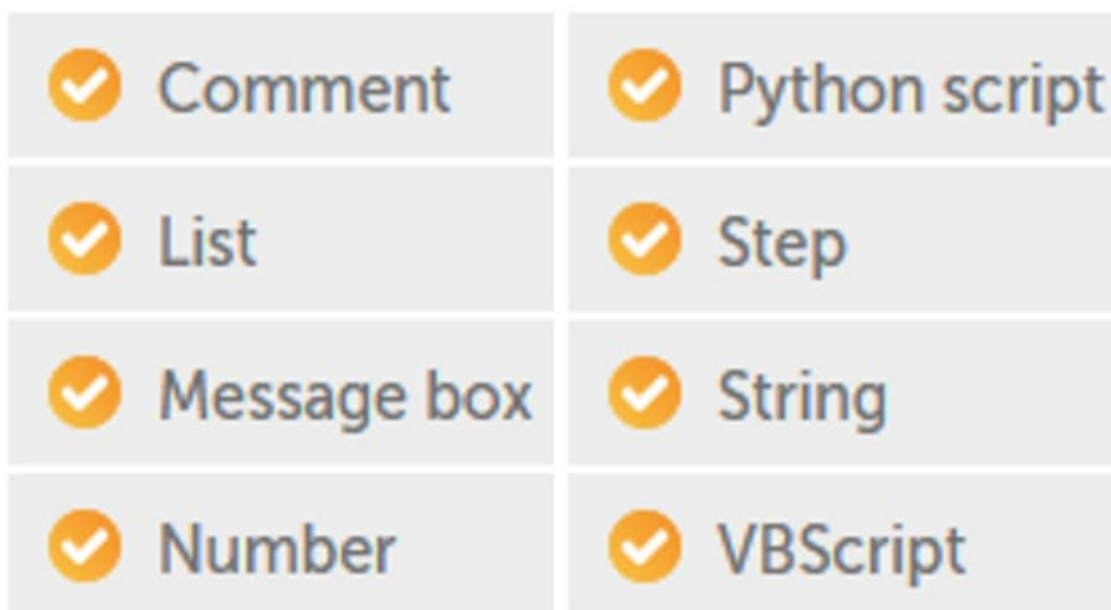


Lab 17: Running External Scripts

Previously, we looked at building modular bots and how to design efficient bots with reusable sub bots. The topics covered the approach to take when building modular bots, how to run sub bots from within the main bot, and also how you would pass parameters between these bots. There was also an extensive practical walk-through based on a real-life business scenario. A lot of valuable skills and experience were gained in the last lab.

In this lab, you will learn about how to expand on Automation Anywhere capabilities by running external components. There may be instances where you think a task cannot be easily automated using the actions available or it would take too many actions to achieve the required results. In these cases, it may prove easier to run a script such as a VBScript or a Python script. Well, Automation Anywhere allows you to run these as part of your overall RPA solution. You will learn how to run these scripts, including how to pass and receive values from them.

In this lab, we will be using the following packages:



We will look at the different types of scripts that can be executed as well as passing parameters. The walk-throughs will take you through each stage step by step, giving you valuable practical experience. Some sample scripts are included as part of the GitHub repository. These will be used in the walk-throughs.

In this lab, we will cover the following:

- Running VBScripts
- Running Python scripts

For Automation Anywhere to run scripts, you have to first create a session with a script file or an inline script. Once a session is established, the script or functions can be executed. When finished, the session needs to be closed.

