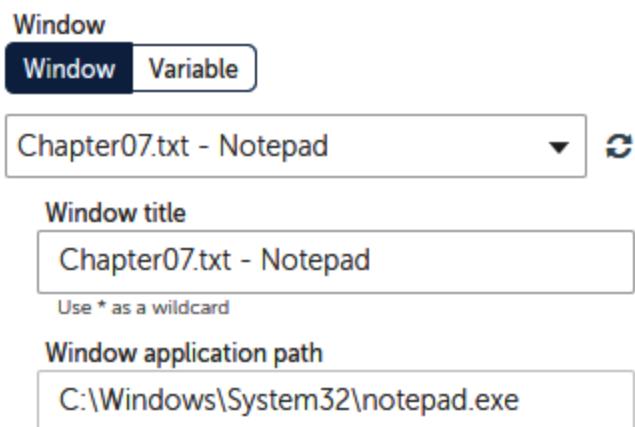
“  S   



- 10  Comment "Save text file" 
- 11  Simulate keystrokes "[ALT DOWN][ALT UP]FA" on window "\*Untitled - Notepad" 
- 12  Simulate keystrokes "[ALT DOWN]n[ALT UP]" on window "Save As" 
- 13  Simulate keystrokes "C:\Hands-On-RPA-with-AA..." on window "Save As" 
- 14  Simulate keystrokes "[ALT DOWN]S[ALT UP]" on window "Save As" 

## Window: Close

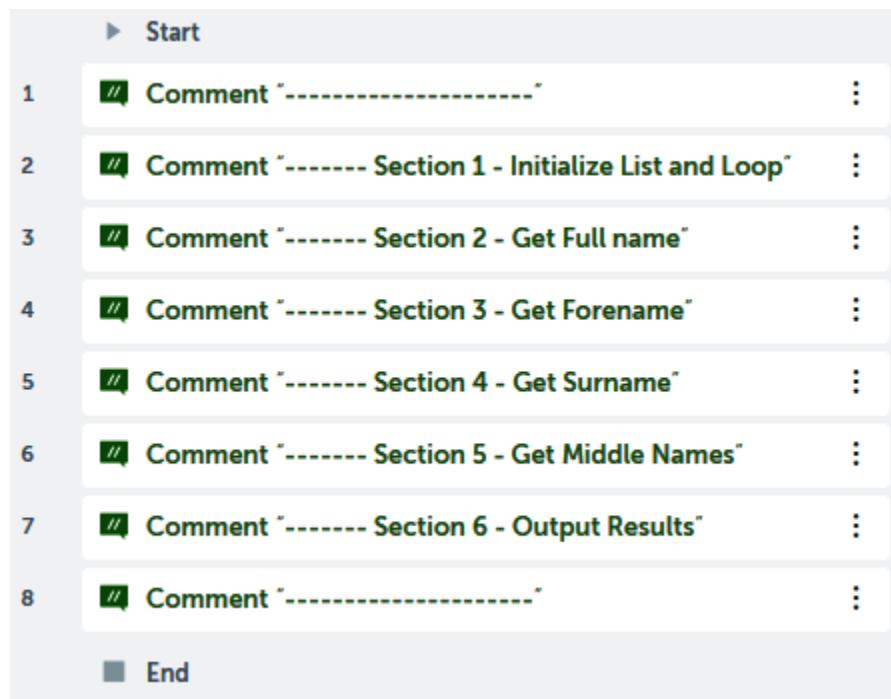
Closes a window



|    |                                                                              |
|----|------------------------------------------------------------------------------|
|    | ▶ Start                                                                      |
| 1  | #[ Comment "-----"                                                           |
| 2  | #[ Comment "Launch website"                                                  |
| 3  | ↗ Browser: Launch website "http://skysoftuk.net/"                            |
| 4  | #[ Comment "Capture text"                                                    |
| 5  | ■ Recorder: Capture Get property on Label in window "Home - Google Chrome"   |
| 6  | #[ Comment "Open notepad"                                                    |
| 7  | ● Application: Open program/file "C:\Windows\System32\notepad.exe"           |
| 8  | #[ Comment "Enter text in notepad"                                           |
| 9  | ■ Recorder: Capture Set text on textbox in window "Untitled - Notepad"       |
| 10 | #[ Comment "Save text file"                                                  |
| 11 | ■ Simulate keystrokes "[ALT DOWN][ALT UP]FA" on window "*Untitled - Notepad" |
| 12 | ■ Simulate keystrokes "[ALT DOWN]n[ALT UP]" on window "Save As"              |
| 13 | ■ Simulate keystrokes "C:\Hands-On-RPA-with-AA..." on window "Save As"       |
| 14 | ■ Simulate keystrokes "[ALT DOWN]S[ALT UP]" on window "Save As"              |
| 15 | #[ Comment "Close notepad"                                                   |
| 16 | □ Window: Close the "Chapter07.txt - Notepad" window                         |
| 17 | #[ Comment "-----"                                                           |
|    | ▀ End                                                                        |

# Chapter 08: String Manipulation and List Variables

|                                             |                                                 |
|---------------------------------------------|-------------------------------------------------|
| <input checked="" type="checkbox"/> CSV/TXT | <input checked="" type="checkbox"/> Log To File |
| <input checked="" type="checkbox"/> Comment | <input checked="" type="checkbox"/> Loop        |
| <input checked="" type="checkbox"/> If      | <input checked="" type="checkbox"/> Message box |
| <input checked="" type="checkbox"/> List    | <input checked="" type="checkbox"/> String      |



## Create variable

[Cancel](#)

[Create](#)

Name

tblSourceText

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

Type

Table



Default value (optional)

[Edit table \(1x1\)](#)

## Create variable

Cancel

Create

Name

IstSourceList

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

Type

List

Subtype

String

Default value (optional)

This list is empty



Variables



Search variables

User-defined



IstSourceList



strFullName



tblSourceText



## CSV/TXT: Open

Opens a CSV/TXT file

Session name

txt\_Source (x)

File path

Control Room file Desktop file Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter08\_InputData.txt (x)

Browse...

Required extensions: ".csv", ".txt", ".tsv"

Contains header

Delimiter

Comma

Tab

Regional list separator

Newline

Other

Specific Delimiter (optional)

“ ”

## CSV/TXT: Read

Reads the entire content of a CSV file

Session name

txt\_Source (x)

Assign value to the variable

tblSourceText - Table (x)

## CSV/TXT: Close

Closes CSV/TXT session

Session name

” txt\_Source

(x)

## String: Split

Splits the source string into multiple strings using a delimiter.

Source string

” \$tblSourceText[0][0]\$

(x)

Delimiter

” ,

(x)

Delimiter is

- Case sensitive
- Not case sensitive

Split into substrings

- All possible
- Only

#

Assign the output to list variable

lstSourceList - List of Strings



(x)



|   |                                                                                                     |   |
|---|-----------------------------------------------------------------------------------------------------|---|
| 2 | Comment "----- Section 1 - Initialize List and Loop"                                                | : |
| 3 | CSV/TXT: Open "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter08_InputData.txt"                         | : |
| 4 | CSV/TXT: Read data and assign to \$tblSourceText\$                                                  | : |
| 5 | CSV/TXT: Close csv/txt "txt_Source"                                                                 | : |
| 6 | String: Split \$tblSourceText[0][0]\$ with delimiter "," and assign the result to \$lstSourceList\$ | : |

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each item in the list

iterate list

#### list

lstSourceList - List (x)

#### For

All items in the list

Range

#### From index (optional)

#

#### To index (optional)

#

#### Assign the current value to variable

strFullName - String (x)

## Message box

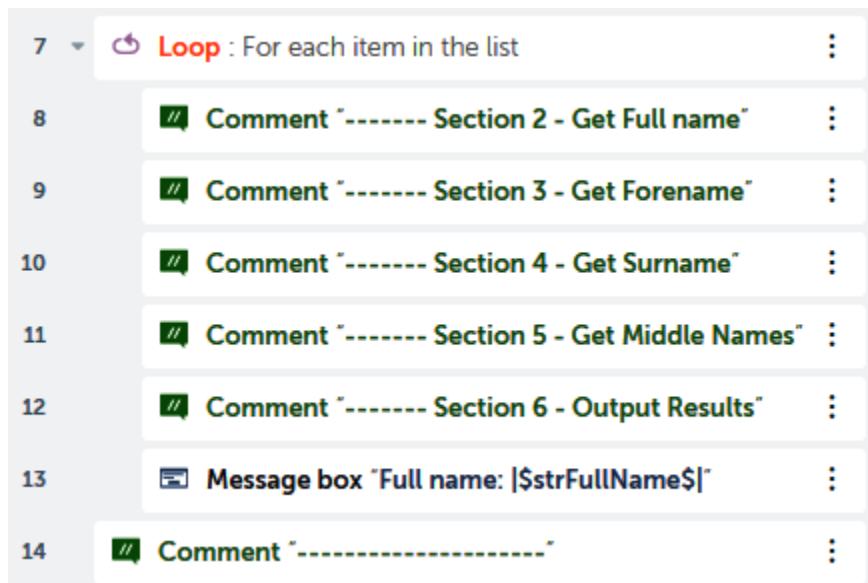
Displays a message box

Enter the message box window title

“ String Manipulation (x)

Enter the message to display

“ Full name: |\$strFullName\$| (x)



## String: Trim

Trims blanks and whitespaces from a given string.

Source string

” \$strFullName\$ ”

(x)

Trim from the beginning

Trim from the end

---

Assign the output to variable

strFullName - String

▼

(x)

## String: Uppercase

Converts the source string to upper case.

Source string

” \$strFullName\$ ”

(x)

---

Assign the output to variable

strFullName - String

▼

(x)

- |    |                                                                                                    |   |
|----|----------------------------------------------------------------------------------------------------|---|
| 8  | Comment "----- Section 2 - Get Full name"                                                          | : |
| 9  | " String: Trim \$strFullName\$ and assign the result to \$strFullName\$                            | : |
| 10 | " String: Uppercase Convert \$strFullName\$ to upper case and assign the result to \$strFullName\$ | : |

## Message box

Displays a message box

Enter the message box window title

" String Manipulation

Enter the message to display

" Full name: |\$strFullName\$|  
Initial: |\$strInitial\$|  
Forename:|\$strForename\$|

## String: Extract text

Extracts a sub-string between two given strings specified by 'Before' and 'After'.

### Source string

“ \$strFullName\$ ”

(x)

### Get characters

Before

Start after

“ “

Occur

#

Before a

Start af

“ “

Occur

#

End be

“ “

Occur

#

E.g. to e

“Price is”

After

End before text

“ “

(x)

Occurrence

# 1

(x)

If no match found, return

Source String

Empty (null) String

Number of characters to get

All

Only

#

Trim the extracted text (remove blank spaces)

Remove Enter from the extracted text

Assign the output to variable

strForename - String

▼

(x)

+

## **String: Substring**

Extracts a sub-string from a given string.

Source string

`“ $strForename$` (x)

Start from

`# 1` (x)

Length (optional)

`# 1` (x)

---

Assign the output to variable

`strInitial - String` ▼(x)

## **String: Substring**

Extracts a sub-string from a given string.

Source string

`“ $strForename$` (x)

Start from

`# 2` (x)

Length (optional)

`#` (x)

---

Assign the output to variable

`strForename - String` ▼(x)

## String: Lowercase

Converts the source string to lower case.

Source string

“ \$strForename\$ ”

(x)

Assign the output to variable

strForename - String

▼

(x)

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ \$strInitial\$\$strForename\$ ”

(x)

Select the destination string variable

strForename - String

▼

(x)

|    |                                                                                      |   |
|----|--------------------------------------------------------------------------------------|---|
| 11 | “ Comment “----- Section 3 - Get Forename” ”                                         | : |
| 12 | “ String: Extract text Source string \$strFullName\$: Extract sub-string after “ ” ” | : |
| 13 | “ String: Substring : Extract substring from the \$strForename\$ string ”            | : |
| 14 | “ String: Substring : Extract substring from the \$strForename\$ string ”            | : |
| 15 | “ String: Lowercase : Convert the \$strForename\$ to lowercase ”                     | : |
| 16 | “ String: Assign “\$strInitial\$\$strForenam...” to \$strForename\$ ”                | : |

## String: Find

Locates a given string within the source string.

Source string

“ \$strFullName\$ ”

(x)

Find string

“ (\w+)\$\$ ”

(x)

When finding

Match case

Do not match case

The "find string" is

A regular expression

Not a regular expression

Start from (optional)

# 1

(x)

---

Assign the output to variable

numLoc - Number

▼ (x) +

## String: Substring

Extracts a sub-string from a given string.

Source string

(x)

Start from

(x)

Length (optional)

(x)

---

Assign the output to variable

▼ (x) +

## Message box

Displays a message box

Enter the message box window title

(x)

Enter the message to display

(x)

- ```
17 // Comment "----- Section 4 - Get Surname"
18 ## String: Find "(\\w+)$$" within $strFullName$ from index 1
19 ## String: Substring : Extract substring from the $strFullName$ string
```

## String: Replace

Replaces specified part of a 'Source string' with a 'Replacement string'

Source string

## \$strFullName\$ (x)

Find string

## \$strForename\$ (x)

When finding

- Match case  
 Do not match case

The "find string" is

- A regular expression  
 Not a regular expression

Start from (optional)

# 1 (x)

Count (optional)

# -1 (x)

Replace with (optional)

## (x)

---

Assign the output to variable

strMiddleNames - String ▼ (x) +

## String: Replace

Replaces specified part of a 'Source string' with a 'Replacement string'

Source string

"" \$strMiddleNames\$

(x)

Find string

"" \$strSurname\$

(x)

When finding

- Match case  
 Do not match case

The "find string" is

- A regular expression  
 Not a regular expression

Start from (optional)

# 1

(x)

Count (optional)

# -1

(x)

Replace with (optional)

""

(x)

---

Assign the output to variable

strMiddleNames - String

▼

(x)

+

## String: Trim

Trims blanks and whitespaces from a given string.

Source string

“ \$strMiddleNames\$

(x)

Trim from the beginning

Trim from the end

---

Assign the output to variable

strMiddleNames - String

▼

(x)

## Message box

Displays a message box

Enter the message box window title

“ String Manipulation

(x)

Enter the message to display

“ Full name: |\$strFullName\$|

Initial: |\$strInitial\$|

Forename:|\$strForename\$|

Middle Names: |\$strMiddleNames\$|

Surname: |\$strSurname\$|

(x)

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ ”

(x)

Select the destination string variable

strInitial - String

▼

(x) +

## If

Runs a sequence of actions if a condition is true

Condition

String condition

▼

^

:

Checks the string variable condition.

Source value (optional)

“ \$strMiddleNames\$ ”

(x)

Operator

Not equal to(≠)

▼

Target value (optional)

“ ”

(x)

Match case

Add condition

User-defined ^

- lstMiddleNames ..
- lstSourceList ..
- ♯ numLoc ..
- “ strCurrentMiddleName ..
- “ strCurrentMiddleNameInitial ..
- “ strForename ..
- “ strFullName ..
- “ strInitial ..
- “ strMiddleNames ..
- “ strSurname ..
- ≡ tblSourceText ..

## String: Split

Splits the source string into multiple strings using a delimiter.

Source string

“ \$strMiddleNames\$

(x)

Delimiter

“ “

(x)

Delimiter is

- Case sensitive
- Not case sensitive

Split into substrings

- All possible
- Only

#

---

Assign the output to list variable

lstMiddleNames - List of Strings

▼

(x)<sub>4</sub>

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each item in the list

iterate list

#### list

lstMiddleNames - List

(x)

#### For

All items in the list

Range

#### From index (optional)

#

#### To index (optional)

#

#### Assign the current value to variable

strCurrentMiddleName - String

(x)

## String: Substring

Extracts a sub-string from a given string.

Source string

(x)

Start from

(x)

Length (optional)

(x)

---

Assign the output to variable

▼ (x) +

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

(x)

---

Select the destination string variable

▼ (x) +

```

20  # Comment ----- Section 5 - Get Middle Names
21  ## String: Replace $strForename$ with "" in $strFullName$ and assign the result to $strMiddleNames$
22  ## String: Replace $strSurname$ with "" in $strMiddleNames$ and assign the result to $strMiddleNames$
23  ## String: Trim $strMiddleNames$ and assign the result to $strMiddleNames$
24  ## String: Assign "" to $strInitial$
25  ◇ If string $strMiddleNames$ Not equal to(≠) ""
26      ## String: Split $strMiddleNames$ with delimiter "" and assign the result to $lstMiddleNames$
27      ↵ Loop : For each item in the list
28          ## String: Substring : Extract substring from the $strCurrentMiddleName$ string
29          ## String: Assign "$strInitial$$strCurrent..." to $strInitial$

```

## Log to file

Logs any text into a file

### File path

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter08\_Output.csv

### Enter text to log

Surname, Forename/Initials

Append timestamp

### When logging

- Append to existing log file
- Overwrite existing log file

### Encoding

ANSI

## Log to file

Logs any text into a file

### File path

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter08\_Output.csv

### Enter text to log

“ \$strSurname\$, \$strForename\$ \$strInitial\$

Append timestamp

### When logging

Append to existing log file

Overwrite existing log file

### Encoding

ANSI

2	“ Comment “----- Section 1 - Initialize List and Loop”	:
3	“ Log to file “Surname, Forename/Initi...” to “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter08_Output.csv” :	
31	“ Comment “----- Section 6 - Output Results”	:
32	“ Log to file “\$strSurname\$, \$strFore...” to “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter08_Output.csv” :	

	A	B
1	Surname	Forename/Initials
2	MAHEY	Husan L
3	MAHEY	Priya
4	MAHEY	Sonam
5	MAHEY	Ravinder RL
6	MAHEY	Sunita K
7	MAHEY	Manisha

# Chapter 09: Working with Conditional Logic, Loops, and the Filesystem

<input checked="" type="checkbox"/> Comment	<input checked="" type="checkbox"/> List
<input checked="" type="checkbox"/> CSV/TXT	<input checked="" type="checkbox"/> Log To File
<input checked="" type="checkbox"/> File	<input checked="" type="checkbox"/> Loop
<input checked="" type="checkbox"/> Folder	<input checked="" type="checkbox"/> String

1	<code>// Comment "-----"</code>	⋮
2	<code>// Comment "----- Section 1 - Open the Source file"</code>	⋮
3	<code>// Comment "----- Section 2 - Loop through each row"</code>	⋮
4	<code>// Comment "----- Section 3 - Get Surname initial &amp; identify group"</code>	⋮
5	<code>// Comment "----- Section 4 - Check if sub folder exists"</code>	⋮
6	<code>// Comment "----- Section 4a - Create sub folder &amp; output file if it doesn't exist"</code>	⋮
7	<code>// Comment "----- Section 5 - Update output file"</code>	⋮
8	<code>// Comment "----- Section 6 - Close the Source file"</code>	⋮
9	<code>// Comment "-----"</code>	⋮

## CSV/TXT: Open

Opens a CSV/TXT file

Session name

” Data

(x)

File path

Control Room file

Desktop file

Variable

” C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_InputData.csv

(x)

Browse...

Required extensions: ".csv", ".txt", ".tsv"

Contains header

Delimiter

Comma

Tab

Regional list separator

Newline

Other

Specific Delimiter (optional)

”

Trim leading spaces

Trim trailing spaces

Encoding

UTF-8

▼

- 2 Comment "----- Section 1 - Open the Source file" ⋮
- 3 CSV/TXT: Open 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_InputData.csv' ⋮

## Create variable

[Cancel](#)

[Create](#)

Name

Max characters = 50

Description (optional)

Max characters = 255

Constant (read-only)

Use as input

Use as output

Type

▼

Default value (optional)  
Record



## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

Iterator

For each row in CSV/TXT



Iterator for each row in CSV/TXT

### Session name

Data

(x)

### Assign the current row to this variable

recSource - Record



(x)

1	Comment "-----"	⋮
2	Comment "----- Section 1 - Open the Source file"	⋮
3	CSV/TXT: Open "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_InputData.csv"	⋮
4	Comment "----- Section 2 - Loop through each row"	⋮
5	Loop for each row in csv/txt	⋮
6	Comment "----- Section 3 - Get Surname initial & identify group"	⋮
7	Comment "----- Section 4 - Check if sub folder exists"	⋮
8	Comment "----- Section 4a - Create sub folder & output file if it doesn't exist"	⋮
9	Comment "----- Section 5 - Update output file"	⋮
10	Comment "----- Section 6 - Close the Source file"	⋮
11	Comment "-----"	⋮

## String: Substring

Extracts a sub-string from a given string.

