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DevNet Zone



The bridge to possible

Web UI Automation Testing

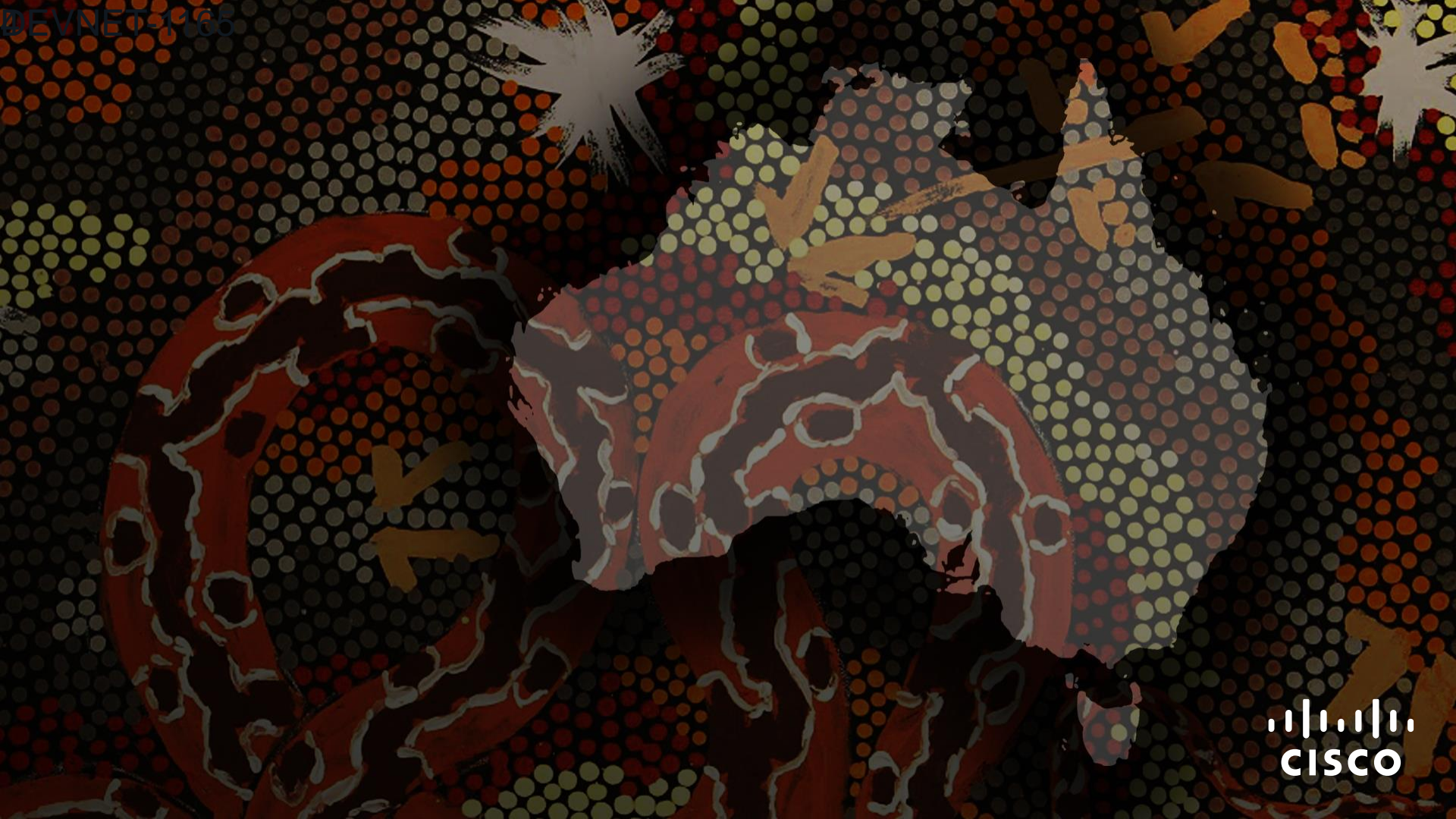
Using ROBOT FRAMEWORK

Nehal Sharma,
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DEVNET-1165



DevNet Zone

#CiscoLiveAPJC



Cisco Webex App

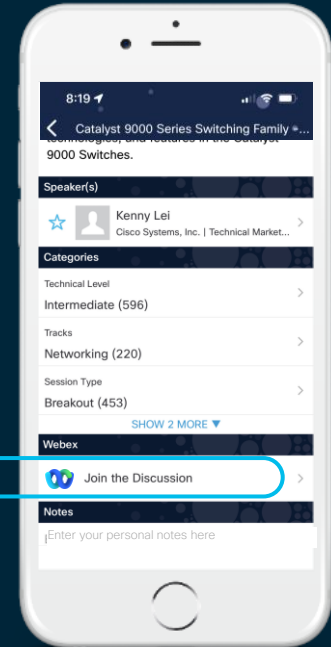
Questions?

Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until Thursday 22 December, 2022.





Agenda

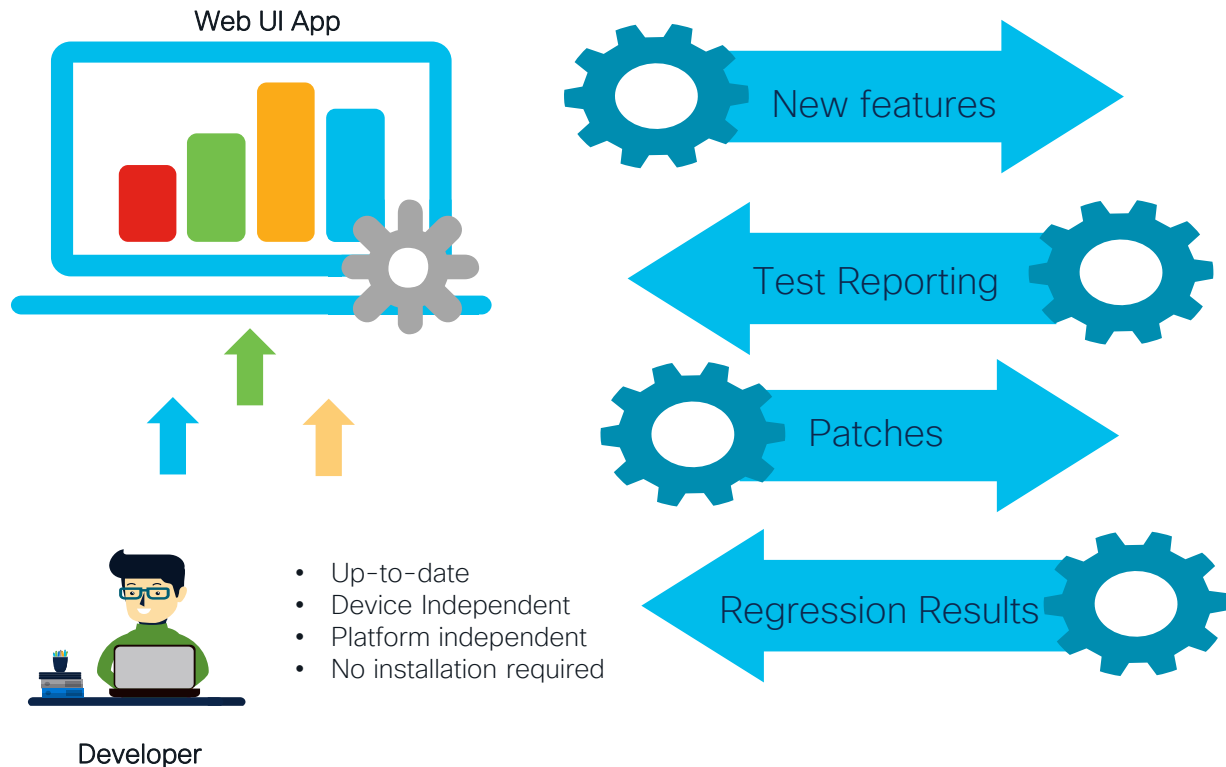
- Web UI Testing
- Automation as a Savior
- Introduction to Robot Framework
- Resources



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Web UI Application Development



Tester

Major Challenge:

With every slight change in the application, UI needs to be completely tested by testers manually which is error prone and tiresome