Technical requirements

In order to install the Automation Anywhere Bot agent, the following requirements are necessary:

- Windows operating system version 7 or higher
- A processor with a minimum speed of 3 GHz

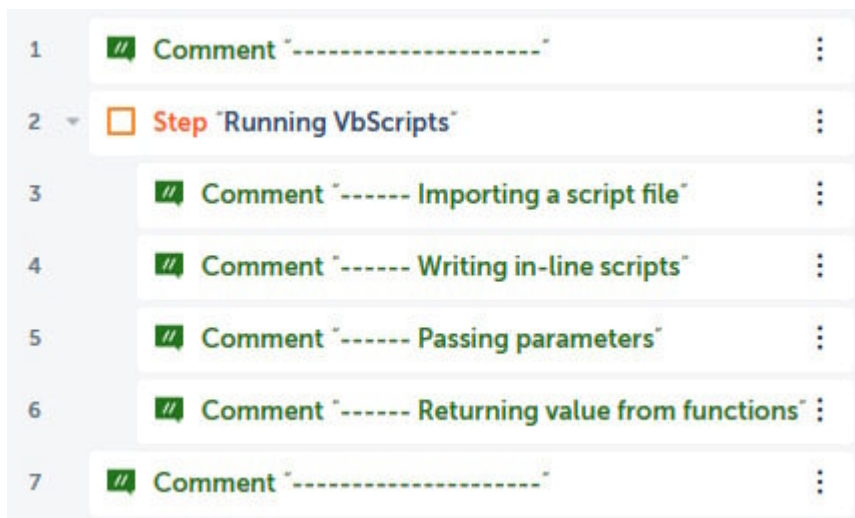
- A minimum of 4 GB RAM
- At least 100 MB of hard disk space
- Google Chrome
- You must have completed registration with Automation Anywhere Community Edition
- You must have logged on successfully to Automation Anywhere Community Edition
- A successfully registered local device
- Successfully downloaded sample data from GitHub
- Python version 2 or 3 installed

Running VBScripts

VBScripts are widely used by developers as they are easily written using any text editor, such as Notepad. A VBScript file will have the `.vbs` extension. This file may contain just a script or some functions and functions may return a value. Automation Anywhere allows you to import a VBScript file as well as letting you write the script inline within Automation Anywhere. You can also pass parameters to a script and receive a return value. In the next sections, you will learn all about importing a script file and inline scripting. You will also learn how to pass parameters to a script and get return values from functions. We can start the walk-through by building the outline using steps and comments.

Let's start this walk-through by executing the following steps:

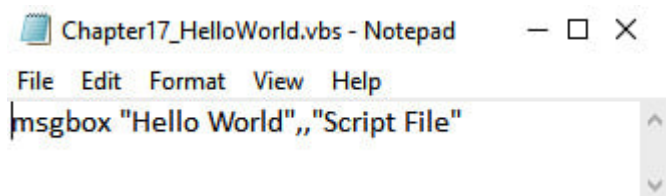
1. Log in to **Control Room**.
2. Create a new bot and call it `Chapter17 - External Scripts` in the folder `\Bot\`.
3. Add a new **Comment** action as `"-----"` on line **1**, and click on **Save**.
4. Add a **Step** just below line **1**, set the **Title** property as `Running VbScripts`, and click on **Save**.
5. Add a new **Comment** action below line **2** as `"----- Importing a script file"`, ensuring it is within the **Step** on line **2** and click on **Save**.
6. Add a new **Comment** action below line **3** as `"----- Writing in-line scripts"`, ensuring it is within the **Step** on line **2** and click on **Save**.
7. Add a new **Comment** action below line **4** as `"----- Passing parameters"`, ensuring it is within the **Step** on line **2** and click on **Save**.
8. Add a new **Comment** action below line **5** as `"----- Returning value from functions"`, ensuring it is within the **Step** on line **2** and click on **Save**.
9. Add a new **Comment** action below line **6** as `"-----"`, ensuring it is not within the **Step** on line **2** and click on **Save**. The development interface should look like this:



We are now ready to start working with VBScripts. We will start with how to run a script file.

Importing a script file

In order to make this guide as easy as possible, we will start with a simple *Hello World* example. We want our VBScript to show a message box containing the text `Hello World`. A VBScript file is available in the GitHub repository called `Chapter17_HelloWorld.vbs`. You can run this file independently just by double-clicking on it. The file only has one line of code as shown here:



In the following walk-through, you will learn how to create a session and run this script file.