Source string

“ \$recSource[1]\$

(x)

Start from

# 1

(x)

Length (optional)

# 1

(x)

---

Assign the output to variable

strRefInitial - String

▼

(x)

<b>A2019DEMOPACKAGE</b>	<b>FILE</b>	<b>JAVASCRIPT</b>
Window Exists demo	File date	Script is successful
False condition demo	File exists	Script is unsuccessful
<b>A2019DEMOPACKAGE</b>	File does not exist	<b>LEGACY AUTOMATION</b>
Window Exists demo	File size	Web control exists
False condition demo	<b>FOLDER</b>	Web control does not exist
<b>APPLICATION</b>	Folder does not exist	Window control is active
Application is not running	Folder exists	Window control does not exist
Application is running	<b>IMAGE RECOGNITION</b>	Window control exists
<b>BOOLEAN</b>	Image file is NOT found in image file	Window control is not active
Boolean condition	Image file is NOT found in window	Script is unsuccessful
<b>DATA TABLE</b>	Window is NOT found in image file	Script is successful
Data table is empty	Window is NOT found in window	Child window does not exist
Number of columns	Image file is found in image file	Child window exists
Number of rows	Image file is found in window	<b>LIST</b>
<b>DATETIME</b>	Window is found in image file	List variable
Date Condition	Window is found in window	<b>NUMBER</b>
<b>DICTIONARY</b>		Number condition
Check key		
Check for a single value		
<b>VBSCRIPT</b>	<b>STRING</b>	<b>PING</b>
Script is successful	String condition	Ping is successful
Script is unsuccessful		Ping is unsuccessful
<b>WINDOW</b>	<b>TASK BOT</b>	<b>PROCESS DISCOVERY</b>
Window exists	Task successful	Object
Window does not exist	Task unsuccessful	<b>RECODER</b>
		Object
	<b>UTILS</b>	<b>SERVICE</b>
	Not Empty String	Service is not running
	Empty String	Service is running
	Compare Record Value by Index	
	List contains Record value	

## Variables

Search variables

User-defined		
 lstSubFoldersList	...	
 recSource	...	
 strRefInitial	...	
 strSubFolder	...	
 strSubFoldersList	...	

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ ABCD,EFGH,IJKL,MNOP,QRST,UVWX,YZ [\(x\)](#)

Select the destination string variable

strSubFoldersList - String [\(x\)](#)

## String: Split

Splits the source string into multiple strings using a delimiter.

Source string

“ \$strSubFoldersList\$ [\(x\)](#)

Delimiter

“ , [\(x\)](#)

Delimiter is

- Case sensitive
- Not case sensitive

Split into substrings

- All possible
- Only

#

Assign the output to list variable

lstSubFoldersList - List of Strings [\(x\)](#)

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each item in the list

iterate list

#### list

lstSubFoldersList - List

(x)

#### For

All items in the list

Range

From index (optional)

#

To index (optional)

#

Assign the current value to variable

strSubFoldersList - String

(x)

## If

Runs a sequence of actions if a condition is true

### Condition

String condition ▾ ^ :

Checks the string variable condition.

Source value (optional)  
“ \$strSubFoldersList\$ ” (x)

Operator  
Includes ▾

Target value (optional)  
“ \$strRefInitial\$ ” (x)

Match case

Ignore carriage return

Add condition

## String: Assign

Assign or Concatenate the given strings

### Select the source string variable(s)/ value (optional)

“ \$strSubFoldersList\$ ” (x)

### Select the destination string variable

strSubFolder - String ▾ (x)

6	Comment "----- Section 3 - Get Surname initial & identify group"	:
7	" String: Substring : Extract substring from the \$recSource[1]\$ string	:
8	" String: Assign "ABCD,EFGH,IJKL,MNOP,QRS..." to \$strSubFoldersList\$	:
9	" String: Split \$strSubFoldersList\$ with delimiter "," and assign the result to \$lstSubFold...	:
10	Loop : For each item in the list	:
11	If string \$strSubFoldersList\$ Includes \$strRefInitial\$	:
12	" String: Assign \$strSubFoldersList\$ to \$strSubFolder\$	:

## If

Runs a sequence of actions if a condition is true

### Condition

Folder does not exist

Checks the folder does not exist condition.

#### Folder path

" C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$

How long you would like to wait for this condition to be true?(Seconds)

# 0

[Add condition](#)

## Folder: Create

Creates a folder

### Folder

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$ (x)

e.g. C:\MyDoc\MyNewFolder

Overwrite an existing folder

## Log to file

Logs any text into a file

### File path

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$\Output.csv (x) Browse...

### Enter text to log

„ Ref,Surname,FirstName,Amount (x)

Append timestamp

### When logging

Append to existing log file

Overwrite existing log file

### Encoding

ANSI ▼

13	„ Comment “----- Section 4 - Check if sub folder exists”	⋮
14	„ If folder does not exist at “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_Output\\$strSubFolder\$”	⋮
15	„ Comment “----- Section 4a - Create sub folder & output file if it doesn’t exist”	⋮
16	„ Folder: Create “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_Output\\$strSubFolder\$”	⋮
17	„ Log to file “Ref,Surname,FirstName,A...” to “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_...	⋮

## Log to file

Logs any text into a file

### File path

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$\Output.csv

### Enter text to log

“ \$recSource[0]\$,\$recSource[1]\$,\$recSource[2]\$,\$recSource[3]\$

Append timestamp

### When logging

- Append to existing log file  
 Overwrite existing log file

### Encoding

ANSI

18	Comment “----- Section 5 - Update output file”	:
19	Log to file “\$recSource[0]\$,\$recSource[1]\$,\$recSource[2]\$,\$recSource[3]” to “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_Output\\$strSubFolder\$\Output.csv”	:

## CSV/TXT: Close

Closes CSV/TXT session

### Session name

“ Data

20 Comment “----- Section 6 - Close the Source file” :

21 CSV/TXT: Close csv/txt “Data” :

File	Folder
Assign	Zip
Copy	Copy
Create	Create
Delete	Unzip
Download CR file	Delete
Open	Open
Print	Rename
Print multiple files	
Rename	

1	## Comment "-----"	:
2	## Comment "----- Section 1 - Loop through Sub Folders"	:
3	## Comment "----- Section 2 - Rename output file"	:
4	## Comment "----- Section 3 - Copy output file"	:
5	## Comment "----- Section 4 - Delete file"	:
6	## Comment "----- Section 5 - Delete Sub Folder"	:
7	## Comment "-----"	:

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

Iterator

For each folder in folder

Iterator for each folder in folder

Folder path

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output (x)

Assign folder name to this variable

strSubFolder - String (x)

- 1    Comment "-----"
- 2    Comment "----- Section 1 - Loop through Sub Folders"
- 3    Loop for each folder and assign folder name to \$sSubFolder\$
- 4    Comment "----- Section 2 - Rename output file"
- 5    Comment "----- Section 3 - Copy output file"
- 6    Comment "----- Section 4 -Delete file"
- 7    Comment "----- Section 5 - Delete Sub Folder"
- 8    Comment "-----"

### File: Rename

Renames a file

File

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$\\output.csv

e.g. C:\MyDoc\\*.doc

New file name

„ \$strSubFolder\$.CSV

e.g. \*.bak

### File: Copy

Copies a file

Source file

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$\\$strSubFolder\$.CSV

e.g. C:\MyDoc\\*.doc

Destination file/folder

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$.CSV

e.g. C:\Backup\ , C:\Backup\\*.doc

### File: Delete

Deletes a file

File

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$\\$strSubFolder\$.CSV

e.g. C:\MyDoc\\*.doc

## Folder: Delete

Deletes a folder

Folder

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09\_Output\\$strSubFolder\$ (x)

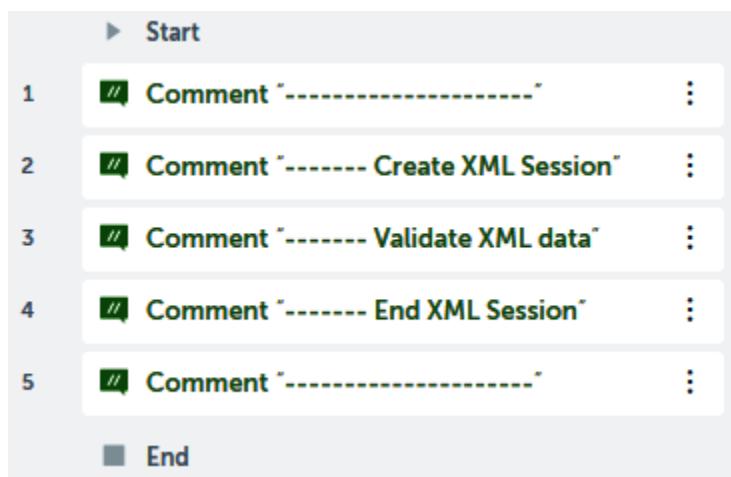
e.g. C:\MyDoc

▶ Start	
1	“ Comment “-----”
2	“ Comment ----- Section 1 - Loop through Sub Folders”
3	“ Loop for each folder and assign folder name to \$strSubFolder\$
4	“ Comment ----- Section 2 - Rename output file”
5	“ File: Rename ‘C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_O...’ to ‘\$strSubFolder\$.csv’”
6	“ Comment ----- Section 3 - Copy output file”
7	“ File: Copy ‘C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_O...’ to ‘C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_Output\\$strSubFolder\$.csv’”
8	“ Comment ----- Section 4 - Delete file”
9	“ File: Delete ‘C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_Output\\$strSubFolder\$\\$strSubFolder\$.csv’”
10	“ Comment ----- Section 5 - Delete Sub Folder”
11	“ Folder: Delete ‘C:\Hands-On-RPA-with-AA-Sample-Data\Chapter09_Output\\$strSubFolder\$’”
12	“ Comment “-----”
	■ End

## Chapter 10: Working with XML Files

 Comment	 NumberUtils
 If	 Step
 Loop	 String
 Message box	 XML

```
1  <?xml version="1.0"?>
2  <catalog>
3    <book id="bk101">
4      <author>Gambardella, Matthew</author>
5      <title>XML Developer's Guide</title>
6      <genre>Computer</genre>
7      <price>44.95</price>
8      <publish_date>2000-10-01</publish_date>
9      <description>An in-depth look at creating applications
10     with XML.</description>
11   </book>
12   <book id="bk102">
13     <author>Ralls, Kim</author>
14     <title>Midnight Rain</title>
15     <genre>Fantasy</genre>
16     <price>5.95</price>
17     <publish_date>2000-12-16</publish_date>
18     <description>A former architect battles corporate zombies,
19     an evil sorceress, and her own childhood to become queen
20     of the world.</description>
21   </book>
```



## XML: Start session

Start xml session

Session name

xml\_data (x)

Data Source

File

Control Room file Desktop file Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10\_SampleFile.xml (x)

Browse...

Required extension: ".xml"

Text

''

## XML: Validate XML document

Validates an XML document

Session name

xml\_data (x)

Select validation type

XML schema (.xsd)

List Variable



Internal DTD

Well formed

---

Assign the output (VALID or INVALID) to variable

sValidXML - String ▼ (x)

## If

Runs a sequence of actions if a condition is true

### Condition

String condition ▾ ^ :

Checks the string variable condition.

Source value (optional)  
‘‘ \$sValidXML\$ ’’

Operator  
Equals to(=) ▾

Target value (optional)  
‘‘ VALID ’’

Match case

Ignore carriage return

**Add condition**

## Message box

Displays a message box

Enter the message box window title

XML - Validation Check (x)

Enter the message to display

Result: \$sValidXML\$ - Bot will continue... (x)

Scrollbar after lines

# 30 (x)

Close message box after

Seconds

#

## Message box

Displays a message box

Enter the message box window title

XML - Validation Check

(x)

Enter the message to display

Result: \$sValidXML\$ - Bot will stop!

(x)

Scrollbar after lines

# 30

(x)

Close message box after

Seconds

#

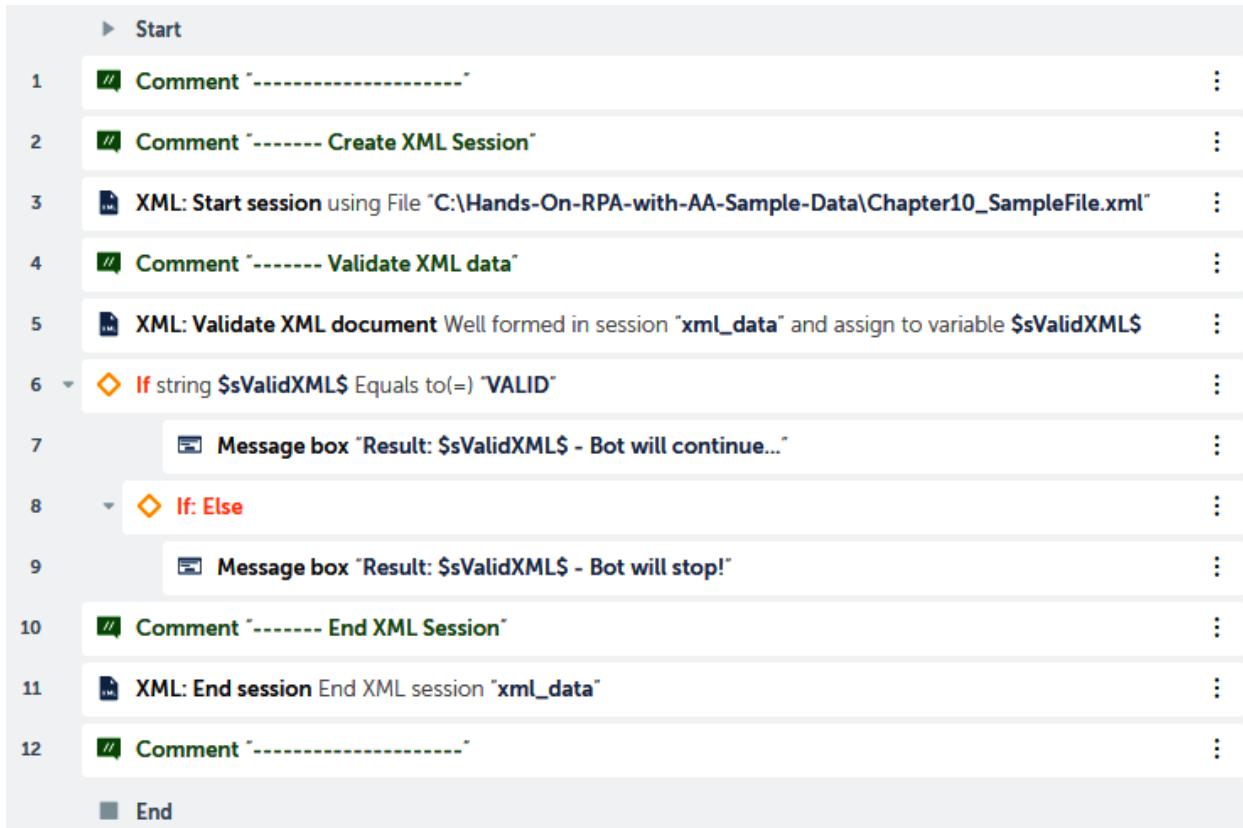
## XML: End session

End XML session

Session name

xml\_data

(x)



## Step

Runs a sequence of commands.

Title (optional)

Reading a Single Node [\(x\)](#)

## XML: Get single node

Fetch value of a specific node from the xml

Session name

xml\_data (x)

XPath expression

book[2]/title (x)

e.g. /bookstore/book/title

Attribute (optional)

(x)

Assign the output to variable

sTitle - String ▼ (x) +

## Message box

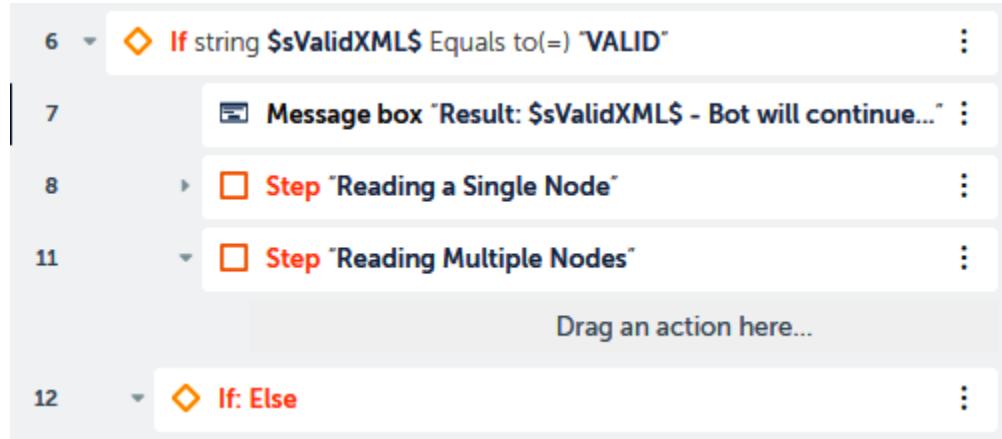
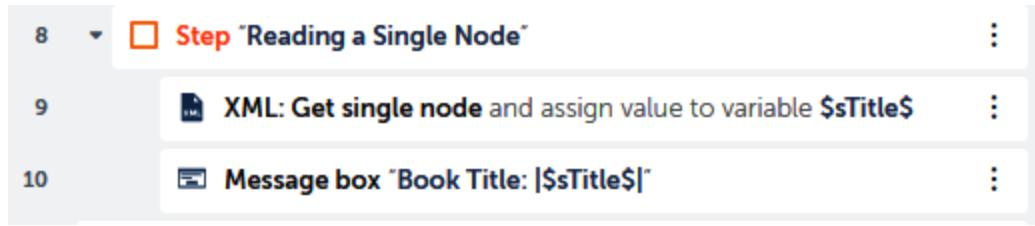
Displays a message box

Enter the message box window title

Reading a Single node (x)

Enter the message to display

Book Title: |\$sTitle\$| (x)



## XML: Get multiple nodes

Fetch value from multiple xml nodes

Session name

xml\_data

[x]

XPath Expression

book/title

[x]

For example //bookstore/book

Get each node

Text value

Xpath expression

Specific attribute name

''

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each Node in a XML Dataset

Iterator for each node in XML Dataset

#### Session name

xml\_data (x)

#### Assign the current row to this variable

sTitle - String (x)

## Message box

Displays a message box

#### Enter the message box window title

Reading Multiple Nodes (x)

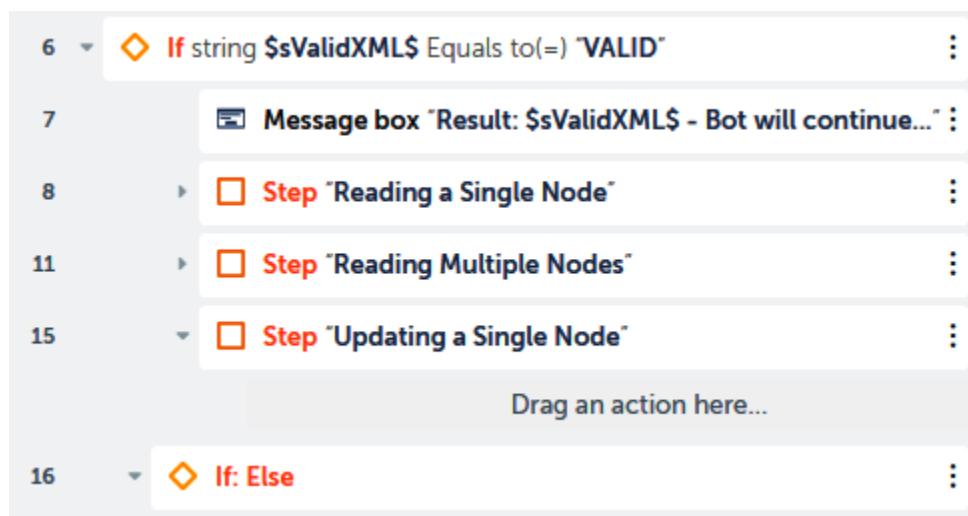
#### Enter the message to display

Book Title: |\$sTitle\$| (x)

```
11  □ Step "Reading Multiple Nodes"
12  XML: Get multiple nodes Text value from xpath location "book/title" session "xml_data"
13  ▶ ⚡ Loop Each node In a XML Dataset "xml_data"
14    └ Message box "Book Title: {$sTitle$}"
```

```
▶ Start
1  # Comment -----
2  # Comment ----- Create XML Session
3  XML: Start session using File "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10_SampleFile.xml"
4  # Comment ----- Validate XML data
5  XML: Validate XML document Well formed in session "xml_data" and assign to variable $sValidXML$
6  ⚡ If string $sValidXML$ Equals to(=) "VALID"
7    └ Message box "Result: $sValidXML$ - Bot will continue..."
8    ▶ □ Step "Reading a Single Node"
9    ▶ □ Step "Reading Multiple Nodes"
10   ▶ ⚡ If: Else
11     └ Message box "Result: $sValidXML$ - Bot will stop!"
12   # Comment ----- End XML Session
13   XML: End session End XML session "xml_data"
14   # Comment -----
15   └ End
```

```
<book id="bk101">
    <author>Gambardella, Matthew</author>
    <title>XML Developer's Guide</title>
    <genre>Computer</genre>
    <price>44.95</price>
    <publish_date>2000-10-01</publish_date>
    <description>An in-depth look at creating applications
with XML.</description>
</book>
```



## XML: Update node

Update specific node in the xml

Session name

xml\_data

XPath expression

book[1]/genre

For example //bookstore/book

New value

Computer - Software

## XML: Save session data

Save XML session data

Session name

xml\_data

Write XML data

File path

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10\_SampleFile.xml

Required extension: ".xml"

Overwrite

Assign the output to variable

sXML\_DataStream - String

## Message box

Displays a message box

Enter the message box window title

Updating a Single Node (x)

Enter the message to display

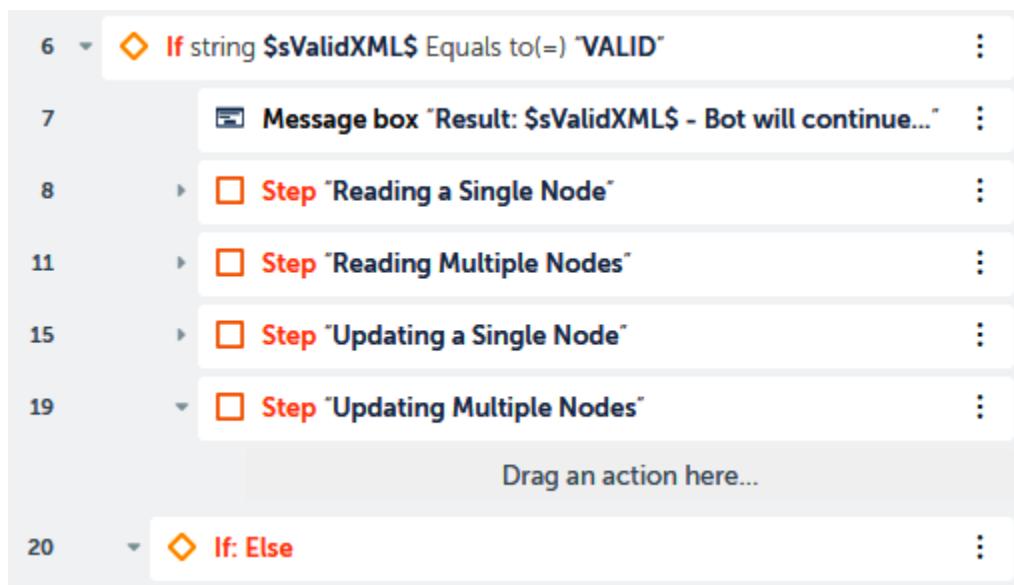
Record Number: 1  
Previous Genre: Computer  
New Genre: Computer Programming (x)

15	<input type="checkbox"/> Step "Updating a Single Node"	⋮
16	<input type="checkbox"/> XML: Update node Update node value "Computer - Software" at xpath location "book[1]/genre" in session "xml_data"	⋮
17	<input type="checkbox"/> XML: Save session data assigned to variable \$sXML_DataStream\$ write session data into file "C:\Hands-On-RPA-with-AA-Sample..."	⋮
18	<input type="checkbox"/> Message box "Record Number: 1 Previous Genre: Computer New Genre: Computer Programming"	⋮

```
<book id="bk101">
    <author>Gambardella, Matthew</author>
    <title>XML Developer's Guide</title>
    <genre>Computer - Software</genre>
    <price>44.95</price>
    <publish_date>2000-10-01</publish_date>
    <description>An in-depth look at creating applications
    with XML.</description>
</book>
```

User-defined ^

- # nNewPrice ::
- # nOldPrice ::
- # nRecordNum ::
- ## sNewPrice ::
- ## sOldPrice ::
- ## sRecordNum ::
- ## sTitle ::
- ## sValidXML ::
- ## sXML\_DataStream ::



## XML: Get multiple nodes

Fetch value from multiple xml nodes

Session name

xml\_data (x)

XPath Expression

book/price (x)

For example //bookstore/book

Get each node

Text value

Xpath expression

Specific attribute name

''

## Loop

Repeats the actions in a loop until a break

Loop Type

Iterator

Iterator

For each Node in a XML Dataset ▼

Iterator for each node in XML Dataset

Session name

xml\_data (x)

Assign the current row to this variable

sOldPrice - String ▼ (x)

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# \$nRecordNum\$ + 1

(x)

Specify value to assign to number

Select the destination number variable

nRecordNum - Number

▼

(x)

+

## Number: To string

Converts a user specified number to a string

Enter a number

# \$nRecordNum\$

(x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 0

(x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

sRecordNum - String

▼

(x)

+

### **String: To number**

Converts a string to a number

Enter the string

“ \$sOldPrice\$ (x)

String entered must be a valid number

Assign the output to variable

nOldPrice - Number ▼ (x)<sub>4</sub>

### **Number: Assign**

Assigns user specified number to number variable

Select the source string variable/ value

# \$nOldPrice\$ \* 1.1 (x)

Specify value to assign to number

Select the destination number variable

nNewPrice - Number ▼ (x)<sub>4</sub>

## Number: To string

Converts a user specified number to a string

Enter a number

# \$nNewPrice\$

(x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 2

(x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

sNewPrice - String

▼

(x)

## XML: Update node

Update specific node in the xml

Session name

'' xml\_data

(x)

XPath expression

'' book[\$sRecordNum\$]/price

(x)

For example //bookstore/book

New value

'' \$sNewPrice\$

(x)

## Message box

Displays a message box

Enter the message box window title

Updating Multiple Nodes (x)

Enter the message to display

Record Number: \$sRecordNum\$  
Old Price: \$sOldPrice\$  
New Price: \$sNewPrice\$ (x)

Scrollbar after lines

# 30 (x)

Close message box after

Seconds

# 5 (x)

## XML: Save session data

Save XML session data

Session name

xml\_data (x)

Write XML data

File path

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10\_SampleFile.xml (x)

Browse...

Required extension: ".xml"

Overwrite

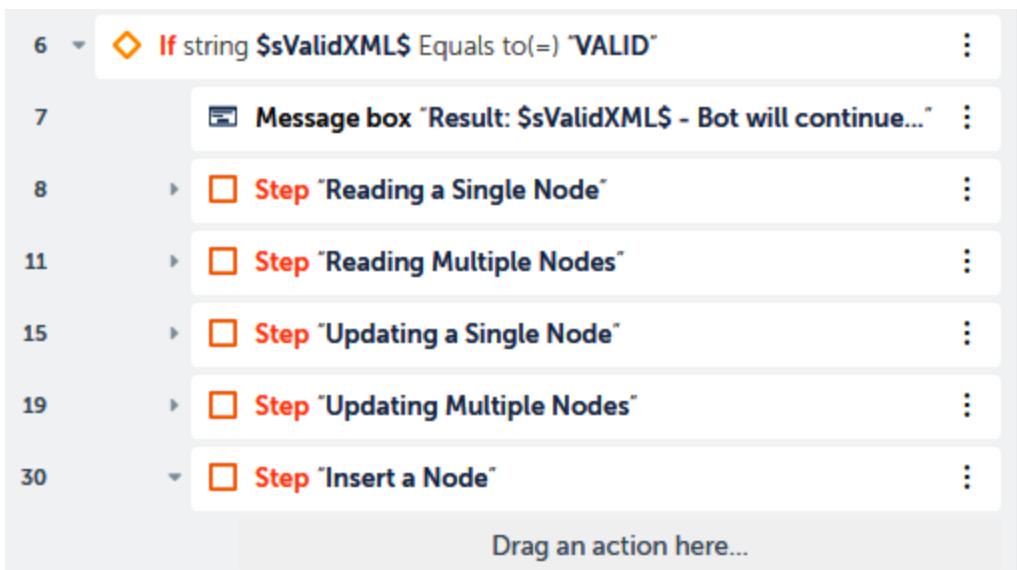
Assign the output to variable

sXML\_DataStream - String

(x)

19	Step "Updating Multiple Nodes"	⋮
20	XML: Get multiple nodes Text value from xpath location "book/price" session "xml_data"	⋮
21	Loop Each node In a XML Dataset "xml_data"	⋮
22	# Number: Assign "\$nRecordNum\$ + 1" to \$nRecordNum\$	⋮
23	# Number: To string convert \$nRecordNum\$ to a string datatype and assign output to \$sRecordNum\$	⋮
24	# String: To number Convert string \$sOldPrice\$ to a number and assign it to number variable \$nOldPrice\$	⋮
25	# Number: Assign "\$nOldPrice\$ * 1.1" to \$nNewPrice\$	⋮
26	# Number: To string convert \$nNewPrice\$ to a string datatype and assign output to \$sNewPrice\$	⋮
27	XML: Update node Update node value \$sNewPrice\$ at xpath location "book[\$sRecordNum\$/price" in session "xml_data"	⋮
28	Message box "Record Number: \$sRecordNum\$ Old Price: \$sOldPrice\$ New Price: \$sNewPrice\$"	⋮
29	XML: Save session data assigned to variable \$sXML_DataStream\$ write session data into file "C:\Hands-On-RPA-with-AA-Sa...	⋮

1	Comment "-----"
2	Comment "----- Create XML Session"
3	XML: Start session using File "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10_SampleFile.xml"
4	Comment "----- Validate XML data"
5	XML: Validate XML document Well formed in session "xml_data" and assign to variable \$sValidXML\$
6	◇ If string \$sValidXML\$ Equals to(=) "VALID"
7	Message box "Result: \$sValidXML\$ - Bot will continue..."
8	□ Step "Reading a Single Node"
11	□ Step "Reading Multiple Nodes"
15	□ Step "Updating a Single Node"
19	□ Step "Updating Multiple Nodes"
30	◇ If: Else
31	Message box "Result: \$sValidXML\$ - Bot will stop!"
32	Comment "----- End XML Session"
33	XML: End session End XML session "xml_data"
34	Comment "-----"



## XML: Insert node

Insert node within xml

Session name

” xml\_data (x)

XPath Expression

” book (x)

For example //bookstore/book

Node name

” format (x)

Node value (optional)

” Paperback (x)

If node name is present then

Insert it anyways ▼

Insert node location

End of the child nodes ▼

XPath Expression

” book[2] (x)

For example //bookstore/book

## XML: Save session data

Save XML session data

Session name

xml\_data (x)

Write XML data

File path

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10\_SampleFile.xml (x)

[Browse...](#)

Required extension: ".xml"

Overwrite

Assign the output to variable

sXML\_DataStream - String

▼ (x)<sub>4</sub>

## Message box

Displays a message box

Enter the message box window title

Inserting a Node (x)

Enter the message to display

Node Inserted: format, value Paperback (x)

30	☐ Step "Insert a Node"
31	XML: Insert node Insert node with name "format" and value "Paperback" at xpath location "book" in session "xml_data"
32	XML: Save session data assigned to variable \$sXML_DataStream\$ write session data into file "C:\Hands-On-RPA-with-AA-Sample..."
33	Message box "Node Inserted: format, value Paperback"

6	◇ If string \$sValidXML\$ Equals to(=) "VALID"
7	Message box "Result: \$sValidXML\$ - Bot will continue..."
8	☐ Step "Reading a Single Node"
11	☐ Step "Reading Multiple Nodes"
15	☐ Step "Updating a Single Node"
19	☐ Step "Updating Multiple Nodes"
30	☐ Step "Insert a Node"
34	☐ Step "Delete a Node"

Drag an action here...

## XML: Delete node

Delete specific node from the xml

Session name

xml\_data

[x]

XPath expression

book/format

[x]

For example //bookstore/book

Attribute (optional)

"

[x]

XPath expression

book[2]/format

[x]

For example //bookstore/book

## XML: Save session data

Save XML session data

Session name

xml\_data (x)

Write XML data

File path

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10\_SampleFile.xml (x)

**Browse...**

Required extension: ".xml"

Overwrite

Assign the output to variable

sXML\_DataStream - String

▼ (x) +

## Message box

Displays a message box

Enter the message box window title

Deleting a Node (x)

Enter the message to display

Node Deleted: format, value Paperback (x)

34	☐ Step "Delete a Node"	:
35	☒ XML: Delete node Delete node attribute "" at xpath location "book/format" in session "xml_data"	:
36	☒ XML: Save session data assigned to variable \$sXML_DataStream\$ write session data into file "C:\Hands-On-RPA...."	:
37	☒ Message box "Node Deleted: format, value Paperback"	:

6	◇ If string \$sValidXML\$ Equals to(=) "VALID"	:
7	☒ Message box "Result: \$sValidXML\$ - Bot will continue..."	:
8	▶ ☐ Step "Reading a Single Node"	:
11	▶ ☐ Step "Reading Multiple Nodes"	:
15	▶ ☐ Step "Updating a Single Node"	:
19	▶ ☐ Step "Updating Multiple Nodes"	:
30	▶ ☐ Step "Insert a Node"	:
34	▶ ☐ Step "Delete a Node"	:
38	▶ ☐ Step "Execute XPath Function"	:

## XML: Execute XPath function

Executes the XPath function on the XML

Session name

xml\_data (x)

XPath expression

count(//book) (x)

e.g. /bookstore/book/title

Assign the output to variable

sBookCount - String (x)

## Message box

Displays a message box

Enter the message box window title

Execute XPath Function (x)

Enter the message to display

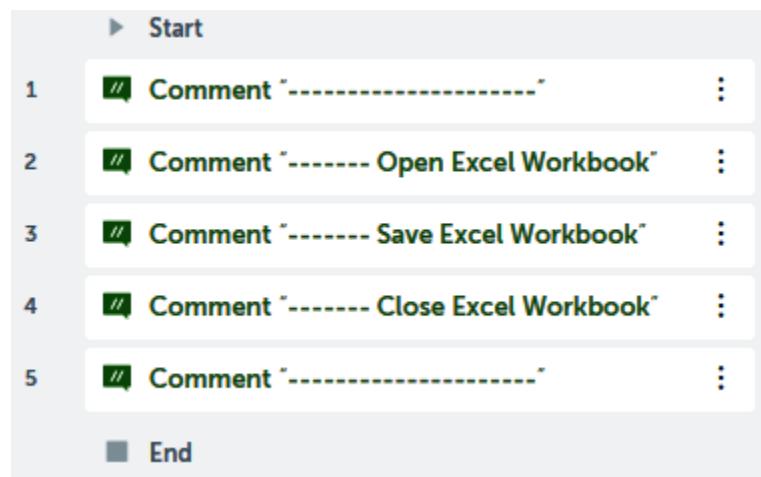
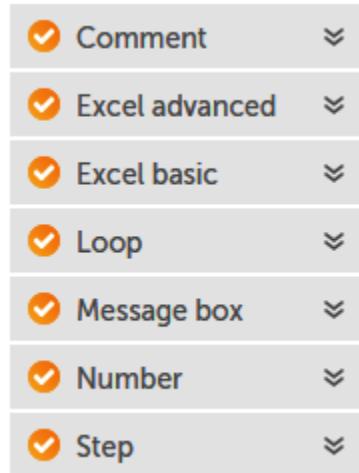
Number of Books: \$sBookCount\$ (x)

38	<input type="checkbox"/> Step "Execute XPath Function"	<span>⋮</span>
39	<input type="checkbox"/> XML: Execute XPath function and assign value to variable \$sBookCount\$	<span>⋮</span>
40	<input type="checkbox"/> Message box "Number of Books: \$sBookCount\$"	<span>⋮</span>

```
> Start

1  // Comment "-----"
2  // Comment "----- Create XML Session"
3  XML: Start session using File "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter10_SampleFile.xml"
4  // Comment "----- Validate XML data"
5  XML: Validate XML document Well formed in session "xml_data" and assign to variable $sValidXML$
6  □ If string $sValidXML$ Equals to(=) "VALID"
7    □ Message box "Result: $sValidXML$ - Bot will continue..."
8    □ Step "Reading a Single Node"
11   □ Step "Reading Multiple Nodes"
15   □ Step "Updating a Single Node"
19   □ Step "Updating Multiple Nodes"
30   □ Step "Insert a Node"
34   □ Step "Delete a Node"
38   □ Step "Execute XPath Function"
41  □ If: Else
42    □ Message box "Result: $sValidXML$ - Bot will stop!"
43  // Comment "----- End XML Session"
44  XML: End session End XML session "xml_data"
45  // Comment "-----"
■ End
```

# Chapter 11: Automating Excel



## Excel basic: Open

Opens an excel spreadsheet

Session name

„ xl\_data (x)

e.g. Session1 or S1

File path

Control Room file

Desktop file

Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter11\_Catalog.xlsx (x)

Browse...

Required extension: ".xlsx"

e.g. C:\Working\Excel1.xlsx

Specific sheet name

„ Catalog (x)

e.g. Sheet1 or SHEET1

Open in

Read-only mode

Read-write mode

Password is required

To open

Credential

Variable

Insecure string

Pick...

Sheet contains a header

## **Excel basic: Save workbook**

Saves an excel spreadsheet

Session name

‣  (x)

e.g. Session1 or S1

## **Excel basic: Close**

Closes an excel spreadsheet

Session name

‣  (x)

e.g. Session1 or S1

Save changes when closing file

	▶ Start	
1	〃 Comment "-----"	⋮
2	〃 Comment "----- Open Excel Workbook"	⋮
3	☒ Excel basic: Open spreadsheet sheet name "Catalog" as a Read-write mode	⋮
4	〃 Comment "----- Save Excel Workbook"	⋮
5	☒ Excel basic: Save workbook : Save spreadsheet	⋮
6	〃 Comment "----- Close Excel Workbook"	⋮
7	☒ Excel basic: Close	⋮
8	〃 Comment "-----"	⋮
	■ End	

	A	B	C	D	E	F
1	ID	Author	Title	Genre	Price	Publish Date
2	bk101	Gambardella, Matthew	XML Developer's Guide	Computer - Software	44.95	01/10/2000
3	bk102	Ralls, Kim	Midnight Rain	Fantasy	5.95	16/12/2000
4	bk103	Corets, Eva	Maeve Ascendant	Fantasy	5.95	17/11/2000
5	bk104	Corets, Eva	Oberon's Legacy	Fantasy	5.95	10/03/2001
6	bk105	Corets, Eva	The Sundered Grail	Fantasy	5.95	10/09/2001

◀ ▶ Catalog Sheet2 +

2	〃 Comment "----- Open Excel Workbook"	⋮
3	☒ Excel basic: Open spreadsheet sheet name "Catalog" as a Read-write mode	⋮
4	☐ Step "Read Worksheet Records"	⋮
Drag an action here...		
5	〃 Comment "----- Save Excel Workbook"	⋮

\*When selecting this, ensure you select the Loop Type from the EXCEL BASIC package as this is the one used to create this session

**EXCEL ADVANCED**  
For each row in worksheet  
**EXCEL BASIC**  
**For each row in worksheet**

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each row in worksheet ▾

Iterator for each row in Excel. Output(s) will be assigned to a record variable

#### Session name

‣ xl\_data (x)

#### Loop through

All rows ▾

#### Assign the current value to this variable

recBook - Record ▾ (x)

## Message box

Displays a message box

Enter the message box window title

“ Reading Excel Worksheet (x)

Enter the message to display

“ Title: \$recBook[2]\$ - Price: \$recBook[4]\$ (x)

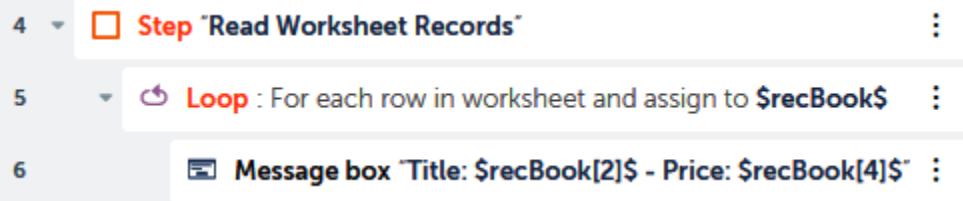
Scrollbar after lines

# 30 (x)

Close message box after

Seconds

# 4 (x)



## Number: Increment

Increments a number by specified value

Enter number

# \$numRecCount\$

(x)

Enter increment value

# 1

(x)

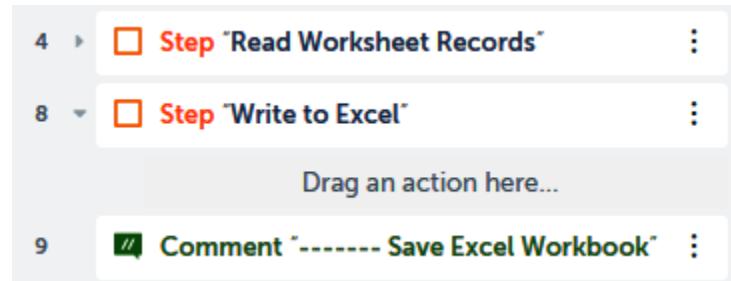
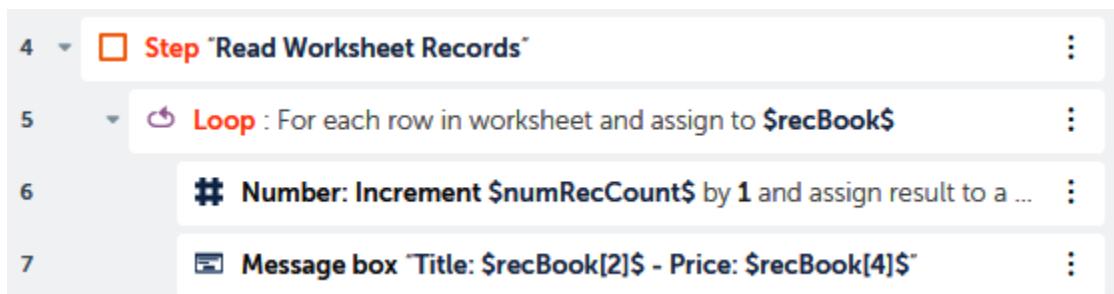
Increments number by value (e.g. 1)

Assign the output to variable

numRecCount - Number

▼

(x)



## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# \$numRecCount\$ + 2

(x)

Specify value to assign to number

Select the destination number variable

numResultRow - Number

▼ (x)

## Number: To string

Converts a user specified number to a string

Enter a number

# \$numRecCount\$

(x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 0

(x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

strRecCount - String

▼ (x)

## Number: To string

Converts a user specified number to a string

Enter a number

# \$numResultRow\$ (x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 0 (x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

strResultRow - String (x) +

## Excel basic: Set cell

Sets a value in a given cell of an excel spreadsheet

Session name

xl\_data (x)

e.g. Session1 or S1

Use

Active cell

Specific cell

A\$strResultRow\$ (x)

e.g., A5 or B10

Value to set

Total: (x)

e.g., Original

## Excel basic: Set cell

Sets a value in a given cell of an excel spreadsheet

Session name

‘‘  (x)

e.g. Session1 or S1

Use

Active cell

Specific cell

‘‘  (x)

e.g., A5 or B10

Value to set

‘‘  (x)

e.g., Original

8	<input type="checkbox"/> Step "Write to Excel"	⋮
9	# Number: Assign "\$numRecCount\$ + 2" to \$numResultRow\$	⋮
10	# Number: To string convert \$numRecCount\$ to a string datatype and assign output to \$strRecCount\$	⋮
11	# Number: To string convert \$numResultRow\$ to a string datatype and assign output to \$strResultRow\$	⋮
12	Excel basic: Set cell : Set value of Specific cell "A\$strResultRow\$" to "Total:"	⋮
13	Excel basic: Set cell : Set value of Specific cell "B\$strResultRow\$" to \$strRecCount\$	⋮
14	Comment "----- Save Excel Workbook"	⋮

	A	B	C	D	E	F
1	ID	Author	Title	Genre	Price	Publish Date
2	bk101	Gambardella, Matthew	XML Developer's Guide	Computer - Software	44.95	01/10/2000
3	bk102	Ralls, Kim	Midnight Rain	Fantasy	5.95	16/12/2000
4	bk103	Corets, Eva	Maeve Ascendant	Fantasy	5.95	17/11/2000
5	bk104	Corets, Eva	Oberon's Legacy	Fantasy	5.95	10/03/2001
6	bk105	Corets, Eva	The Sundered Grail	Fantasy	5.95	10/09/2001
7	Total: 5					

Catalog   Sheet2   +

	A	B	C	D	E
1	Segment	Product	Units Sold	Sale Price	Date
2	Midmarket	Paseo	549	£ 15.00	01/09/2013
3	Small Business	Paseo	788	£ 300.00	01/09/2013
4	Government	VTT	1527	£ 350.00	01/09/2013
5	Enterprise	Carretera	330	£ 125.00	01/09/2013

Extract   Sheet1   +

- 1   # Comment ----- :
- 2   # Comment ----- Open Excel Worksheet :
- 3   # Comment ----- Inserting a Column :
- 4   # Comment ----- Setting Cell Formula :
- 5   # Comment ----- Sorting Data :
- 6   # Comment ----- Finding Empty Cell :
- 7   # Comment ----- Save & Close Excel :
- 8   # Comment ----- :

## Excel advanced: Open

Opens an excel spreadsheet. This action works with xlsx, xls, xlsb, xlsm and csv files.