Let's start this walk-through by executing the following steps:

1. To create our session with the script file, drag the **VBScript: Open** action just below line **3**, ensuring it is within the **Step** on line **2**.
2. Set the following properties for the **VBScript: Open** action on line **4**:

New VBScript session: `vbs_Session`

VB Script: Import existing file

VB Script file: Desktop file -- `C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_HelloWorld.vbs`

The properties should look as shown in the following screenshot:

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

- Click on **Save**.
- To run the script file, drag the **VBScript: Run function** action just below line 4, ensuring it is within the **Step** on line 2.
- Set the following properties for the **VBScript: Run function** action on line 5:

VBScript session: vbs_Session

The properties should look as shown in the following screenshot:

VBScript: Run function

Executes a VBScript function

VBScript session

vbs_Session

(x)

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

- Click on **Save**.
- We just have to close the session. Add the **VBScript: Close** action just below line 5, ensuring it is within the **Step** on line 2.
- Set the following properties for the **VBScript: Close** action on line 6:



VBScript session: vbs_Session

The properties should look as shown in the following screenshot:

VBScript: Close

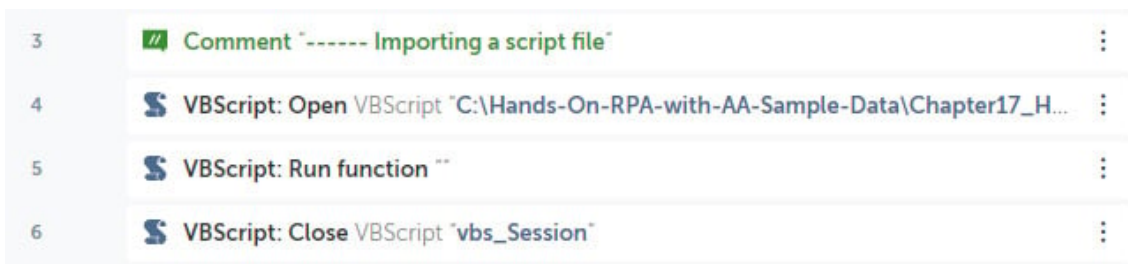
Closes VBScript script execution session

VBScript session

 vbs_Session 

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

9. Click on **Save**. The development interface for this section should look like this:



That's it -- your bot will now run the VBScript file. Give it a test. The VBScript should show the following message box:



In the next section, you will learn how to use inline scripting instead of using a script file.

Writing inline scripts

Instead of using a script file, you can write the lines of script directly within the action. In the following walk-through, we will demonstrate how to create an inline script to perform the same *Hello World* example as before.

Let's start this walk-through by executing the following steps:

1. Add the script line when you create the session by dragging the **VBScript: Open** action just below line 7, ensuring it is within the **Step** on line 2.
2. Set the following properties for the **VBScript: Open** action on line 8:

New VBScript session: vbs_Session

VB Script: Manual input

Enter script here: 1 msgbox "Hello World",,"In-Line Script File" (press *Enter* to enter new lines)

The properties should look as shown in the following screenshot:

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

Browse...

☒ Manual input

Enter script here

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

3. Click on **Save**.
4. To run the script file, drag the **VBScript: Run function** action just below line 8, ensuring it is within the **Step** on line 2.
5. Set the following properties for the **VBScript: Run function** action on line 9:

VBScript session: vbs_Session

The properties should look as shown in the following screenshot:

VBScript: Run function

Executes a VBScript function

VBScript session

” vbs_Session

(x)

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

6. Click on **Save**.
7. We just have to close the session. Add the **VBScript: Close** action just below line **9**, ensuring it is within the **Step** on line **2**.
8. Set the following properties for the **VBScript: Close** action on line **10**:

VBScript session: `vbs_Session`

The properties should look as shown in the following screenshot:

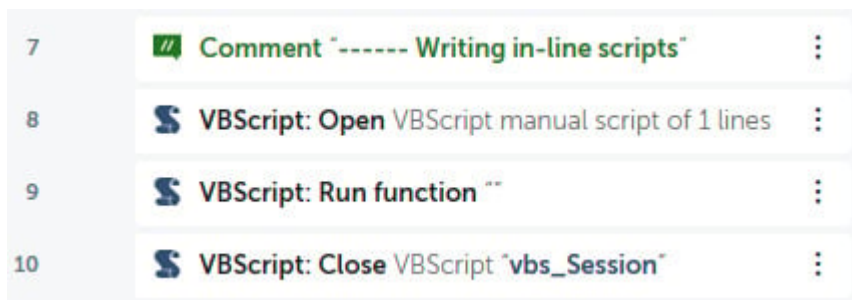
VBScript: Close

Closes VBScript script execution session

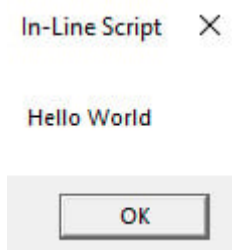
VBScript session

`” vbs_Session (x)`
The name you gave the VBScript session when you opened it.

9. Click on **Save**. The development interface for this section should look like this:



Although this is a simple one-line script, it demonstrates how to write your code directly within Automation Anywhere. When you run the bot, the VBScript will show the following message box:



We have looked at running scripts both from a file and inline scripting. In a number of cases, you will want to pass values to a script. In the next section, you will learn how to pass parameters to a script file.

Passing parameters

In this section, we will look at passing parameters. When passing parameters to a VBScript, they need to be in the form of a `List` type variable. A sample script file is included in the GitHub repository, which takes two parameters. This file is `Chapter17_InputParameters.vbs`. To use a parameter within a VBScript, you need to utilize the following syntax:

```
WScript.Arguments(0)Copy
```

The index number (`0`) represents the item in the `List` and it uses a zero index, so the first value is indexed at `0`. The contents of the script file are as follows:

```
strValue01 = WScript.Arguments(0)
strValue02 = WScript.Arguments(1)
msgbox "Hello " & strValue01 & " " & strValue02,, "Input Parameters"Copy
```

For this example, we will create two `String` type variables and assign a first name and a surname as values. Then we will assign these `String` variables to a `List` variable before sending them to our script file.

Let's start this walk-through by executing the following steps:

1. Create two `String` type variables called `strFirstname` and `strSurname`.
2. Create a `List` type variable called `lstParameters`.
3. Assign the `strFirstname` variable with a value by adding the **String: Assign** action just below line **11**, ensuring it is within the **Step** on line **2**.
4. Set the following properties for the **String: Assign** action on line **12**:

Select the source string variable(s)/ value (optional): `Husan` (enter your first name)

Select the destination string variable: `strFirstname - String`

The properties should look as shown in the following screenshot:

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) +

5. Click on **Save**.
6. Assign the `strSurname` variable with a value by adding the **String: Assign** action just below line **12**, ensuring it is within the **Step** on line **2**.

7. Set the following properties for the **String: Assign** action on line **13**:

Select the source string variable(s)/ value (optional): Mahey *(enter your surname)*

Select the destination string variable: strSurname - String

The properties should look as shown in the following screenshot:

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)

8. Click on **Save**.

9. To add this variable to the **List** type variable, drag the **List: Add item** action just below line **13**, ensuring it is within the **Step** on line **2**.

10. Set the following properties for the **List: Add item** action on line **14**:

List variable: lstParameters - List

Item to be added: strFirstname - String

Add Item: To end of list

The properties should look as shown in the following screenshot:

List: Add item

Adds an item to the list at a given index position

List variable

lstParameters - List (x) +

Item to be added

strFirstname - String (x) +

Add item

☒ To end of list

☐ At list index

#

11. Click on **Save**.
12. Add the `strSurname` variable to the `List` variable by repeating *steps 9 to 11* for the `String` variable `strSurname` just below line **14**.
13. We can now create our session by dragging the **VBScript: Open** action just below line **15**, ensuring it is within the **Step** on line **2**.
14. Set the following properties for the **VBScript: Open** action on line **16**:

New VBScript session: `vbs_Session`

VB Script: Import existing file

VB Script file: Desktop file - `C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_InputParamters.vbs`

The properties should look as shown in the following screenshot:

VBScript: Open

Opens a VBScript

New VBScript session

vbs_Session

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_InputParamters.vbs

Required extension: ".vbs"

Browse...