Session name

„ xl\_data (x)

e.g. Session1 or S1

File path

Control Room file Desktop file Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter11\_SampleData.xlsx (x)

Browse...

Required extensions: ".xlsx", ".xls", ".xlsm", ".xlsb", ".csv"  
e.g. C:\Working\Excel1.xlsx

Specific sheet name

„ Extract (x)

e.g. Sheet1 or SHEET1

Open in

Read-only mode

Read-write mode

Password is required

To open (optional)

Credential Variable Insecure string

Pick...

Pick...

To edit (optional)

Credential Variable Insecure string

Pick...

Pick...

Sheet contains a header

Load Add-ins

## Excel advanced: Insert table column

Inserts a table column in a spreadsheet. This action works with xlsx, xls, xlsb and xlsm files.

Session name

xl\_data

(x)

e.g. Session1 or S1

Table name

Data

(x)

e.g. Table1

Column name (optional)

Amount

(x)

Column position (at)

# 5

(x)

## Excel advanced: Set cell formula

Sets the formula of a given cell. This action works with xlsx, xls, xlsb, xlsm and csv files.

Session name

xl\_data

(x)

e.g. Session1 or S1

Set cell formula for

Active cell

Specific cell

E2

(x)

e.g. A5 or B10

Enter formula for specific cell

=[@[Units Sold]]\*[@[Sale Price]]

(x)

## Excel advanced: Sort table

Sorts a table within an Excel sheet. This action works with xlsx, xls, xlsb and xlsm files.

### Session name

xl\_data

(x)

e.g. Session1 or S1

### Table name

Data

(x)

e.g. Table1

### Sort for

Column name

Segment

(x)

e.g. Column1

Column position

#

e.g. 2

### Sort order

Number



Text



## Excel advanced: Find next empty cell

Finds next empty cell. This action works with xlsx, xls, xlsb and xlsm files.

Session name

‣ xl\_data

(x)

e.g. Session1 or S1

Traverse by

row

column

Start from

active cell

specific cell

Cell address

‣ E1

(x)

e.g. A5 or B10

---

Assign the output to variable

strTotalCell - String

▼

(x)<sub>4</sub>

## Excel advanced: Set cell formula

Sets the formula of a given cell. This action works with xlsx, xls, xlsm and csv files.

Session name

‣ xl\_data

(x)

e.g. Session1 or S1

Set cell formula for

Active cell

Specific cell

‣ \$strTotalCell\$

(x)

e.g. A5 or B10

Enter formula for specific cell

‣ =SUM(Data[Amount])

(x)

## Excel advanced: Close

Closes an excel spreadsheet. This action works with xlsx, xls, xlsm and csv files.

Session name

‣ xl\_data

(x)

e.g. Session1 or S1

Save changes when closing file

1	Comment -----
2	Comment ----- Open Excel Worksheet
3	Excel advanced: Open 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter11_SampleData.xlsx'
4	Comment ----- Inserting a Column
5	Excel advanced: Insert table column 'Amount' to table "Data" into current worksheet
6	Comment ----- Setting Cell Formula
7	Excel advanced: Set cell formula "=@[Units Sold]*@[Sal..." into Specific cell "E2"
8	Comment ----- Sorting Data
9	Excel advanced: Sort table "Data" for column "Segment" with sort order A-to-Z
10	Comment ----- Finding Empty Cell
11	Excel advanced: Find next empty cell in column from specific cell from "E1" and store value to \$strTotalCell\$
12	Excel advanced: Set cell formula "=SUM(Data[Amount])" into Specific cell \$strTotalCell\$
13	Comment ----- Save & Close Excel
14	Excel advanced: Close
15	Comment -----

	A	B	C	D	E	F
1	Segment	Product	Units Sold	Sale Price	Amount	Date
82	Small Business	VTT	2151	£ 300.00	£ 645,300.00	01/09/2014
83	Small Business	VTT	986	£ 300.00	£ 295,800.00	01/09/2014
84	Small Business	Paseo	2905	£ 300.00	£ 871,500.00	01/11/2014
85					£ 15,445,109.00	

« » Extract Sheet1 +

- 1 Comment ----- :
- 2 Comment ----- Open Excel Worksheet :
- 3 Comment ----- Run Macro :
- 4 Comment ----- :

## Excel advanced: Open

Opens an excel spreadsheet. This action works with xlsx, xls, xlsb, xlsm and csv files.

Session name

xl\_data (x)

e.g. Session1 or S1

File path

Control Room file Desktop file Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter11\_SampleData.xlsx (x)

Browse...

Required extensions: ".xlsx", ".xls", ".xlsm", ".xlsb", ".csv"  
e.g. C:\Working\Excel1.xlsx

Specific sheet name

Extract (x)

e.g. Sheet1 or SHEET1

Open in

Read-only mode

Read-write mode

Password is required

To open (optional)

Credential Variable Insecure string

Pick...

To edit (optional)

Credential Variable Insecure string

Pick...

Sheet contains a header

Load Add-ins

## Excel advanced: Run macro

Runs a macro in an excel worksheet. This action works with xlsx, xls, xlsb and xlsm files.

Session name

(x)

e.g. Session1 or S1

Macro name

(x)

e.g. ConvertData

Macro arguments (optional)

(x)

e.g. Arg1,Arg2,Arg3

	▶ Start	
1	#[ Comment "-----"	⋮
2	#[ Comment "----- Open Excel Worksheet"	⋮
3	Microsoft Excel advanced: Open "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter11_SampleData.xlsm"	⋮
4	#[ Comment "----- Run Macro"	⋮
5	Microsoft Excel advanced: Run macro : "procFilterSegment" with arguments "Enterprise"	⋮
6	#[ Comment "-----"	⋮
	▀ End	

# Chapter 12: Automation Using Word

<input checked="" type="checkbox"/> Comment	<input checked="" type="checkbox"/> List	<input checked="" type="checkbox"/> Step
<input checked="" type="checkbox"/> Datetime	<input checked="" type="checkbox"/> Loop	<input checked="" type="checkbox"/> String
<input checked="" type="checkbox"/> Excel advanced	<input checked="" type="checkbox"/> MS Word	<input checked="" type="checkbox"/> System
<input checked="" type="checkbox"/> File	<input checked="" type="checkbox"/> Number	

1. Understanding the manual process.
2. Reading source data.
  1. Opening Excel workbook.
  2. Reading and assigning column names to a list variable.
  3. Looping through each Excel record.
    1. Creating the output letter.
      1. Creating a new Word document from the template.
      2. Updating the output letter.
        1. Inserting the system date in the Word document.
        2. Adding additional paragraphs in the Word documents.
        3. Looping through each column from the list.
          1. Replacing placeholder in Word with the value from Excel.
      3. Closing Excel data source.

1	#[ Comment "-----"	:
2	#[ Comment "----- Read source data"	:
3	#[ Comment "----- Create output letter"	:
4	#[ Comment "----- Update output letter"	:
5	#[ Comment "-----"	:

1	#[ Comment "-----"	:
2	#[ Comment "----- Read source data"	:
3	▶ □ Step "Open Excel Workbook"	:
4	▶ □ Step "Get Column Names"	:
5	▼ □ Step "Read each loan record"	:
6	#[ Comment "----- Create output letter"	:
7	▶ □ Step "Create new word document"	:
8	#[ Comment "----- Update output letter"	:
9	▶ □ Step "Insert Date"	:
10	▶ □ Step "Add Paragraphs"	:
11	▶ □ Step "Replace placeholders with values"	:
12	▶ □ Step "Close Excel Workbook"	:
13	#[ Comment "-----"	:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	[Ref]	[Title]	[Forename]	[Surname]	[Address]	[City]	[County]	[Postcode]	[Amount]	[Term]	[Interest]	[Payable]	[Monthly]
2	Q298	Mr	John	Pince	21 Hobart St	Parkham	Devon	EX39 5DJ	£5,000.00	24	3.40%	£5,176.08	£ 215.67
3	Q299	Mrs	Vannessa	Casper	45 Bradfield St	Newquay	Cornwall	TR7 1LS	£3,500.00	12	8.50%	£3,657.12	£ 304.76
4	Q300	Miss	Sarah	Mchughes	73 Parkfield Rd	Parwich	Derbyshire	DE6 1QN	£7,500.00	48	3.00%	£7,961.76	£ 165.87
5	Q301	Dr	David	Hawkin	30 Aughton St	Norton Canes	Staffordshire	WS11 9RH	£8,000.00	60	3.00%	£8,616.00	£ 143.60
6	Q302	Mr	Roger	Day	7 Richmond St	Hilton	Aberdeenshire	AB24 2RR	£4,000.00	36	8.50%	£4,524.48	£ 125.68

Approved



## Excel advanced: Open

Opens an excel spreadsheet. This action works with xlsx, xls, xlsm and csv files.

### Session name

„ xl\_data (x)

e.g. Session1 or S1

### File path

Control Room file Desktop file Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter12\_LoanData.xlsx (x)

[Browse...](#)

Required extensions: ".xlsx", ".xls", ".xlsm", ".xlsm", ".csv"  
e.g. C:\Working\Excel1.xlsx

Specific sheet name

„ Approved (x)

e.g. Sheet1 or SHEET1

### Open in

Read-only mode

Read-write mode

Password is required

#### To open (optional)

Credential Variable Insecure string

Pick...

#### To edit (optional)

Credential Variable Insecure string

Pick...

Sheet contains a header

Load Add-ins

## Excel advanced: Read row

Reads values from a row. This action works with xlsx, xls, xlsb and xlsm files.

### Session name

 xl\_data

e.g. Session1 or S1

### Cell option

- From active cell
- From specific cell

### Cell address

 A1

e.g. A5 or B10

- Read full row

### Read option

- Read visible text in cell
  - e.g. 50% will be read as 50%
- Read cell value
  - e.g. 50% will be read as 50

---

### Assign the output to variable

 lstColumns - List of Strings

2	Comment ----- Read source data	⋮
3	Step Open Excel Workbook	⋮
4	Excel advanced: Open 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter12_LoanData.xlsx'	⋮
5	Step Get Column Names	⋮
6	Excel advanced: Read row From specific cell "A1" and store values to \$lstColumns\$	⋮
7	Step Read each loan record	⋮

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each row in worksheet

Iterator for each row in Excel. Output(s) will be assigned to a record variable

#### Session name

xl\_data

(x)

#### Loop through

All rows

#### Read option

Read visible text in cell

e.g. 50% will be read as 50%

Read cell value

e.g. 50% will be read as 50

#### Assign the current value to this variable

recLoan - Record

(x)

1	Comment "-----"	⋮
2	Comment "----- Read source data"	⋮
3	›  Step "Open Excel Workbook"	⋮
5	›  Step "Get Column Names"	⋮
7	›  Step "Read each loan record"	⋮
8	›  Loop : For each row in worksheet and assign to \$recLoan\$	⋮
9	Comment "----- Create output letter"	⋮
10	›  Step "Create new word document"	⋮
11	Comment "----- Update output letter"	⋮
12	›  Step "Insert Date"	⋮
13	›  Step "Add Paragraphs"	⋮
14	›  Step "Replace placeholders with values"	⋮
15	›  Step "Close Excel Workbook"	⋮
16	Comment "-----"	⋮



# Best Bank Plc

10 New Street, London N1 3EP

[Title] [Forename] [Surname]

[Address]

[City]

[County]

[Postcode]

Our Ref: [Ref]

Dear [Forename],

Congratulations! Based on the information provided by you, we are pleased to inform you that you have been pre-approved for your recent loan application.

## Loan Details

Amount: [Amount]

Term: [Term] months

Interest Rate (APR): [Interest]

Total Payable: [Payable]

Monthly Payment: [Monthly]

## String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter12\_\$recLoan[0]\$.docx

(x)

Select the destination string variable

strLoanLetter - String

▼

(x)

## File: Copy

Copies a file

### Source file

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter12\_Template.docx

e.g. C:\MyDoc\\*.doc

### Destination file/folder

„ \$strLoanLetter\$

e.g. C:\Backup\ , C:\Backup\\*.doc

Overwrite existing files

9	Comment "----- Create output letter"	:
10	Step "Create new word document"	:
11	String: Assign "C:\Hands-On-RPA-with-AA..." to \$strLoanLetter\$	:
12	File: Copy "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter12_T..." to \$strLoanLetter\$	:

## Datetime: To string

Converts a datetime value to a string value and assigns it to a string variable

Source date and time variable

System:Date - Datetime (x) +

Select date time format

Formats (x)

Custom format (x)

„ d MMM YYYY

---

Assign the output to a variable

strDate - String (x) +

## MS Word: Insert Text

Insert Text at Bookmark Position in MS Word

Select the Word document

Control Room file Desktop file Variable

„ \$strLoanLetter\$ (x) Browse...

Enter Bookmark Name

„ bmDate (x)

Enter Text to be Inserted at Bookmark position

„ \$strDate\$ (x)

13	Comment "----- Update output letter"	⋮
14	Step "Insert Date"	⋮
15	Datetime: To string Convert \$System:Date\$ and assign result to \$strDate\$	⋮
16	MS Word: Insert Text	⋮
17	Step "Add Paragraphs"	⋮
18	Step "Replace placeholders with values"	⋮

Please check that all the details are correct and if you wish to proceed, please contact our pre-approval customer service office on 0800 000 0000. Lines are open Monday to Friday 9:00 – 17:00.

Yours sincerely,

Jack Money

Loan Approvals Manager

### MS Word: Add Paragraph

Add Paragraph in Existing MS Word Document

Select the Word document

Control Room file  Desktop file  Variable

\$strLoanLetter\$

Please write paragraph or select variable

Please check that all the details are correct

17	▼	<input type="checkbox"/> Step "Add Paragraphs"	:
18		└ MS Word: Add Paragraph	:
19		└ MS Word: Add Paragraph	:
20		└ MS Word: Add Paragraph	:
21		└ MS Word: Add Paragraph	:
22		└ MS Word: Add Paragraph	:
23		└ MS Word: Add Paragraph	:
24	▶	<input type="checkbox"/> Step "Replace placeholders with values"	:

### Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

 (x)

Specify value to assign to number

Select the destination number variable

 ▼ (x) +

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each value in record

Iterator for each value in record

#### Record variable

recLoan - Record

(x) 

#### Assign the current value to this variable

strValue - String

(x) 

## Number: Increment

Increments a number by specified value

#### Enter number

# \$numColumnIndex\$

(x) 

#### Enter increment value

# 1

(x) 

Increments number by value (e.g. 1)

---

#### Assign the output to variable

numColumnIndex - Number

(▼) 

## List: Get item

Gets an item from the List from a given index position

List variable

lstColumns - List ▾ (x) +

Index number

# \$numColumnIndex\$ (x)

---

Assign the output to variable

strPlaceHolder - String ▾ (x) +

## MS Word: Replace Text

Replace Existing text in MS Word Document

Select the Word document

Control Room file Desktop file Variable

” \$strLoanLetter\$ (x) Browse...

Enter Text to be replaced

” \$strPlaceHolder\$ (x)

Enter new Text

” \$strValue\$ (x)

## Excel advanced: Close

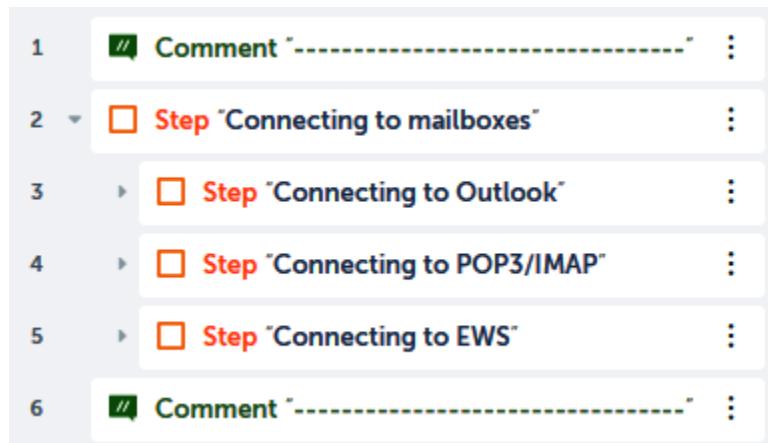
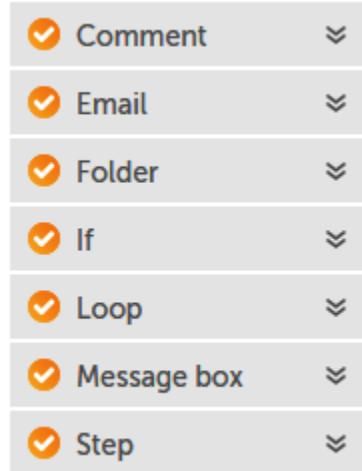
Closes an excel spreadsheet. This action works with xlsx, xls, xlsm and csv files.

Session name

 (x)  
e.g. Session1 or S1  
 Save changes when closing file

24	☐ Step "Replace placeholders with values"	:
25	"># Number: Assign -1 to \$numColumnIndex\$	:
26	⌚ Loop	:
27	># Number: Increment \$numColumnIndex\$ by 1 and assign result to a \$numColumnIndex\$ variable	:
28	>List: Get item from position \$numColumnIndex\$ in \$lstColumns\$	:
29	FLAG MS Word: Replace Text	:
30	☐ Step "Close Excel Workbook"	:
31	Excel advanced: Close	:

# Chapter 13: Working with Emails



## Email: Connect

Connects to an email server

Session name

 EmailOutlook (x)

e.g. Session1 or S1

Connect to

Outlook

## Email: Disconnect

Closes connection with the email server

Session name

 EmailOutlook (x)

e.g. Session1 or S1

- |   |   |   |
|---|---|---|
| 3 | <input type="checkbox"/> Step "Connecting to Outlook"   | : |
| 4 |  Email: Connect for session name :"EmailOutlook" | : |
| 5 |  Email: Disconnect the session : "EmailOutlook"  | : |

POP3 Settings	
Incoming Mail Server:	pop.gmail.com
Requires SSL:	Yes
Port:	995
Email address	*****@gmail.com
Password	*****

IMAP Settings	
Incoming Mail Server:	imap.gmail.com
Requires SSL:	Yes
Port:	993
Email address	*****@gmail.com
Password	*****

## Email: Connect

Connects to an email server

Session name

“ EmailSession (x)

e.g. Session1 or S1

Connect to

Outlook

Email server

Host

“ imap.gmail.com (x)

eg: outlook.office365.com, etc.

Port

# 993 (x)

eg: 993, 995 etc.

Username

Credential Variable Insecure string

“ \*\*\*\*\*@gmail.com (x)

Password

Credential Variable Insecure string

“ \*\*\*\*\* (x)

Use secure connection(SSL/TLS)

Protocol

IMAP

POP3

## Email: Disconnect

Closes connection with the email server

Session name

 (x)

e.g. Session1 or S1

- 6 ▾ ☐ Step "Connecting to POP3/IMAP" :
- 7   ✉ Email: Connect to "IMAP" server for session name :"EmailSession" host:"imap.gmail.com..." :
- 8   ✉ Email: Disconnect the session : "EmailSession" :

Exchange Server Settings	
Email:	*****@outlook.com
Password:	*****
Server:	outlook.com
Version:	Exchange 2010

## Email: Connect

Connects to an email server

Session name

” EmailSessionEWS

(x)

e.g. Session1 or S1

Connect to

EWS server

Username

Credential

Variable

Insecure string

” \*\*\*\*\*@outlook.com

(x)

Password

Credential

Variable

Insecure string

” \*\*\*\*\*

(x)

Enter Domain name (optional)

” outlook.com

(x)

e.g. smtp.office365.com

Exchange Version

Exchange2010



### Email: Disconnect

Closes connection with the email server

Session name

 EmailSessionEWS (x)

e.g. Session1 or S1

- |    |  |   |
|----|--|---|
| 9  |  Step "Connecting to EWS"                             | ⋮ |
| 10 |  Email: Connect for session name :"EmailSessionEWS" ⋮ | ⋮ |
| 11 |  Email: Disconnect the session : "EmailSessionEWS" ⋮  | ⋮ |

1	#[ Comment -----]	⋮
2	☐ Step "Connecting to mailboxes"	⋮
3	☐ Step "Connecting to Outlook"	⋮
4	✉ Email: Connect for session name :"EmailOutlook"	⋮
5	✉ Email: Disconnect the session : "EmailOutlook"	⋮
6	☐ Step "Connecting to POP3/IMAP"	⋮
7	✉ Email: Connect to "IMAP" server for session name :"EmailSession" host:"ima..."	⋮
8	✉ Email: Disconnect the session : "EmailSession"	⋮
9	☐ Step "Connecting to EWS"	⋮
10	✉ Email: Connect for session name :"EmailSessionEWS"	⋮
11	✉ Email: Disconnect the session : "EmailSessionEWS"	⋮
12	#[ Comment -----]	⋮

Triggers

Drag a trigger here...

▶ Start

1	#[ Comment -----... :	⋮
2	☐ Step "Connecting to mailboxes" :	⋮
12	#[ Comment -----... :	⋮

■ End

▶ Run from here...

---

Copy action

Cut action

Delete action

---

Disable action (highlighted)

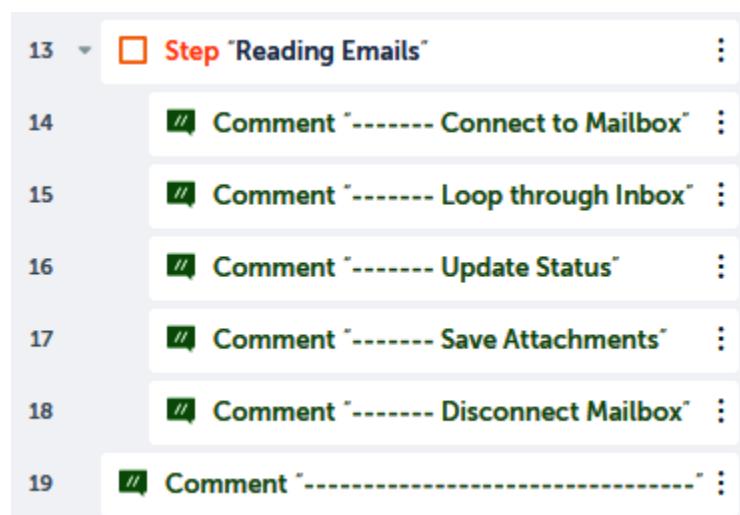
---

Enable breakpoint

---

Select all children

Key	Value
emailSubject	Email Subject
emailFrom	Senders Email
emailTo	Who the Email is addressed to
emailCc	Any Email CC's
emailBcc	Any Email Bcc's
emailMessage	Email Message
emailReceivedTime	Time Email received
emailReceivedDate	Date Email received



### Email: Connect

Connects to an email server

Session name

EmailSession

e.g. Session1 or S1

Connect to

Outlook

## Email: Disconnect

Closes connection with the email server

Session name

 EmailSession	(x)
e.g. Session1 or S1	

13	 Step "Reading Emails"	:
14	 Comment "----- Connect to Mailbox"	:
15	 Email: Connect for session name :"EmailSession"	:
16	 Comment "----- Loop through Inbox"	:
17	 Comment "----- Update Status"	:
18	 Comment "----- Save Attachments"	:
19	 Comment "----- Disconnect Mailbox"	:
20	 Email: Disconnect the session : "EmailSession"	:
21	 Comment "-----"	:

## Create variable

[Cancel](#)

[Create](#)

Name

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

Type

Subtype

Default value (optional)

This dictionary is empty



## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each mail in mail box



Iterator for each mail in mail box

#### Session name

„ EmailSession

(x)

#### Type of email to get

ALL

READ

UNREAD

#### Message format

HTML

PLAINTEXT

#### Assign the current value to variable (optional)

dctEmail - Dictionary of Strings



(x)

Type of email to get

- ALL
- READ
- UNREAD

For POP3 protocol all message will be fetched

From a specific folder (optional)

 Inbox

(x)

e.g. Inbox/folder1;Inbox/folder2 or Inbox/test\*. For POP3 fetching from Inbox only

Type of email to get

- ALL
- READ
- UNREAD

For POP3 protocol all message will be fetched

From a specific folder (optional)

 Inbox

(x)

e.g. Inbox/folder1;Inbox/folder2 or Inbox/test\*. For POP3 fetching from Inbox only

When subject contains (optional)



(x)

e.g. subject1;subject2

From specific senders (optional)

 (x)

e.g. john@abc.com;Mary@xyz.com

When received date is on or after (optional)

 ▼ (x)

When received date is before (optional)

 ▼ (x)

13	<input type="checkbox"/> Step "Reading Emails"	⋮
14	#[ Comment "----- Connect to Mailbox"	⋮
15	✉ Email: Connect for session name :"EmailSession"	⋮
16	#[ Comment "----- Loop through Inbox"	⋮
17	⌚ Loop through UNREAD emails for session: "EmailSession"	⋮
18	#[ Comment "----- Update Status"	⋮
19	#[ Comment "----- Save Attachments"	⋮
20	#[ Comment "----- Disconnect Mailbox"	⋮
21	✉ Email: Disconnect the session : "EmailSession"	⋮
22	#[ Comment "-----"	⋮

## Email: Change status

Changes email status to Read/Unread. Use this action inside a loop

Session name

✉ EmailSession

(x)

Change status to

Read

Unread

## If

Runs a sequence of actions if a condition is true

Condition

Folder does not exist

▼

^

:

Checks the folder does not exist condition.

Folder path

✉ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter13\_Emails

(x)

How long you would like to wait for this condition to be true?(Seconds)

# 0

(x)

Add condition

## **Folder: Create**

Creates a folder

### **Folder**

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter13\_Emails 

e.g. C:\MyDoc\MyNewFolder

Overwrite an existing folder

## **Email: Save attachments**

Saves all attachments of a single email. Use this action inside a loop.

### **Save attachments to folder**

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter13\_Emails 

D:/Emails

Overwrite file(s)

## Message box

Displays a message box

Enter the message box window title

„ Reading Emails (x)

Enter the message to display

„ subject: |\$dctEmail{emailSubject}\$|

From: |\$dctEmail{emailFrom}\$|

Message: |\$dctEmail{emailMessage}\$| (x)

Scrollbar after lines

# 30 (x)

Close message box after

Seconds

# 5 (x)

12	Comment -----	⋮
13	☐ Step "Reading Emails"	⋮
14	Comment ----- Connect to Mailbox	⋮
15	Email: Connect for session name :"EmailSession"	⋮
16	Comment ----- Loop through Inbox	⋮
17	⌚ Loop through UNREAD emails for session: "EmailSession"	⋮
18	Comment ----- Update Status	⋮
19	Email: Change status to "Read"	⋮
20	Comment ----- Save Attachments	⋮
21	◇ If folder does not exist at "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter13_Emails"	⋮
22	Folder: Create "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter13_Emails"	⋮
23	Email: Save attachments from an email in "C:\Hands-On-RPA-with-AA-Sample-D...	⋮
24	Message box "subject:  \$dctEmail{emailSubject}  From:  \$dctEmail{emailFrom}  To:  \$dctEmail{emailTo} "	⋮
25	Comment ----- Disconnect Mailbox	⋮
26	Email: Disconnect the session : "EmailSession"	⋮
27	Comment -----	⋮

Gmail IMAP Settings	
Outgoing Mail Server:	smtp.gmail.com
Requires SSL:	Yes
Requires Authentication:	Yes
Port for SSL:	465
Port for TLS/STARTTLS:	587
Email address:	*****@gmail.com
Password:	*****

28	<input checked="" type="checkbox"/> Step "Sending Emails"	:
29	<input checked="" type="checkbox"/> Comment "----- Sending an Email"	:
30	<input checked="" type="checkbox"/> Comment "----- Forwarding a Email"	:
31	<input checked="" type="checkbox"/> Comment "----- Replying to a email"	:
32	<input checked="" type="checkbox"/> Comment "-----"	:

### Email: Send

Sends an email

To address

(x)

Use comma for multiple email ids

Cc (optional)

(x)

Use comma for multiple email ids

Bcc (optional)

(x)

Use comma for multiple email ids

Subject

(x)

### Email: Send

Send email as

Plain text

Html

Message

(x)

## Email: Send

Send email via

Email server



From address

“ \*\*\*\*\*@gmail.com (x)

Email server host

“ smtp.gmail.com (x)

eq: smtp-mail.outlook.com,smtp.gmail.com ,etc.

Email server port

# 587 (x)

eq: 587

Use secure connection (SSL/TLS)

False True Variable

My server requires authentication

False True Variable

Username (optional)

Credential Variable Insecure string

“ \*\*\*\*\*@gmail.com (x)

Password (optional)

Credential Variable Insecure string

“ \*\*\*\*\* (x)

Attachment (optional)

Control Room file  Desktop file  Variable

 C:\Hands-On-RPA-with-AA-Sample-Data\Chapter05\_InputData.csv

Validate if attachment is missing

## Email: Forward

Forwards an email with the same subject. Use this action inside a loop.

To address

 (x)

Use comma for multiple email ids

Cc (optional)

 (x)

Use comma for multiple email ids

Bcc (optional)

 (x)

Use comma for multiple email ids

Attachment (optional)

Control Room file Desktop file Variable

 Browse...

Validate if attachment is missing

Send email as

- Plain text  
 Html

Message (optional)

 (x)

The email body will automatically be appended to the message.

Include Go Green message at the end of the email

Send email via

 ▼

## Email: Reply

Replies to an email sender with the same subject. Use this action inside a loop.

### Cc (optional)



Use comma for multiple email ids

### Bcc (optional)



Use comma for multiple email ids

### Attachment (optional)

Control Room file

Desktop file

Variable

[Browse...](#)

Validate if attachment is missing

### Send email as

Plain text

Html

### Message (optional)



This email is a reply by your RPA Bot



The email body will automatically be appended to the message.

Include Go Green message at the end of the email

### Send email via

Outlook



29	<b>Comment ----- Sending an Email</b>	⋮
30	<b>Email: Send an email to "*****@gmail.com" with subject : "RPA - Sending Emails"</b>	⋮
31	<b>Comment ----- Forwarding a Email</b>	⋮
32	<b>Email: Forward an email in current session with Plain text</b>	⋮
33	<b>Comment ----- Replying to a email</b>	⋮
34	<b>Email: Reply to an email in current session with Plain text</b>	⋮
35	<b>Comment -----</b>	⋮

# Chapter 14: Working with PDF Files



## PDF: Extract text

Extracts text from a PDF file and saves it into a text file.

PDF path

Control Room file Desktop file Variable

" C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_Letter.pdf

Required extension: ".pdf"

User password (optional)

Credential Variable Insecure string

Owner password (optional)

Credential Variable Insecure string

## PDF: Extract text

### Text type

- Plain text
- Structured text

### Page range

- All pages
- Pages

” ”

(e.g. 1, 3, 5-12)

## PDF: Extract text

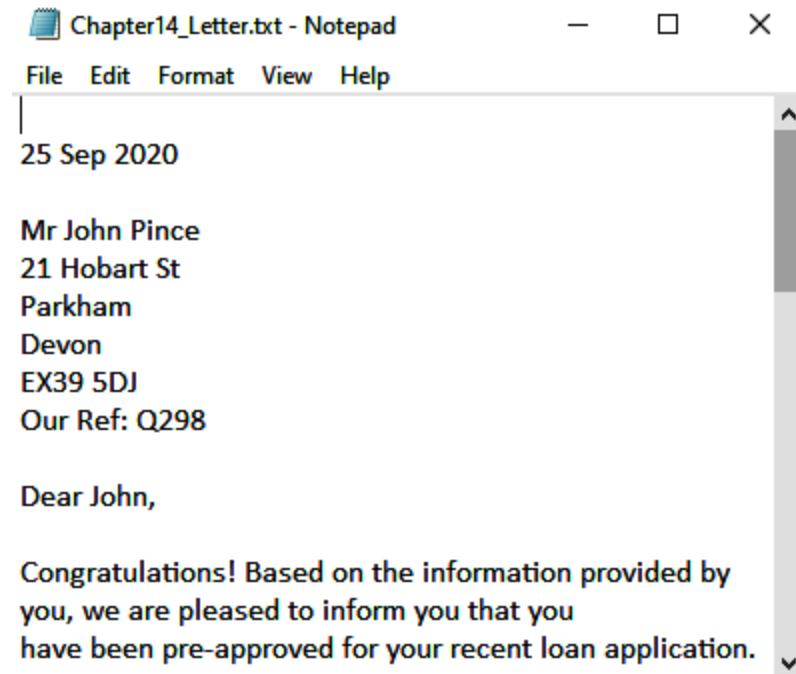
### Export data to text file

” ” C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_Letter.txt

Required extension: ".txt"

Overwrite files with the same name

1	Comment "-----"	⋮
2	Comment "----- Extract Text"	⋮
3	PDF: Extract text from "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_L..." to "..."	⋮



## PDF: Extract image

Saves PDF document as an image file.

PDF path

Control Room file   Desktop file   Variable

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_Chart.pdf

Required extension: ".pdf"

User password (optional)

Credential   Variable   Insecure string

Pick...

Owner password (optional)

Credential   Variable   Insecure string

Pick...

## PDF: Extract image

### Page range

All pages

Pages

“ ”

(e.g. 1, 3, 5-12)

### Type of image to be converted to

JPEG

### JPEG quality

# 100

[x]

## PDF: Extract image

### Folder path

“ ” C:\Hands-On-RPA-with-AA-Sample-Data [x]

### File prefix

“ ” Chapter14\_Chart [x]

(Output file will be created as prefix\_1.type,...)

Overwrite files with the same name

## PDF: Extract image

X Resolution(dpi)

# 200

[x]

Y Resolution(dpi)

# 200

[x]

Image output

Color

Color property

True color (32 bits)

▼

Grayscale

Color property

▼

4

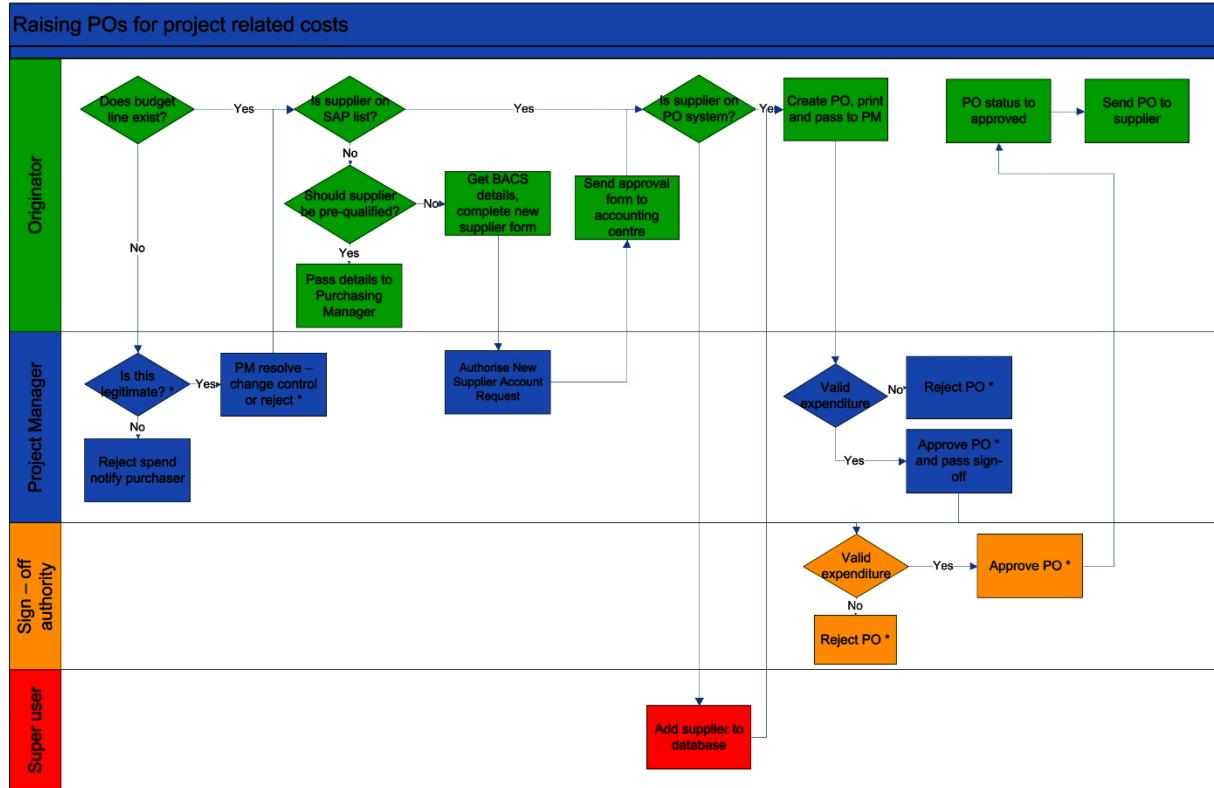
Comment ----- Extract Image

[...]

5

PDF: Extract image 'C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_C...' to a JP...

[...]



## PDF: Split document

Splits a PDF file into multiple PDF files.

PDF path

Control Room file   Desktop file   Variable

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_Games.pdf

Required extension: ".pdf"

User password (optional)

Credential   Variable   Insecure string

Owner password (optional)

Credential   Variable   Insecure string

## PDF: Split document

### Output file creation options

- Number of pages per extracted PDF

# 1

(x)

- Single file with selected pages

”

(e.g. 1, 3, 5-12)

- Blank page as a separator

- Bookmark level per file

#### Bookmark Level

#

## PDF: Split document

Folder path

“ C:\Hands-On-RPA-with-AA-Sample-Data (x)

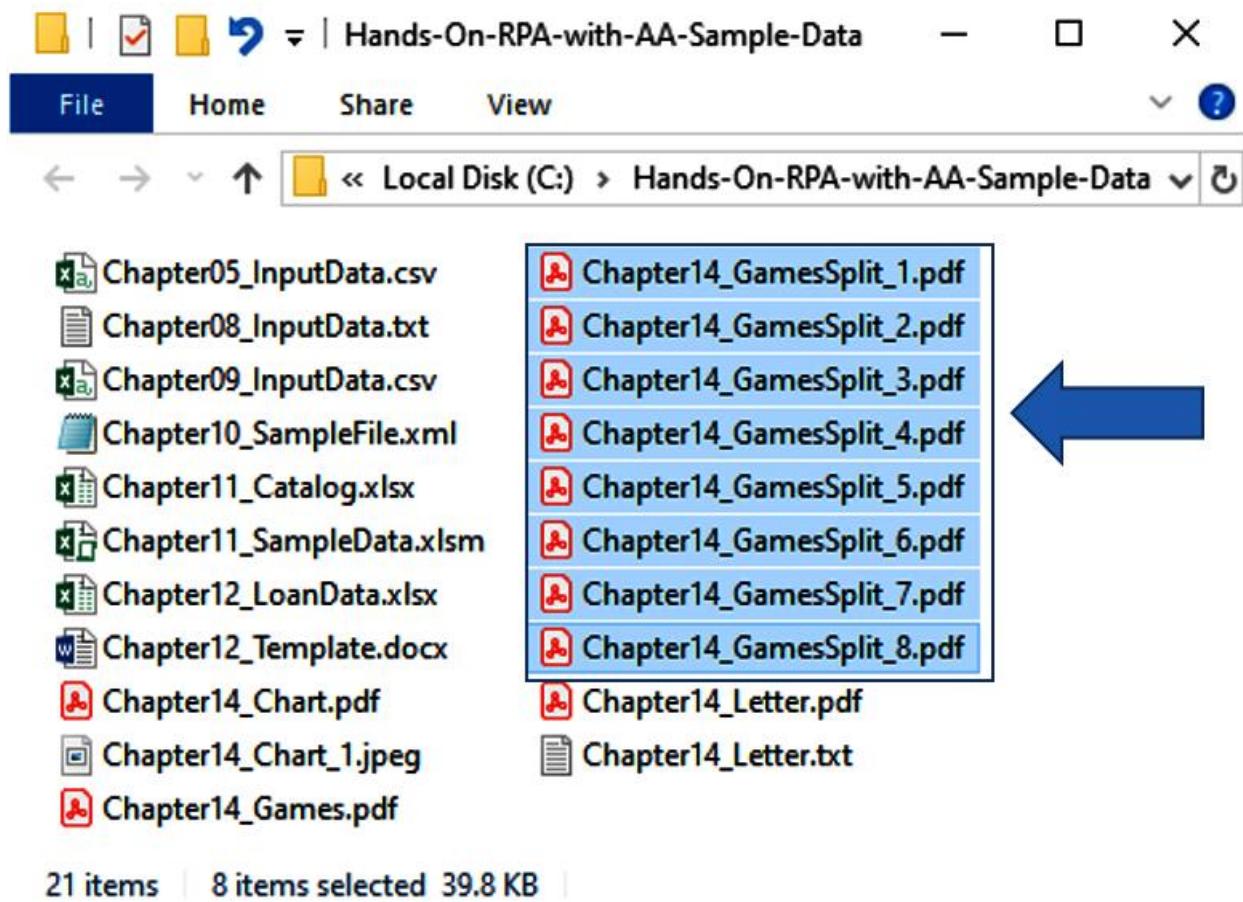
File prefix

“ Chapter14\_GamesSplit (x)

(Output file will be created as prefix\_1.pdf,...)