☐ Manual input

Enter script here

1

15. Click on **Save**.
16. To run the script file and pass the `List` type variable, add the **VBScript: Run function** action just below line **16**, ensuring it is within the **Step** on line **2**.
17. Click on **Save**.
18. Set the following properties for the **VBScript: Run function** action on line **17**:

VBScript session: vbs_Session

Parameters: IstParameters - List

The properties should look as shown in the following screenshot:

VBScript: Run function

Executes a VBScript function

VBScript session

vbs_Session

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

Enter name of function to be executed (optional)

e.g. AddNumbers

Parameters (optional)

IstParameters - List

(x)

19. Click on **Save**.
20. We just have to close the session. Add the **VBScript: Close** action just below line **17**, ensuring it is within the **Step** on line **2**.
21. Set the following properties for the **VBScript: Close** action on line **18**:

VBScript session: `vbs_Session`

The properties should look as shown in the following screenshot:

VBScript: Close

Closes VBScript script execution session

VBScript session

🔍

(x)

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

22. Click on **Save**. The development interface for this section should look like this:

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"	⋮

When you run the bot to test it, it will run the specified VBScript file, which should display a message box with the first name and surname. The values were passed from the bot to the script. This gives you an understanding of how to pass values from Automation Anywhere to a VBScript. In the next section, we will look at receiving values from a VBScript function.

Returning values from functions

With VBScripts, we know a function can return a value. You can also send a `Number`, `String`, or `Boolean` type variable to a function. In this section, you will learn about passing a parameter and receiving a result from a function within a VBScript. A sample script file is included in the GitHub repository; the file we will use is called

`Chapter17_Functions.vbs`.

In this walk-through, we will run the function called `procSquareRoot`. This function takes a `Number` type variable and calculates the square root of this value. This value is then returned back to Automation Anywhere.

For this walk-through, we will create two variables, a `String` type for the output and a `Number` type for the input. Then we will assign these `String` variables to a `List` variable before sending them to our script file.

Let's start this walk-through by executing the following steps:

1. To store the input value, create a `Number` type variable called `numValue`.
2. To store the returned value, create a `String` type variable called `strReturnValue`.
3. Assign the `numValue` variable with a value by adding the **Number: Assign** action just below line **19**, ensuring it is within the **Step** on line **2**.
4. Set the following properties for the **Number: Assign** action on line **20**:

Select the source string variable/ value: `25`

Select the destination number variable: `numValue - Number`

The properties should look as shown in the following screenshot:

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)

5. Click on **Save**.
6. We can now create our session by dragging the **VBScript: Open** action just below line **20**, ensuring it is within the **Step** on line **2**.
7. Set the following properties for the **VBScript: Open** action on line **16**:

New VBScript session: `vbs_Session`

VB Script: Import existing file

VB Script file: Desktop file -- `C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_Functions.vbs`

The properties should look as shown in the following screenshot:

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

8. Click on **Save**.
9. To run the function in the script file and pass the `numValue` variable and get the results to the `strReturnValue` variable, add the **VBScript: Run function** action just below line **21**, ensuring it is within the **Step** on line **2**.
10. Set the following properties for the **VBScript: Run function** action on line **22**:

VBScript session: `vbs_Session`

Enter name of function to be executed: `procSquareRoot`

Parameters: `numValue` -- Number

Assign the output to variable: `strReturnValue` - String

The properties should look as shown in the following screenshot:

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) +

11. Click on **Save**.
12. To close the session, add the **VBScript: Close** action just below line **22**, ensuring it is within the **Step** on line **2**.
13. Set the following properties for the **VBScript: Close** action on line **23**:

VBScript session: vbs_Session

The properties should look as shown in the following screenshot:

VBScript: Close

Closes VBScript script execution session

VBScript session

🔗 vbs_Session (x)

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

14. Click on **Save**.
15. Add a **Message box** to see the results returned by dragging the **Message box** action just below line **23**, ensuring it is within the **Step** on line **2**.