Overwrite files with the same name

- |   |   |   |
|---|---|---|
| 6 | Comment “----- Split File”  | : |
| 7 | PDF: Split document “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_G...” as “C... | : |



## PDF: Merge documents

Merges multiple PDF documents into a single PDF document

⚠ PDF documents

A screenshot of a software interface titled "Merge documents". The top navigation bar has tabs for "File", "Pages", and "Specific Pages". Below the tabs, a message says "No item in the table". At the bottom, there is a button labeled "Add PDF document". A blue arrow points from the "Add PDF document" button to the "File" tab in the top navigation bar.

File Pages Specific Pages

No item in the table

Add PDF document

## Add PDF document

Cancel

Add

PDF path

Control Room file Desktop file Variable

\" -Sample-Data\Chapter14\_GamesSplit\_1.pdf

Browse...

Required extension: ".pdf"

User password (optional)

Credential Variable Insecure string

Pick...

Owner password (optional)

Credential Variable Insecure string

Pick...

Pages

All pages

Specific Pages

\"

(e.g. 1, 3, 5-12)

## PDF: Merge documents

Merges multiple PDF documents into a single PDF document

PDF documents (8)

File	Pages	Specific Pages
C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_GamesSplit_1.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_2.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_3.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_4.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_5.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_6.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_7.pdf	All pages	--
C:\Hands-On-RPA-with-AA-Sample-Data\ Chapter14_GamesSplit_8.pdf	All pages	--

Add PDF document

## PDF: Merge documents

Output file path

 C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_GamesMerged.pdf

Required extension: ".pdf"  
e.g. C:\Users\Admin\Test.pdf

Overwrite existing file

- 8 Comment "----- Merge Files"
- 9 PDF: Merge documents into "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_G...":

## PDF: Encrypt document

Encrypts a PDF file.

PDF path

Control Room file  Desktop file  Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_Games.pdf

Required extension: ".pdf"

## PDF: Encrypt document

User password (optional)

Credential  Variable  Insecure string

Password

Owner password (optional)

Credential  Variable  Insecure string

At least one password out of user password field and owner password field needs to be added.

## PDF: Encrypt document

User Permissions to Apply

Print

Modify

Copy

Form Fill

Document Assembly

Annotation

Accessibility

## PDF: Encrypt document

Encryption level

RC4 40-bit

RC4 128-bit

AES 128-bit

## PDF: Encrypt document

Save encrypted PDF as

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_GamesEncrypt.pdf

Required extension: ".pdf"

Overwrite files with the same name

10	Comment "----- Encrypt PDF File"	<input type="button" value="..."/>
11	PDF: Encrypt document "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_G...". Save it as "C:..."	<input type="button" value="..."/>

## PDF: Decrypt document

Decrypts a PDF file.

PDF path

Control Room file  Desktop file  Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_GamesEncrypt.pdf

Required extension: ".pdf"

## PDF: Decrypt document

User/Owner password (optional)

Credential

Variable

Insecure string



Password

(x)

### PDF: Decrypt document

Save the decrypted PDF file as

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_GamesDecrypt.pdf

Required extension: ".pdf"

Overwrite files with the same name

12

Comment “----- Decrypt PDF File”

:

13

PDF: Decrypt document “C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14\_G...”. Save it as “C:...”

<b>Key</b>	<b>Value</b>
<b>pdfTitle</b>	<b>Document Title</b>
<b>pdfFilename</b>	<b>Document Filename</b>
<b>pdfSubject</b>	<b>Document Subject</b>
<b>pdfAuthor</b>	<b>Document Author</b>

# Create variable

Cancel

Create

## Name

dctPDF

Max characters = 50

## Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)

## Type

Dictionary

## Subtype

String



## Default value (optional)

This dictionary is empty



## PDF: Decrypt document

### Assign PDF properties to a dictionary variable (optional)

dctPDF - Dictionary of Strings



(x)<sub>4</sub>

Note: The PDF file name, title, author and subject can be accessed via this dictionary

## Message box

Displays a message box

Enter the message box window title

” PDF Dictionary

(x)

Enter the message to display

” Title: |\$dctPDF{pdfTitle}\$|

Filename: |\$dctPDF{pdfFilename}\$|

Subject: |\$dctPDF{pdfSubject}\$|

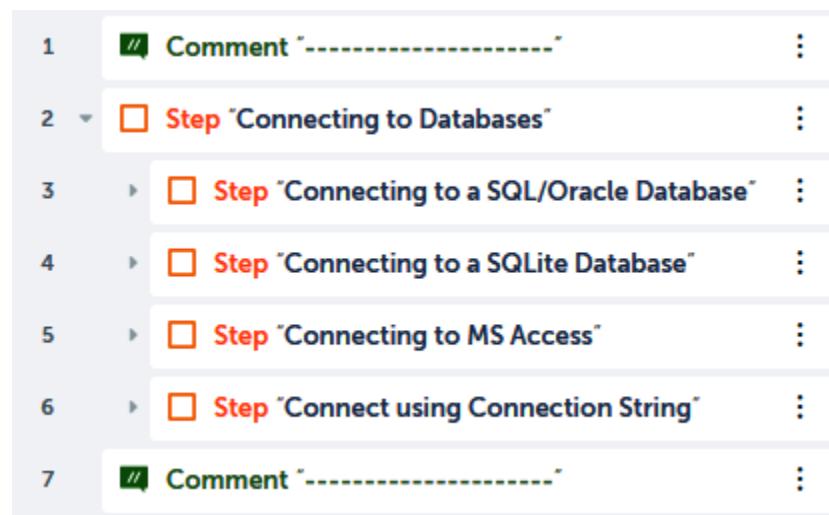
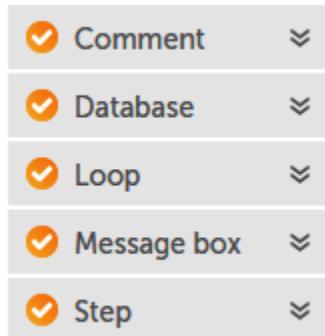
Author: |\$dctPDF{pdfAuthor}\$|

(x)

1	〃 Comment "-----"	⋮
2	〃 Comment "----- Extract Text"	⋮
3	PDF: Extract text from "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_L..." to "C:\Hands...	⋮
4	〃 Comment "----- Extract Image"	⋮
5	PDF: Extract image "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_C..." to a JPEG imag...	⋮
6	〃 Comment "----- Split File"	⋮
7	PDF: Split document "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_G..." as "Chapter14...	⋮
8	〃 Comment "----- Merge Files"	⋮
9	PDF: Merge documents into "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_G..."	⋮
10	〃 Comment "----- Encrypt PDF File"	⋮
11	PDF: Encrypt document "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_G...". Save it as "...	⋮
12	〃 Comment "----- Decrypt PDF File"	⋮
13	PDF: Decrypt document "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter14_G...". Save it as ...	⋮
14	Message box 'Title:  \$dctPDF{pdfTitle} \$  Filename:  \$dctPDF{pdfFilename} \$  Subject:  \$dctPDF...	⋮
15	〃 Comment "-----"	⋮



# Chapter 15: Working with Databases



## Database: Connect

Connects to a database

Session name

db\_Session

Connection mode

User defined

## SQL Server Settings

Database Type: Microsoft SQL Server

Enter a server name: MDG181K\SQL\_DB

Database name: dbSales

Username: Insecure string – \*\*\*\*\*

Password: Insecure string – \*\*\*\*\*

Instance name:

## Oracle Database Settings

Database Type: Oracle

Enter a server name: MDG181K\ORA\_DB

Oracle system id:

Username: Insecure string – \*\*\*\*\*

Password: Insecure string – \*\*\*\*\*

Port: 1521

## Connecting to SQL Server

Database: Connect

Database type  
Microsoft SQL Server

Enter a server name  
MDG181K\SQL\_DB

Database name (optional)  
dbSales

User name  
Credential Variable Insecure string  
\*\*\*\*\*

Password  
Credential Variable Insecure string  
\*\*\*\*\*

Instance name (optional)

## Connecting to Oracle Server

Database: Connect

Database type  
Oracle

Enter a server name  
MDG181K\ORA\_DB

Oracle system id(sid) (optional)

User name  
Credential Variable Insecure string  
\*\*\*\*\*

Password  
Credential Variable Insecure string  
\*\*\*\*\*

Port  
1521

## Database: Disconnect

Disconnects from the database

Session name

” db\_Session

(x)

- 3     Step "Connecting to a SQL/Oracle Database"
- 4     Database: Connect to Oracle in session "db\_Session" ...
- 5     Database: Disconnect from "db\_Session" ...

## Database: Connect

Connects to a database

Session name

” db\_SqLite

(x)

Connection mode

User defined

▼

## Database: Connect

Database type

SQLite

Database file path

Control Room file   Desktop file   Variable

“ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter15\_SQLite.db

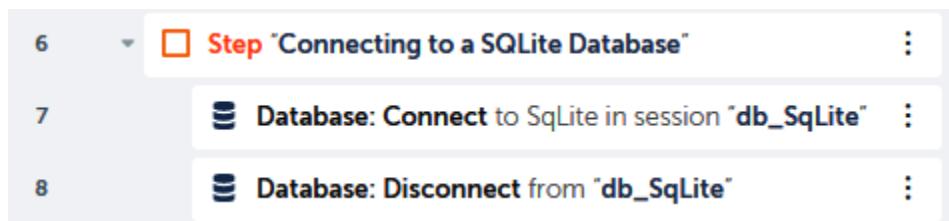
Required extension: ".db"  
Only .db files are allowed.

## Database: Disconnect

Disconnects from the database

Session name

“ db\_SQLite



## Database: Connect

Connects to a database

Session name

db\_Access (x)

Connection mode

User defined ▼

## Database: Connect

Database type

Microsoft Access ▼

Database file path

Control Room file Desktop file Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter15\_Access.accdb (x)

Browse...

Required extensions: ".accdb", ".mdb"  
Only .accdb and .mdb files are allowed.

## Database: Disconnect

Disconnects from the database

Session name

db\_Access (x)

9	<input type="checkbox"/> Step "Connecting to MS Access"
10	Database: Connect to Microsoft Access in session "db_Access"
11	Database: Disconnect from "db_Access"

## Database: Connect

Connects to a database

Session name

 db\_ConStr 

Connection mode

## Database: Connect

Connection string

Enter the text

```
Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\Hands-On-RPA-with-AA-Sample-Data\Chapter12_Lo
```

## Database: Disconnect

Disconnects from the database

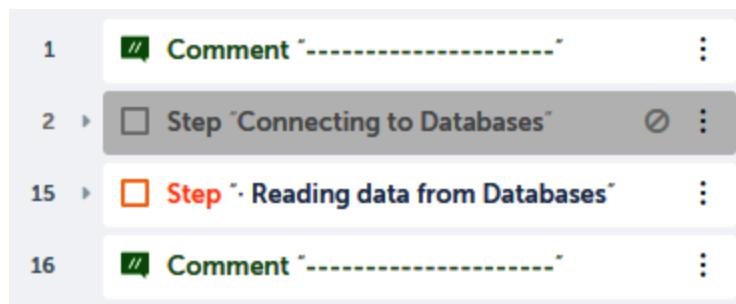
Session name

“ db\_ConStr ”



- 12    □ Step "Connect using Connection String"
- 13    Database: Connect to "Provider=Microsoft.ACE...." in session "db\_ConStr"
- 14    Database: Disconnect from "db\_ConStr"

tblSales		
	Field Name	Data Type
key	ID	AutoNumber
	Country	Short Text
	Item Type	Short Text
	Sales Channel	Short Text
	Order Priority	Short Text
	Order Date	Date/Time
	Order ID	Number
	Ship Date	Date/Time
	Units Sold	Number
	Unit Price	Currency
	Unit Cost	Currency
	Total Revenue	Currency
	Total Cost	Currency
	Total Profit	Currency



## Database: Connect

Connects to a database

Session name

 (x)

Connection mode

 ▼

Database type

 ▼

Database file path

Control Room file   Desktop file   Variable

 (x) Browse...

Required extensions: ".accdb", ".mdb"  
Only .accdb and .mdb files are allowed.

## Database: Read from

Retrieves data from the database

Session name

db\_Access

(x)

Enter SELECT Statement

SELECT [Item Type] As Type, Count([Item Type]) as Orders, Sum([Units Sold]) as Quan



(x)

Maximum number of records to fetch (optional)

#

(x)

Timeout for the query in seconds (optional)

#

(x)

Export data to CSV

File Path

Control Room file

Desktop file

Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter15\_Sales.csv

(x)

Browse...

Required extension: ".csv"

Encoding (optional)

ANSI

▼

Export data with header

When saving

Overwrite existing file

Append existing file

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each row in a SQL query dataset ▾

Iterator for each row in sql query dataset.

#### Session name

db\_Access (x)

#### Assign the current row to this variable

recData - Record ▾ (x)

## Message box

Displays a message box

Enter the message box window title

” Reading a SQL Dataset (x)

Enter the message to display

” Type: |\$recData[0]\$|  
Orders: |\$recData[1]\$|  
Quantity: |\$recData[2]\$|  
Profit: |\$recData[3]\$| (x)

Scrollbar after lines

# 30 (x)

Close message box after

Seconds

# 5 (x)

## Database: Disconnect

Disconnects from the database

Session name

” db\_Access (x)

15	Step "· Reading data from Databases"	⋮
16	Database: Connect to Microsoft Access in session "db_Access"	⋮
17	Database: Read from database using the SQL statement "SELECT [Item Ty..."	⋮
18	⌚ Loop : For each row in a SQL query dataset	⋮
19	Message box "Type:  \$recData[0]\$  Orders:  \$recData[1]\$  Quantity:  ..."	⋮
20	Database: Disconnect from "db_Access"	⋮

	A	B	C	D
1	Item Type	ORDERS	QUANTITY	PROFIT
2	Baby Food	7	40545	3886643.7
3	Beverages	8	56708	888047.28
4	Cereal	7	25877	2292443.43
5	Clothes	13	71260	5233334.4
6	Cosmetics	13	83718	14556048.66
7	Fruits	10	49998	120495.18
8	Household	9	44727	7412605.71
9	Meat	2	10675	610610
10	Office Supplies	12	46967	5929583.75
11	Personal Care	10	48708	1220622.48
12	Snacks	3	13637	751944.18
13	Vegetables	6	20051	1265819.63
		◀ ▶	Chapter15_Sales	⊕

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	(Ref)	(Title)	(Forename)	(Surname)	(Address)	(City)	(County)	(Postcode)	(Amount)	(Term)	(Interest)	(Payable)	(Monthly)
2	Q298	Mr	John	Pince	21 Hobart	Parkhar	Devon	EX39 5DJ	5000	24	0.034	5176.08	215.67
3	Q299	Mrs	Vannessa	Casper	45 Bradfiel	Newqu	Cornwall	TR7 1LS	3500	12	0.085	3657.12	304.76
4	Q300	Miss	Sarah	Mchughes	73 Parkfiel	Parwich	Derbyshire	DE6 1QN	7500	48	0.03	7961.76	165.87
5	Q301	Dr	David	Hawkin	30 Augtior	Norton	Staffordsh	WS11 9RH	8000	60	0.03	8616	143.6
6	Q302	Mr	Roger	Day	7 Richmon	Hilton	Aberdeens	AB24 2RR	4000	36	0.085	4524.48	125.68

	A	B
1	PlaylistId	Name
2		1 Music
3		2 Movies
4		3 TV Shows
5		4 Audiobooks
6		5 90's Music
7		6 Audiobooks
8		7 Movies
9		8 Music
10		9 Music Videos
11		10 TV Shows
12		11 Brazilian Music
13		12 Classical
14		13 Classical 101 - Deep Cuts
15		14 Classical 101 - Next Steps
16		15 Classical 101 - The Basics
17		16 Grunge
18		17 Heavy Metal Classic
19		18 On-The-Go 1

## Database: Connect

Connects to a database

Session name

db\_Access

Connection mode

User defined

Database type

Microsoft Access

Database file path

Control Room file Desktop file Variable

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter15\_Access.accdb

Required extensions: ".accdb", ".mdb"  
Only .accdb and .mdb files are allowed.

## Database: Disconnect

Disconnects from the database

Session name

db\_Access

21	□ Step "Updating to Databases"
22	Database: Connect to Microsoft Access in session "db_Access"
23	▶ □ Step "Inserting data - INSERT Statement"
24	▶ □ Step "Updating data - UPDATE Statement"
25	▶ □ Step "Deleting data - DELETE Statement"
26	Database: Disconnect from "db_Access"
27	// Comment "-----"

tblTypes	
	ItemType
	Baby Food
	Beverages
	Cereal
	Clothes
	Cosmetics
	Fruits
	Household
	Meat
	Office Supplies
	Personal Care
	Snacks
	Vegetables
*	

## Database: Insert/Update/Delete

Executes a statement at the database

Session name

” db\_Access

Statement

” INSERT INTO tblTypes (ItemType) VALUES 'Electrical';

Timeout for the query in seconds (optional)

#

## Database: Insert/Update/Delete

Executes a statement at the database

Session name

” db\_Access

Statement

” UPDATE tblTypes SET ItemType = "Fresh Fruits" WHERE ItemType = "Fruits"

Timeout for the query in seconds (optional)

#

## Database: Insert/Update/Delete

Executes a statement at the database

Session name

” db\_Access (x)

Statement

” DELETE FROM tblTypes WHERE ItemType = "Cereal"; (x)

Timeout for the query in seconds (optional)

# (x)

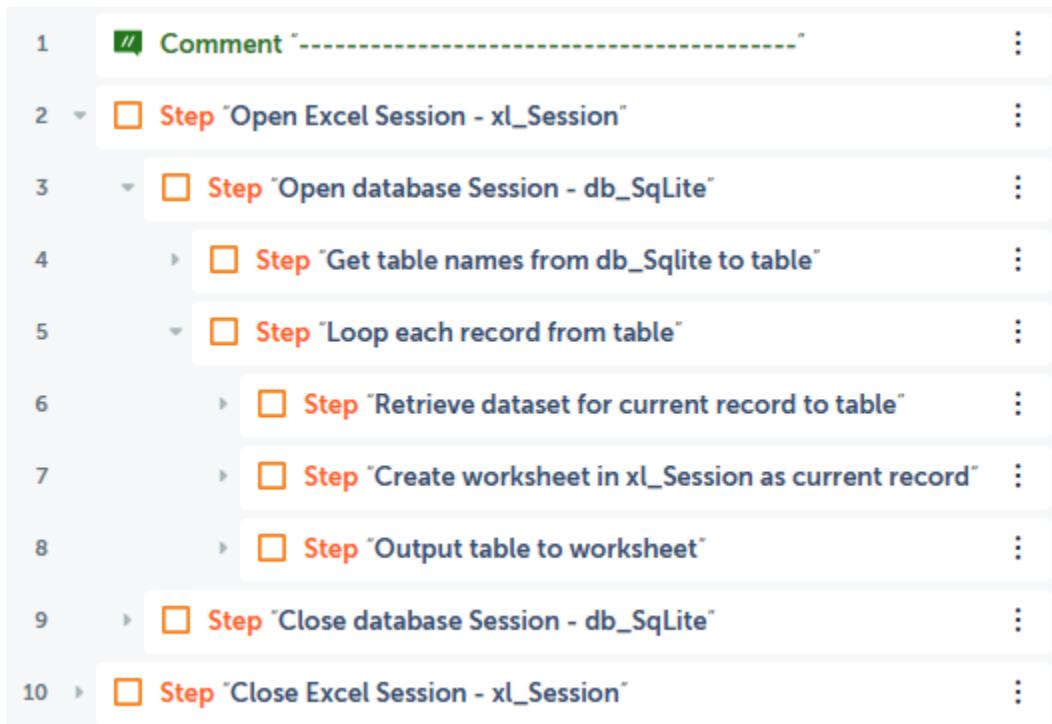
21	<input type="checkbox"/> Step "Updating Databases"	⋮
22	<input type="checkbox"/> Database: Connect to Microsoft Access in session "db_Access"	⋮
23	<input type="checkbox"/> Step "Inserting data - INSERT Statement"	⋮
24	<input type="checkbox"/> Database: Insert/Update/Delete using the SQL statement "INSERT INTO tblTypes (ItemType) VALUES 'E..."	⋮
25	<input type="checkbox"/> Step "Updating data - UPDATE Statement"	⋮
26	<input type="checkbox"/> Database: Insert/Update/Delete using the SQL statement "UPDATE tblTypes SET ItemType = "Fresh Fru..."	⋮
27	<input type="checkbox"/> Step "Deleting data - DELETE Statement"	⋮
28	<input type="checkbox"/> Database: Insert/Update/Delete using the SQL statement "DELETE FROM tblTypes WHERE ItemType = ..."	⋮
29	<input type="checkbox"/> Database: Disconnect from "db_Access"	⋮
30	<input type="checkbox"/> Comment "-----"	⋮

ItemType
Baby Food
Beverages
Clothes
Cosmetics
Fresh Fruits
Household
Meat
Office Supplies
Personal Care
Snacks
Vegetables
Electrical
*

# Chapter 16: Building Modular Bots and Sub-Tasks

 Comment	 List
 Data Table	 Loop
 Database	 Number
 Excel advanced	 Step
 File	 String
 If	 Task Bot

1. Check if the **Output.xlsx** file exists.
  1. If it does, then delete the **Output.xlsx** file.
2. Open an Excel session with the **Output.xlsx-xl\_Session** file.
3. Open a SQLite database session with the **Chapter15\_SQLite.db-db\_Sqlite** file.
  1. Retrieve all non-system table names from **db\_Sqlite** to **dataset-1**.
    1. Loop through each table name from **dataset-1**.
    2. Retrieve a maximum of 20 records from current table name in **dataset-1** to **dataset-2**.
      1. Create a new worksheet in **xl\_Session** Excel session as current table name.
      2. Output **dataset-2** to worksheet current table name.
      3. Close the **db\_Sqlite** SQLite database session.
4. Close the **xl\_Session** Excel session.



**Sub-Task Bot 1: Create a new Excel Workbook**

1. Check if the output file exists.
2. If it does, then delete the output file.
  1. Create a new output file (opens a new session).
3. Close the Excel session.

**Sub-Task Bot 2: Get non-system table names from SQLite database**

1. Create a SQLite database session.
  1. Run a SQL statement to extract all non-system table names.
  2. Loop through each table name.
    1. Create a comma-separated string of all the extracted table names.
2. Close the database session.

**Sub-Task Bot 3: Copy table data to a new worksheet**

1. Create a SQLite database session.
  1. Run a SQL statement to extract data from the specified table.
  2. Create an Excel session to the specified workbook.
    1. Create new worksheet as table name.
    2. Export table data to worksheet.
3. Close Excel session.
2. Close database session.

## Main-Task Bot: Export SQLite database non-system table data to Excel

1. Run Sub-Task 1.
2. Run Sub-Task 2.
3. Assign comma-separated table names string to a list.
4. Loop through table names list.
  1. Run Sub-Task 3.

### Create variable

Name

Max characters = 50

Description (optional)

Max characters = 255

Use as input

Use as output

Constant (read-only)



## If

Runs a sequence of actions if a condition is true

### Condition

File exists



Checks the file exists condition.

#### File path

“ \$strFile\_OutputXL\$

How long you would like to wait for this condition to be true?(Seconds)

# 0

## File: Delete

Deletes a file

#### File

“ \$strFile\_OutputXL\$

e.g. C:\MyDoc\\*.doc

## Excel advanced: Create workbook

Creates an Excel workbook. This action works with xlsx, xls, xlsm and csv files.

Session name

„ xl\_Session (x)

e.g. Session1 or S1

File path

„ \$strFile\_OutputXL\$ (x) Browse...

Required extensions: ".xlsx", ".xls", ".xlsm", ".csv"

e.g. C:\Working\Excel1.xlsx Folder(s) will be created if it doesn't exist

## Excel advanced: Close

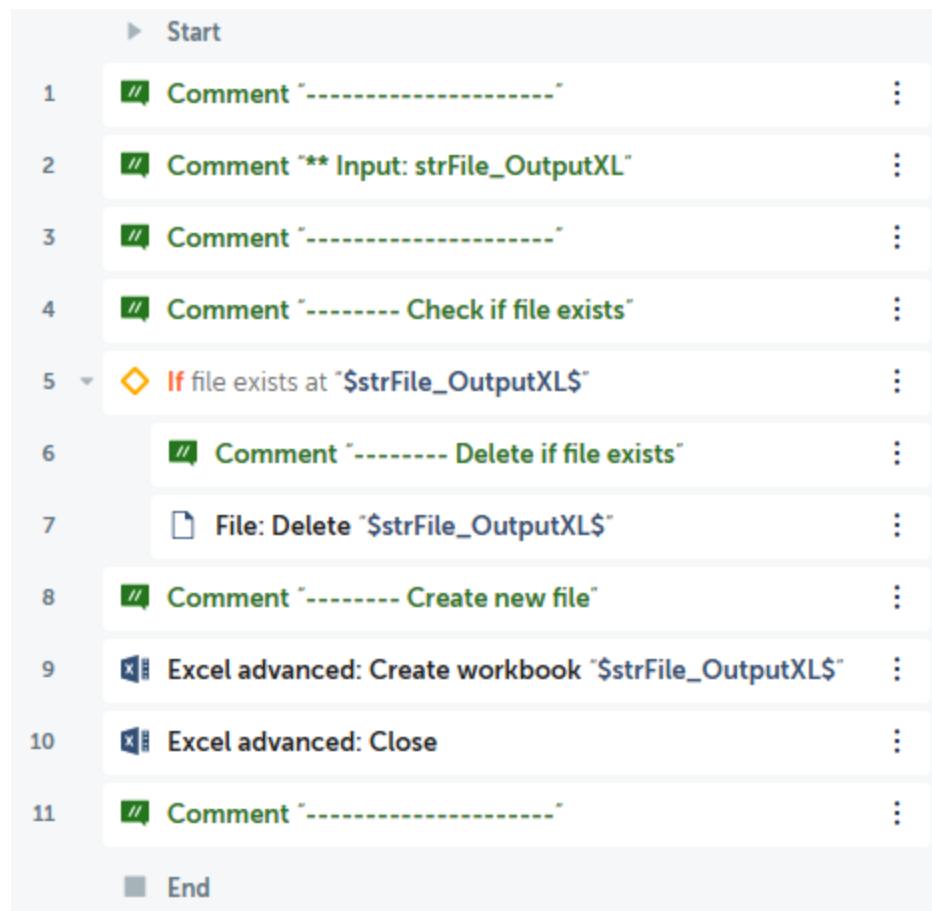
Closes an excel spreadsheet. This action works with xlsx, xls, xlsm and csv files.

Session name

„ xl\_Session (x)

e.g. Session1 or S1

Save changes when closing file



1	// Comment -----
2	// Comment ** Inputs: strFile_SqLiteDB
3	// Comment ** Outputs: strTableNames
4	// Comment -----
5	// Comment ----- Initialize variables
6	// Comment ----- Get table names
7	// Comment ----- Create comma separated ...
8	// Comment -----

### String: Assign

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

Select the destination string variable

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# 0

(x)

Specify value to assign to number

Select the destination number variable

numCounter - Number

▼

(x)<sub>+</sub>

```
5 // Comment ----- Initialize variables :
6 " String: Assign "" to $strTableNames$ :
7 # Number: Assign 0 to $numCounter$ :
```

## Database: Connect

Connects to a database

Session name  
“ db\_SqLite ”

Connection mode  
User defined

Database type  
SQLite

Database file path  
Control Room file Desktop file Variable

“ \$strFile\_SQLiteDB\$ ”

Required extension: ".db"  
Only .db files are allowed.

## Database: Read from

Retrieves data from the database

Session name  
“ db\_SQLite ”

Enter SELECT Statement  
“ SELECT name FROM sqlite\_master WHERE type='table' and name Not Like 'sqlite%'; ”

8	Comment "----- Get table names"	:
9	Database: Connect to SQLite in session "db_SQLite"	:
10	Database: Read from database using the SQL statement "SELECT name FR...	:

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each row in a SQL query dataset ▾

Iterator for each row in sql query dataset.

#### Session name

„ db\_SQLite

#### Assign the current row to this variable

recTableName - Record ▾

## Number: Increment

Increments a number by specified value

Enter number

# \$numCounter\$

(x)

Enter increment value

# 1

(x)

Increments number by value (e.g. 1)

Assign the output to variable

numCounter - Number

▼

(x)

+

## If

Runs a sequence of actions if a condition is true

Condition

Number condition

▼

^

:

Checks the number variable condition.

Source value

# \$numCounter\$

(x)

Operator

Equals to(=)

▼

Target value

# 1

(x)

Add condition

### **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ “ \$recTableName[0]\$

(x)

Select the destination string variable

strTableNames - String

▼

(x)

### **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

“ “ \$strTableNames\$,\$recTableName[0]\$

(x)

Select the destination string variable

strTableNames - String

▼

(x)

### **Database: Disconnect**

Disconnects from the database

Session name

“ “ db\_SqLite

(x)

11	Comment "----- Create comma separated string"	⋮
12	↳  Loop : For each row in a SQL query dataset	⋮
13	Number: Increment \$numCounter\$ by 1 and assign result to a \$numCounter\$ variable	⋮
14	↳  If number \$numCounter\$ Equals to(=) 1	⋮
15	String: Assign \$recTableName[0]\$ to \$strTableNames\$	⋮
16	↳  If: Else	⋮
17	String: Assign "\$strTableNames\$, \$recTab..." to \$strTableNames\$	⋮
18	Database: Disconnect from "db_SQLite"	⋮
19	Comment "-----"	⋮

1	Comment "-----"	⋮
2	Comment "** Inputs: numMaxRecords, strFile_OutputXL, strFile_SQLiteDB, strTableName"	⋮
3	Comment "-----"	⋮
4	Comment "----- Initialize variables"	⋮
5	↳  Step "Retrieve data from table"	⋮
6	↳  Step "Output data to workbook"	⋮
7	Comment "-----"	⋮

## Data Table: Clear content

Clears all content of the specified data table

Data table name

tblTableData - Table (x)

```
4  // Comment "----- Initialize variables"
5  ┌ Data Table: Clear content of data table $tblTableData$ └
```

## Database: Connect

Connects to a database

Session name

db\_SqLite (x)

Connection mode

User defined ▼

Database type

SqLite ▼

Database file path

Control Room file   Desktop file   Variable

\$strFile\_SqLiteDB\$ (x) Browse...

Required extension: ".db"  
Only .db files are allowed.

## Database: Export to data table

Exports data from a database to a user specified data table

Session name

 (x)

Enter SELECT Statement

 (x)

Maximum number of records to fetch (optional)

 (x)

Timeout for the query in seconds (optional)

 (x)

Assigned to

 (x)

## Database: Disconnect

Disconnects from the database

Session name

 (x)

- |   |  |   |
|---|--|---|
| 6 | <input type="checkbox"/> Step "Retrieve data from table"   | ⋮ |
| 7 | <input type="checkbox"/> Database: Connect to SQLite in session "db_SQLite"  | ⋮ |
| 8 | <input type="checkbox"/> Database: Export to data table \$tblTableData\$ from SQL query "Select * from \$strTableName\$" | ⋮ |
| 9 | <input type="checkbox"/> Database: Disconnect from "db_SQLite"   | ⋮ |

## Excel advanced: Open

Opens an excel spreadsheet. This action works with .xlsx, .xls, .xlsb, .xlsm and .csv files.

Session name

„ xl\_Session (x)

e.g. Session1 or S1

File path

Control Room file Desktop file Variable

„ \$strFile\_OutputXL\$ (x)

Browse...

Required extensions: ".xlsx", ".xls", ".xlsm", ".xlsb", ".csv"  
e.g. C:\Working\Excel1.xlsx

Specific sheet name

„

e.g. Sheet1 or SHEET1

Open in

Read-only mode

Read-write mode

## Excel advanced: Create worksheet

Creates an excel worksheet. This action works with xlsx, xls, xlsb and xlsm files.

Session name

„ xl\_Session

(x)

e.g. Session1 or S1

Create sheet by

Index

#

e.g. 1 or 3

Name

„ \$strTableName\$

(x)

e.g. Sheet1

## Excel advanced: Write from data table

Write a data table's contents into a specified worksheet. This action works with xlsx, xls, xlsm and xlsm files.

Session name

„ xl\_Session

(x)

e.g. Session1 or S1

Enter data table variable

tblTableData - Table

▼ (x) +

Enter worksheet name:

Active worksheet

Specific worksheet

„ \$strTableName\$

(x)

e.g. Sheet1

Specify the first cell

„ A1

(x)

e.g. A5 or B10

## Excel advanced: Close

Closes an excel spreadsheet. This action works with xlsx, xls, xlsm and csv files.

Session name

„ xl\_Session

(x)

e.g. Session1 or S1

Save changes when closing file

10	□ Step "Output data to workbook"	⋮
11	☒ Excel advanced: Open '\$strFile_OutputXL\$'	⋮
12	☒ Excel advanced: Create worksheet with name \$strTableName\$	⋮
13	☒ Excel advanced: Write from data table \$tblTableData\$ to worksheet \$strTableName\$	⋮
14	☒ Excel advanced: Close	⋮
15	/// Comment "-----"	⋮

1	/// Comment "-----"	⋮
2	/// Comment "** outputs: numMaxRecords, strFile_OutputXL, s...	⋮
3	/// Comment "-----"	⋮
4	/// Comment "----- Initialize variables"	⋮
5	▶ □ Step "Create Output Workbook"	⋮
6	▶ □ Step "Get table names from SQLite database"	⋮
7	▶ □ Step "Output to Excel"	⋮
8	/// Comment "-----"	⋮

## **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

” C:\Hands-On-RPA-with-AA-Sample-Data\Chapter16\_Output.xlsx

---

Select the destination string variable

strFile\_OutputXL - String

## **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

” C:\Hands-On-RPA-with-AA-Sample-Data\Chapter15\_SQLite.db

---

Select the destination string variable

strFile\_SqLiteDB - String

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# 20

(x)

Specify value to assign to number

Select the destination number variable

numMaxRecords - Number

▼

(x)

4	# Comment "----- Initialize variables"	:
5	" String: Assign "C:\Hands-On-RPA-with-AA..." to \$strFile_OutputXL\$	:
6	" String: Assign "C:\Hands-On-RPA-with-AA..." to \$strFile_SqLiteDB\$	:
7	# Number: Assign 20 to \$numMaxRecords\$	:

## Task Bot: Run

Runs the selected task bot.

Task Bot to run

Current Task Bot  Control Room file  Variable

Bots\Chapter16\_Sub\_CreateNewExcel

Input values

Set strFile\_OutputXL  
" \$strFile\_OutputXL\$ "

Do not repeat

8  Step 'Create Output Workbook'

9  Task Bot: Run 'Bots\Chapter16\_Sub\_CreateNewExcel' and assign output to variable

## Task Bot: Run

Runs the selected task bot.

Task Bot to run

Current Task Bot

Control Room file

Variable

Bots\Chapter16\_Sub\_GetSqLite



[Browse...](#)

Input values

Set strFile\_SqLiteDB

“ \$strFile\_SqLiteDB\$ ”

(x)

Do not repeat

Assign the output to variable (optional)

dctTableNames - Dictionary of Strings



(x)

10 ▾  Step "Get table names from SqLite database"



11 Task Bot: Run "Bots\Chapter16\_Sub\_GetSqLiteTableNames" and assign output to va...



## String: Split

Splits the source string into multiple strings using a delimiter.

Source string

“ \$dctTableNames{strTableNames}\$ ”

(x)

Delimiter

“ , ”

(x)

Delimiter is

- Case sensitive
- Not case sensitive

Split into substrings

- All possible
- Only

#

---

Assign the output to list variable

lstTableNames - List of Strings

▼

(x)

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each item in the list

iterate list

#### list

lstTableNames - List

(x)<sub>4</sub>

#### For

All items in the list

Range

#### From index (optional)

#

#### To index (optional)

#

#### Assign the current value to variable

strTableName - String

(x)<sub>4</sub>

## Task Bot: Run

Runs the selected task bot.

Task Bot to run

Current Task Bot    Control Room file    Variable

Bots\Chapter16\_Sub\_CopySQLiteTableToExcel

Input values

Set strFile\_OutputXL  
" \$strFile\_OutputXL\$

Set strFile\_SQLiteDB  
" \$strFile\_SQLiteDB\$

Set strTableName  
" \$strTableName\$

Set numMaxRecords  
# \$numMaxRecords\$

Do not repeat

12	<input type="checkbox"/> Step "Output to Excel"	<input type="button" value=":::"/>
13	" String: Split \$dctTableNames{strTableNames}\$ with delimiter "," and assign the result to ...	<input type="button" value=":::"/>
14	Loop : For each item in the list	<input type="button" value=":::"/>
15	Task Bot: Run "Bots\Chapter16_Sub_CopySQLiteTableToExcel" and assign output to...	<input type="button" value=":::"/>
16	Comment "-----"	<input type="button" value=":::"/>

Chapter16\_Output.xlsx - Excel

	trackid	name	albumid	mediatype	genreid	composer	millisec	bytes	unitprice	unitcost
1	1	For Those Balls to th	1	1	1	Angus Yo	343719	11170334	0.99	
2	2	Balls to th	2	2	1		342562	5510424	0.99	
3	3	Fast As a Restless	3	2	1	F. Baltes,	230619	3990994	0.99	
4	4	Princess	3	2	1	F. Baltes,	252051	4331779	0.99	
5	5	Put The F	1	1	1	Deaffy &	375418	6290521	0.99	
6	6	Let's Get	1	1	1	Angus Yo	205662	6713451	0.99	
7	7	Inject The	1	1	1	Angus Yo	233926	7636561	0.99	
8	8	Snowball	1	1	1	Angus Yo	210834	6852860	0.99	
9	9	Evil Walk	1	1	1	Angus Yo	203102	6599424	0.99	
10	10	C.O.D.	1	1	1	Angus Yo	263497	8611245	0.99	
11	11	Breaking	1	1	1	Angus Yo	199836	6566314	0.99	
12	12	Night Of	1	1	1	Angus Yo	263288	8596840	0.99	
13	13	Spellbou	1	1	1	Angus Yo	205688	6706347	0.99	
14	14	Go Down	4	1	1	AC/DC	331180	10847611	0.99	
15	15	Dog Eat D	4	1	1	AC/DC	215196	7032162	0.99	
16	16	Let There	4	1	1	AC/DC	366654	12021261	0.99	
17	17	Bad Boy B	4	1	1	AC/DC	267728	8776140	0.99	
18	18	Problem	4	1	1	AC/DC	325041	10617116	0.99	
19	19	Overdose	4	1	1	AC/DC	369319	12066294	0.99	

# Chapter 17: Running External Scripts

<input checked="" type="checkbox"/> Comment	<input checked="" type="checkbox"/> Python script
<input checked="" type="checkbox"/> List	<input checked="" type="checkbox"/> Step
<input checked="" type="checkbox"/> Message box	<input checked="" type="checkbox"/> String
<input checked="" type="checkbox"/> Number	<input checked="" type="checkbox"/> VBScript

```
1  # Comment ----- : ...
2  Step "Running VbScripts" : ...
3  # Comment ----- Importing a script file : ...
4  # Comment ----- Writing in-line scripts : ...
5  # Comment ----- Passing parameters : ...
6  # Comment ----- Returning value from functions : ...
7  # Comment ----- : ...
```

Chapter17\_HelloWorld.vbs - Notepad    - □ ×

File Edit Format View Help

```
msgbox "Hello World","","Script File"
```

## VBScript: Open

Opens a VBScript

New VBScript session

„ vbs\_Session (x)

Use the session name to refer to this file in other VBScript actions

VBScript

Import existing file

VBScript file

Control Room file **Desktop file** Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17\_HelloWorld.vbs (x)

**Browse...**

Required extension: ".vbs"

Manual input

Enter script here

1

## VBScript: Run function

Executes a VBScript function

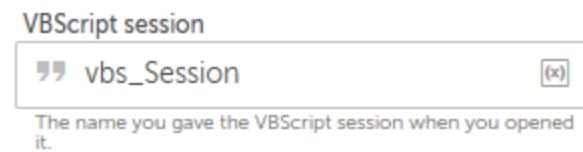
VBScript session

„ vbs\_Session (x)

The name you gave the VBScript session when you opened it.

## VBScript: Close

Closes VBScript script execution session



- |   |   |   |
|---|---|---|
| 3 | Comment "----- Importing a script file"                                     | ⋮ |
| 4 | VBScript: Open VBScript "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_H... | ⋮ |
| 5 | VBScript: Run function ""   | ⋮ |
| 6 | VBScript: Close VBScript "vbs_Session"                                      | ⋮ |

Script File      X

Hello World

OK

## VBScript: Open

Opens a VBScript

New VBScript session

vbs\_Session (x)

Use the session name to refer to this file in other VBScript actions

VBScript

Import existing file

VBScript file

Control Room file Desktop file Variable

Manual input

Enter script here

```
1 msgbox "Hello World","","In-Line Script"
```

## VBScript: Run function

Executes a VBScript function

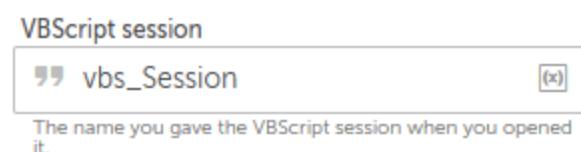
VBScript session

vbs\_Session (x)

The name you gave the VBScript session when you opened it.