Set the following properties for the **Message box** action on line **24**:

Enter the message box window title: `Returning values from a VbScript`

Enter the message to display: `Returned value: $strReturnValue$`

Scrollbar after lines: `30`

The properties should look as shown in the following screenshot:

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)

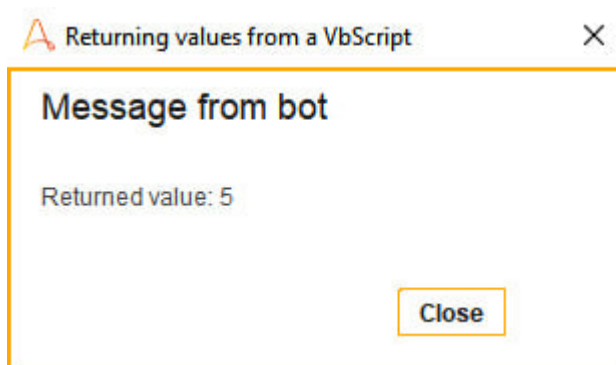
Scrollbar after lines

30 (x)

16. Click on **Save**. The development interface for this section should look like this:

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 "-----"	:

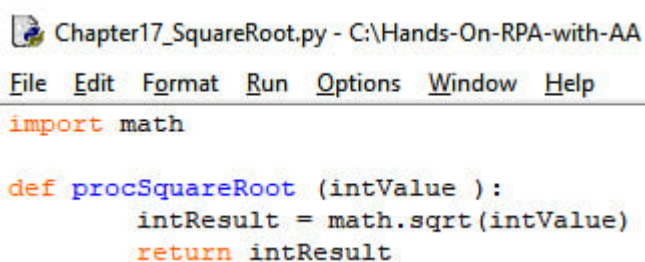
Great work! That's all you need to know about VBScripts. When you run this bot, it should take the value of `25` from Automation Anywhere and pass it to the VBScript function. The function will calculate the square root and return the results back to Automation Anywhere. The following message box should appear showing the results:



In the next section, we will explore running Python scripts.

Running Python scripts

Running Python scripts from Automation Anywhere uses the same principle as running VBScripts. Firstly, create the session, then run the function or script. You can pass parameters to the function or script. Finally, close the session once you have finished with it. For this walk-through, we will be replicating the same process as the previous task. The bot will run a function called `procSquareRoot` from the Python script file `Chapter17_SquareRoot.py`. The function takes a value as an input. It then calculates the square root of this value and returns the result. The contents of the Python file look like the following screenshot:



We will use the existing two variables, `numValue` and `strReturnValue`, for this walk-through. As we are using a Python script, please ensure you have Python installed on your workstation. You can download the latest version from <https://www.python.org/downloads/>. It is key that you know what version of Python you are using. For this example, it will be version 3.

Let's start this walk-through by executing the following steps:

1. Add a **Step** just below line **24**, ensuring it is not within the **Step** on line **2**, set the **Title** property as `Python Scripts`, and click on **Save**.
2. Assign the `numValue` variable with a value by adding the **Number: Assign** action just below line **25**, ensuring it is within the **Step** on line **25**.
3. Set the following properties for the **Number: Assign** action on line **26**:

Select the source string variable/ value: `36`

Select the destination number variable: `numValue - Number`

The properties should look as shown in the following screenshot:

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) +

4. Click on **Save**.
5. We can now create our session by adding the **Python script: Open** action just below line **26**, ensuring it is within the **Step** on line **25**.
6. Set the following properties for the **Python script: Open** action on line **27**:

New Python session: `py_Session`

Python: Import existing file

Python file: Desktop file -- `C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_SquareRoot.py`

Python runtime version: `3`

The properties should look as shown in the following screenshot:

Python script: Open

Opens a Python script

New Python session

py_Session

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

C:\Hands-On-RPA-with-AA-Sample-Data\Chapter17_SquareRoot.py

Required extension: ".py"

Browse...

☐ Manual input

Enter script here

1

Python runtime version

☐ 2

☒ 3

7. Click on **Save**.

8. To run the function in the script file and pass the `numValue` variable and get the results to the `strReturnValue` variable, add the **Python script: Execute function** action just below line **27**, ensuring it is within the **Step** on line **25**.

9. Set the following properties for the **Python script: Execute function** action on line **28**:

Python session: `py_Session`

Enter name of function to be executed: `procSquareRoot`

Arguments to the function (optional): `numValue` - Number

Assign the output to variable (optional): `strReturnValue` - String

The properties should look as shown in the following screenshot:

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)

Supports 0 or 1 argument

Assign the output to variable (optional)

strReturnValue - String (x)

10. Click on **Save**.

11. To close the session, add the **Python script: Close** action just below line **28**, ensuring it is within the **Step** on line **25**.

12. Set the following properties for the **Python script: Close** action on line **29**:

Python session: `py_Session`

The properties should look as shown in the following screenshot:

Python script: Close

Closes Python script execution session

Python session

py_Session (x)

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

13. Click on **Save**.

14. Add a **Message box** to see the results returned by adding the **Message box** action just below line **29**, ensuring it is within the **Step** on line **25**.

15. Set the following properties for the **Message box** action on line **30**:

Enter the message box window title: `Returning values from a Python Script`

Enter the message to display: `$strReturnValue$`

Scrollbar after lines: `30`

The properties should look as shown in the following screenshot:

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)

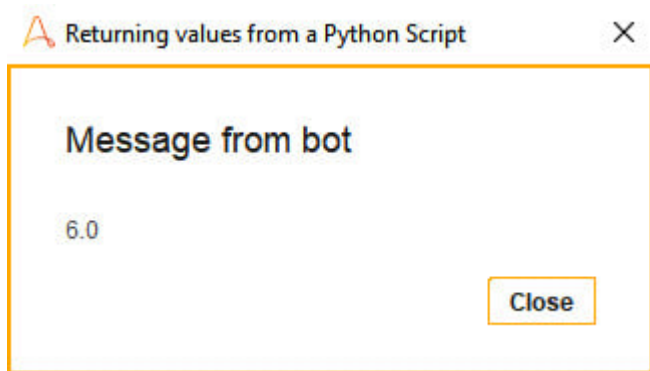
Scrollbar after lines

30 (x)

16. Click on **Save**. The development interface for this section should look like this:

25	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 "-----"	:

The bot is ready to run the Python script. You will notice how similar it is to running a VBScript. When you run the bot, the result should be a message box showing a result of **6.0** as this is the square root of 36, as shown in the following screenshot:



You can see how easily you can run external scripts using Automation Anywhere. Even when you may think certain tasks would require a lot of action using Automation Anywhere and would be better executed using a script, you can easily achieve them using RPA.

Summary

In this lab, we looked at external scripts. There will be some exceptional instances when the actions within Automation Anywhere won't perform a specific action. An example could be calculating the square root of a value. In order to achieve this, we can still rely on Automation Anywhere to provide a solution. An ideal solution would be to use an external script. Whether it's a VBScript or a Python script, Automation Anywhere can handle it. You learned how to run scripts as well as how to pass parameters and receive return values. The step-by-step walk-throughs guided you through each stage and provided key practical skills, as well as boosting your confidence in working with RPA.

The next lab will explore error management. You will learn all about handling exceptions and errors while your bot performs its tasks. Specifically, we will look at the different types of methods used to manage errors, such as **Try**, **Catch**, **Finally**, and **Throw**. The walk-through will demonstrate a real-life example showing how it all works. This will enable you to build a robust RPA solution.