## VBScript: Close

Closes VBScript script execution session



7	Comment "----- Writing in-line scripts"	⋮
8	VBScript: Open VBScript manual script of 1 lines	⋮
9	VBScript: Run function ""	⋮
10	VBScript: Close VBScript "vbs_Session"	⋮

In-Line Script X

Hello World

OK

### **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

” Husan

(x)

Select the destination string variable

strFirstname - String

▼

(x)

### **String: Assign**

Assign or Concatenate the given strings

Select the source string variable(s)/ value (optional)

” Mahey

(x)

Select the destination string variable

strSurname - String

▼

(x)

## List: Add item

Adds an item to the list at a given index position

List variable

(x)

Item to be added

(x)

Add item

To end of list

At list index

## VBScript: Open

Opens a VBScript

New VBScript session

 (x)

Use the session name to refer to this file in other VBScript actions

VBScript

Import existing file

Manual input

VBScript file

Control Room file  Desktop file  Variable

 (x) Browse...

Required extension: ".vbs"

Enter script here

## VBScript: Run function

Executes a VBScript function

VBScript session

 vbs\_Session (x)

The name you gave the VBScript session when you opened it.

Enter name of function to be executed (optional)

 (x)

e.g. AddNumbers

Parameters (optional)

lstParameters - List (x) +

## VBScript: Close

Closes VBScript script execution session

VBScript session

 vbs\_Session (x)

The name you gave the VBScript session when you opened it.

11	Comment "----- Passing parameters"	:
12	String: Assign "Husan" to \$strFirstname\$	:
13	String: Assign "Mahey" to \$strSurname\$	:
14	List: Add item \$strFirstname\$ to \$lstParameters\$	:
15	List: Add item \$strSurname\$ to \$lstParameters\$	:
16	VBScript: Open VBScript "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_...	:
17	VBScript: Run function ""	:
18	VBScript: Close VBScript "vbs_Session"	:

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# 25

(x)

Specify value to assign to number

Select the destination number variable

numValue - Number

▼

(x)

## VBScript: Open

Opens a VBScript

### New VBScript session

„ vbs\_Session (x)

Use the session name to refer to this file in other VBScript actions

### VBScript

- Import existing file

VBScript file

Control Room file Desktop file Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17\_Functions.vbs (x)

[Browse...](#)

Required extension: ".vbs"

- Manual input

Enter script here

1

## VBScript: Run function

Executes a VBScript function

### VBScript session

„ vbs\_Session (x)

The name you gave the VBScript session when you opened it.

### Enter name of function to be executed (optional)

„ procSquareRoot (x)

e.g. AddNumbers

### Parameters (optional)

numValue - Number ▼ (x) +

### Assign the output to variable (optional)

strReturnValue - String ▼ (x) +

## VBScript: Close

Closes VBScript script execution session

VBScript session

„ vbs\_Session

(x)

The name you gave the VBScript session when you opened it.

## Message box

Displays a message box

Enter the message box window title

„ Returning values from a VbScript

(x)

Enter the message to display

„ Returned value: \$strReturnValue\$

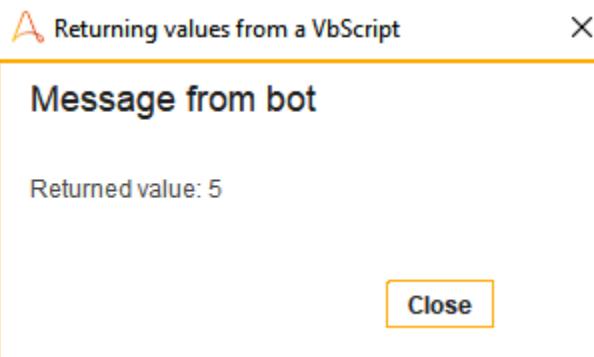
(x)

Scrollbar after lines

# 30

(x)

```
19  // Comment "----- Returning value from functions"
20  # Number: Assign 25 to $numValue$
21  $ VBScript: Open VBScript "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_...
22  $ VBScript: Run function "procSquareRoot"
23  $ VBScript: Close VBScript "vbs_Session"
24  # Message box "Returned value: $strReturnValue$"
25  // Comment "-----"
```



Chapter17\_SquareRoot.py - C:\Hands-On-RPA-with-AA

---

```
File Edit Format Run Options Window Help
import math

def procSquareRoot (intValue ):
    intResult = math.sqrt(intValue)
    return intResult
```

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# 36

(x)

Specify value to assign to number

Select the destination number variable

numValue - Number

▼

(x)

+

## Python script: Open

Opens a Python script

New Python session

py\_Session

(x)

Use the session name to refer to this file in other Python actions

Python

Import existing file

Python file

Control Room file

Desktop file

Variable

py\_C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17\_SquareRoot.py

(x) Browse...

Required extension: ".py"

Manual input

Enter script here

1

Python runtime version

2

3

## Python script: Execute function

Executes a Python function

### Python session

py\_Session (x)

The name you gave the Python session when you opened it.

### Enter name of function to be executed

procSquareRoot (x)

e.g. AddNumbers

### Arguments to the function (optional)

numValue - Number (x) 4

Supports 0 or 1 argument

---

### Assign the output to variable (optional)

strReturnValue - String (x) 1

## Python script: Close

Closes Python script execution session

### Python session

py\_Session (x)

The name you gave the Python session when you opened it.

## Message box

Displays a message box

Enter the message box window title

“ Returning values from a Python Script (x)

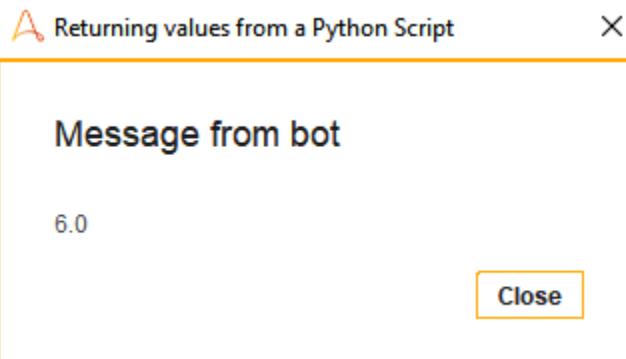
Enter the message to display

“ \$strReturnValue\$ (x)

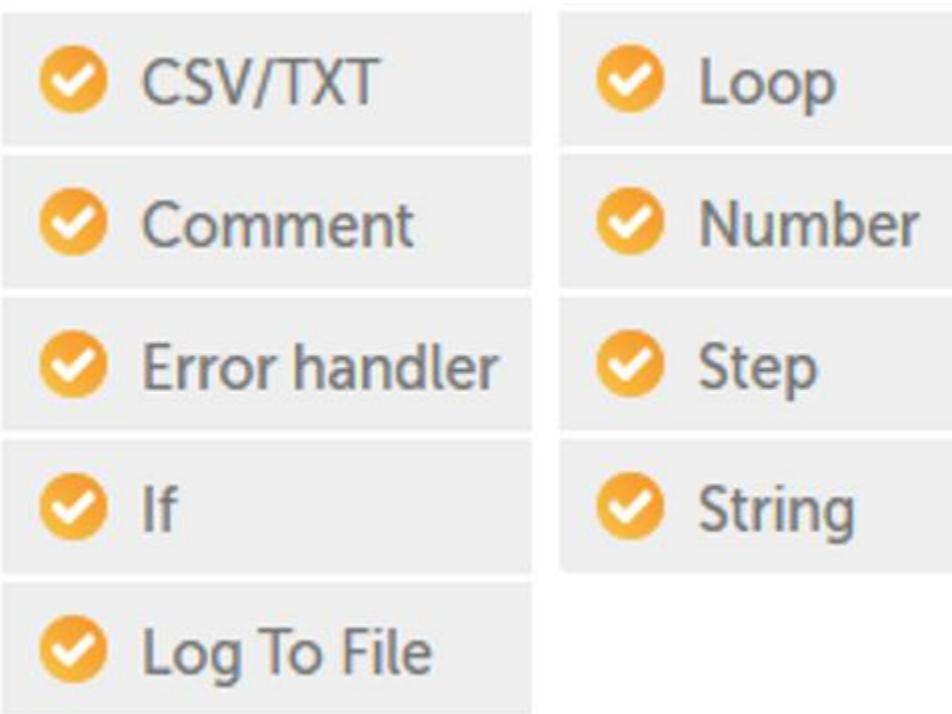
Scrollbar after lines

# 30 (x)

25	<input type="checkbox"/> Step "Python Scripts"	⋮
26	# Number: Assign 36 to \$numValue\$	⋮
27	+ Python script: Open Python script "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17..."	⋮
28	+ Python script: Execute function "procSquareRoot" with parameter \$numValue\$	⋮
29	+ Python script: Close Python "py_Session"	⋮
30	✉ Message box \$strReturnValue\$	⋮
31	〃 Comment "-----"	⋮



## Chapter 18: Managing Errors



### Error handler

- △ Try
- △ Catch
- △ Finally
- △ Throw

	A	B	C
1	Segment	Product	Price
2	Enterprise	Amarilla	125
3	Enterprise	Carretera	50
4	Enterprise	Montana	100
5	Enterprise	Paseo	15
6	Enterprise	Velo	350
7	Enterprise	VTT	40
8	Government	Amarilla	125

- 1    Comment "-----"
- 2    Comment "----- create new csv output file"
- 3    Comment "----- open products csv file and read each row"
- 4    Step "calculate new price and update file"
- 5    Comment "----- close products csv file"
- 6    Comment "-----"

numNewPrice :  
 numPrice :  
 recProduct :  
 strNewPrice :

## Log to file

Logs any text into a file

### File path

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18\_UpdatedProducts.csv

### Enter text to log

„ Segment,Product,Price

Append timestamp

### When logging

Append to existing log file

Overwrite existing log file

### Encoding

ANSI

## CSV/TXT: Open

Opens a CSV/TXT file

### Session name

„ csv\_Session

### File path

Control Room file  Desktop file  Variable

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18\_Products.csv

Required extensions: ".csv", ".txt", ".tsv"

Contains header

### Delimiter

Comma

## CSV/TXT: Close

Closes CSV/TXT session

Session name

csv\_Session

[x]

1	Comment "-----"	⋮
2	Comment "----- create new csv output file"	⋮
3	Log to file "Segment,Product,Price" to "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18_SegmentProductPrice.csv"	⋮
4	Comment "----- open products csv file and read each row"	⋮
5	CSV/TXT: Open "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18_Products.csv"	⋮
6	▶  Step "calculate new price and update file"	⋮
7	Comment "----- close products csv file"	⋮
8	CSV/TXT: Close csv/txt "csv_Session"	⋮
9	Comment "-----"	⋮

## Loop

Repeats the actions in a loop until a break

### Loop Type

Iterator

#### Iterator

For each row in CSV/TXT

Iterator for each row in CSV/TXT

#### Session name

“ csv\_Session (x)

#### Assign the current row to this variable

recProduct - Record (x)

## String: To number

Converts a string to a number

#### Enter the string

“ \$recProduct[2]\$ (x)

String entered must be a valid number

---

#### Assign the output to variable

numPrice - Number (x)

## Number: Assign

Assigns user specified number to number variable

Select the source string variable/ value

# \$numPrice\$ \* 0.9

(x)

Specify value to assign to number

Select the destination number variable

numNewPrice - Number

▼

(x)

## Number: To string

Converts a user specified number to a string

Enter a number

# \$numNewPrice\$

(x)

Specify number to convert to string e.g. 35

Enter number of digits after decimal (number format)

# 2

(x)

e.g for number 35.265, enter the number of digits after decimal as 3

Assign the output to variable

strNewPrice - String

▼

(x)

## Log to file

Logs any text into a file

### File path

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18\_UpdatedProducts.csv

### Enter text to log

„ \$recProduct[0]\$. \$recProduct[1]\$. \$strNewPrice\$

Append timestamp

### When logging

Append to existing log file

Overwrite existing log file

### Encoding

ANSI

6	☐ Step "calculate new price and update file"	⋮
7	⌚ Loop for each row in csv/txt	⋮
8	„ String: To number Convert string \$recProduct[2]\$ to a number and assign it to \$numPrice\$	⋮
9	# Number: Assign "\$numPrice\$ * 0.9" to \$numNewPrice\$	⋮
10	# Number: To string convert \$numNewPrice\$ to a string datatype and assign it to \$strNewPrice\$	⋮
11	☞ Log to file "\$recProduct[0]\$. \$recProduct[1]\$. \$strNewPrice\$" to "C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18_UpdatedProducts.csv"	⋮
12	〃 Comment "----- close products csv file"	⋮

	A	B	C
1	Segment	Product	Price
2	Enterprise	Amarilla	112.5
3	Enterprise	Carretera	45
4	Enterprise	Montana	90
5	Enterprise	Paseo	13.5
6	Enterprise	Velo	315
7	Enterprise	VTT	36
8	Government	Amarilla	112.5

Original

```

Chapter18_Products.csv - Notepad
File Edit Format View Help
Segment,Product,Price
Enterprise,Amarilla,125
Enterprise,Carretera,50
Enterprise,Montana,100
Enterprise,Paseo,15
Enterprise,Velo,350
Enterprise,VTT,40
Government,Amarilla,125
Government,Carretera,50
Government,Montana,100

```

Updated

```

Chapter18_Products.csv - Notepad
File Edit Format View Help
Segment,Product,Price
Enterprise,Amarilla,125
Enterprise,Carretera,50
Enterprise,Montana,100
Enterprise,Paseo,
Enterprise,Velo,350
Enterprise,VTT,40
Government,Amarilla,125
Government,Carretera,50
Government,Montana,100

```





### There was a problem at line 8

This may be due to the following reason:

The input entered in 'sourceString' is incorrect.

To continue, edit the bot and fix the error. Then, try again.

If you continue to see this message, please contact your system administrator.

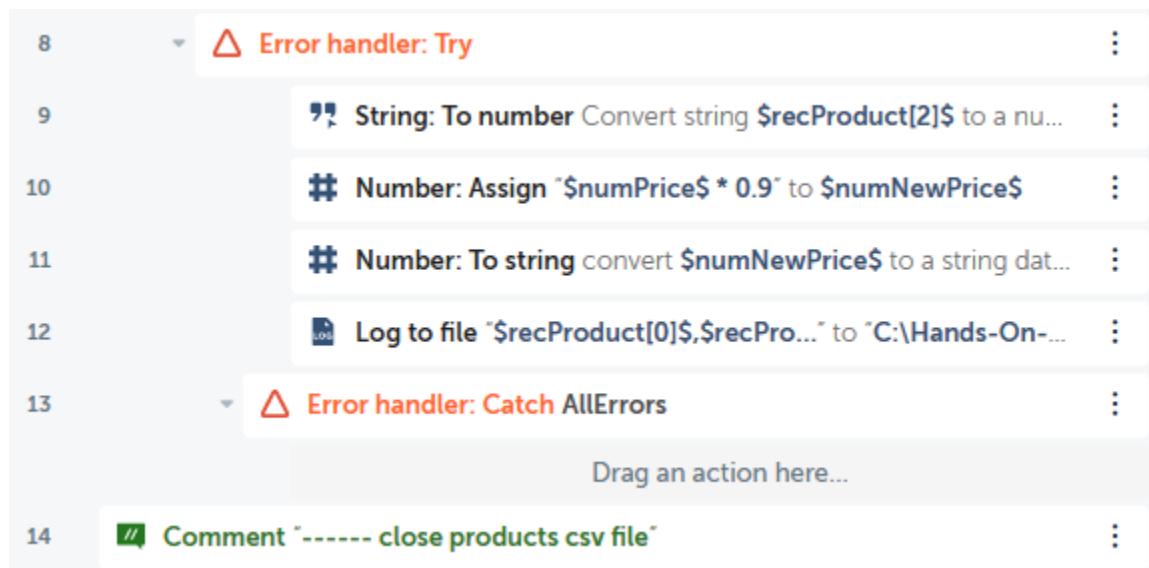
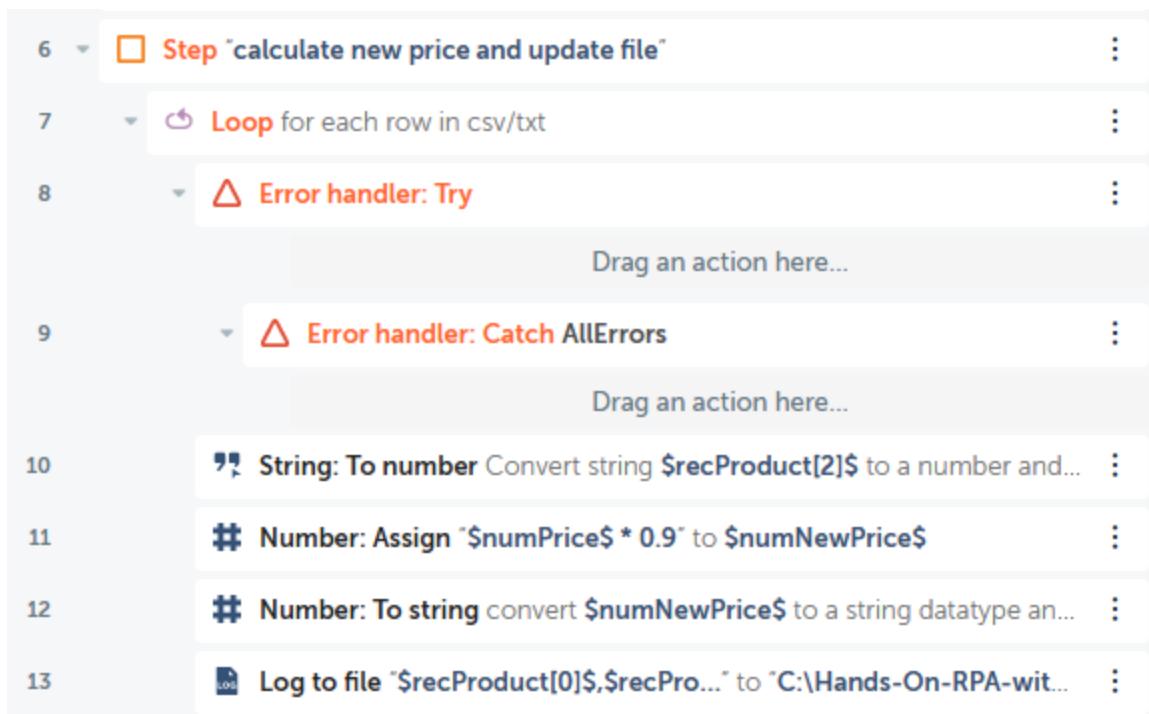
Code: `bot.execution.error`

[Close](#)

Chapter18\_UpdatedProducts.csv -...

File Edit Format View Help

Segment	Product	Price
Enterprise	Amarilla	112.50
Enterprise	Carretera	45.00
Enterprise	Montana	90.00



## Error handler: Catch

Run a sequence of commands if the commands in Try fail with an exception.

### Exception

AllErrors

Indicates a generic bot exception when a bot is run  
Code: AA-BotException-111-111

---

### Assign exception message to (optional)

strErrDesc - String

(x) 

### Assign line number to (optional)

numErrLine - Number

(x) 

## Number: To string

Converts a user specified number to a string

### Enter a number

# \$numErrLine\$

(x)

Specify number to convert to string e.g. 35

### Enter number of digits after decimal (number format)

# 0

(x)

e.g for number 35.265, enter the number of digits after decimal as  
3

---

### Assign the output to variable

strErrLine - String

(x) 

## Log to file

Logs any text into a file

File path

„ C:\Hands-On-RPA-with-AA-Sample-Data\Chapter18\_ErrorLog.csv (x) Browse...

Enter text to log

„ Desc: \$strErrDesc\$, Line: \$strErrLine\$, (Record: \$recProduct[0]\$.\$recProduct[1]\$.\$recProduct[2]\$) (x)

Append timestamp

When logging

- Append to existing log file
- Overwrite existing log file

Encoding

ANSI ▼

13	△ Error handler: Catch AllErrors	⋮
14	# Number: To string convert \$numErrLine\$ to a string dataty...	⋮
15	log Log to file "Desc: \$strErrDesc\$, Lin..." to "C:\Hands-On-RP...	⋮

Chapter18\_UpdatedProducts.csv - ...

File Edit Format View Help

Segment	Product	Price
Enterprise	Amarilla	112.50
Enterprise	Carretera	45.00
Enterprise	Montana	90.00
Enterprise	Velo	315.00
Enterprise	VTT	36.00
Government	Amarilla	112.50
Government	Carretera	45.00
Government	Montana	90.00
Government	Paseo	13.50
Government	Velo	315.00

Chapter18\_ErrorLog.csv - Notepad

File Edit Format View Help

(14/10/2020 14:07:06) Desc: The input entered in  
'sourceString' is incorrect., Line: 9, (Record:  
Enterprise,Paseo,)