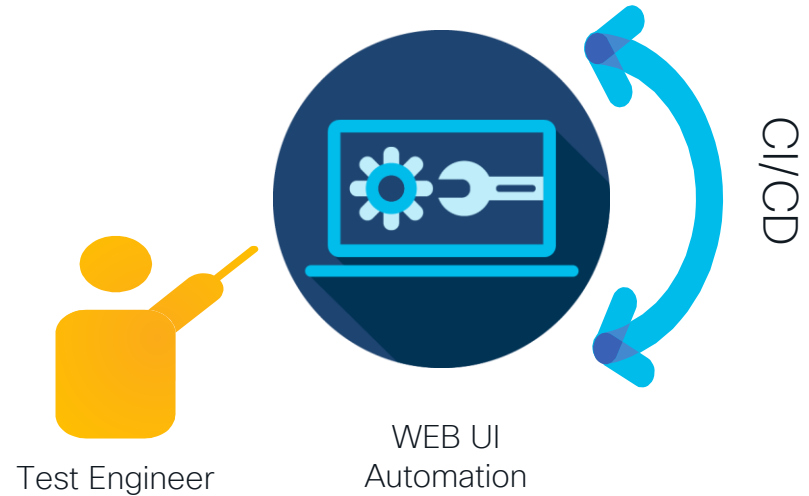


Agenda

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Test Automation

- Saves Time & Cost
- Improves Accuracy
- Reduces Human-error
- Reusable
- Reliable



Results in an overall effective Dev-Test Collaboration

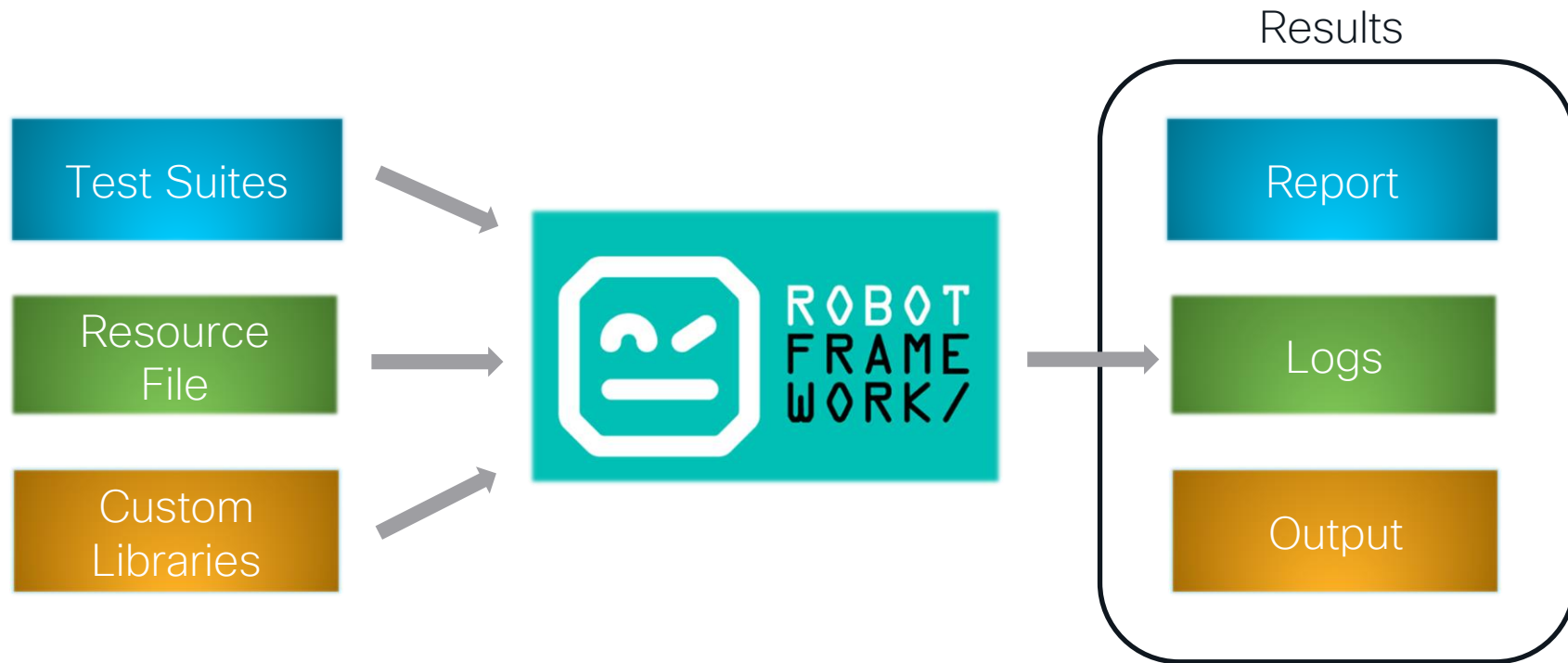


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What is ROBOT Framework?

Generic Test Automation Framework

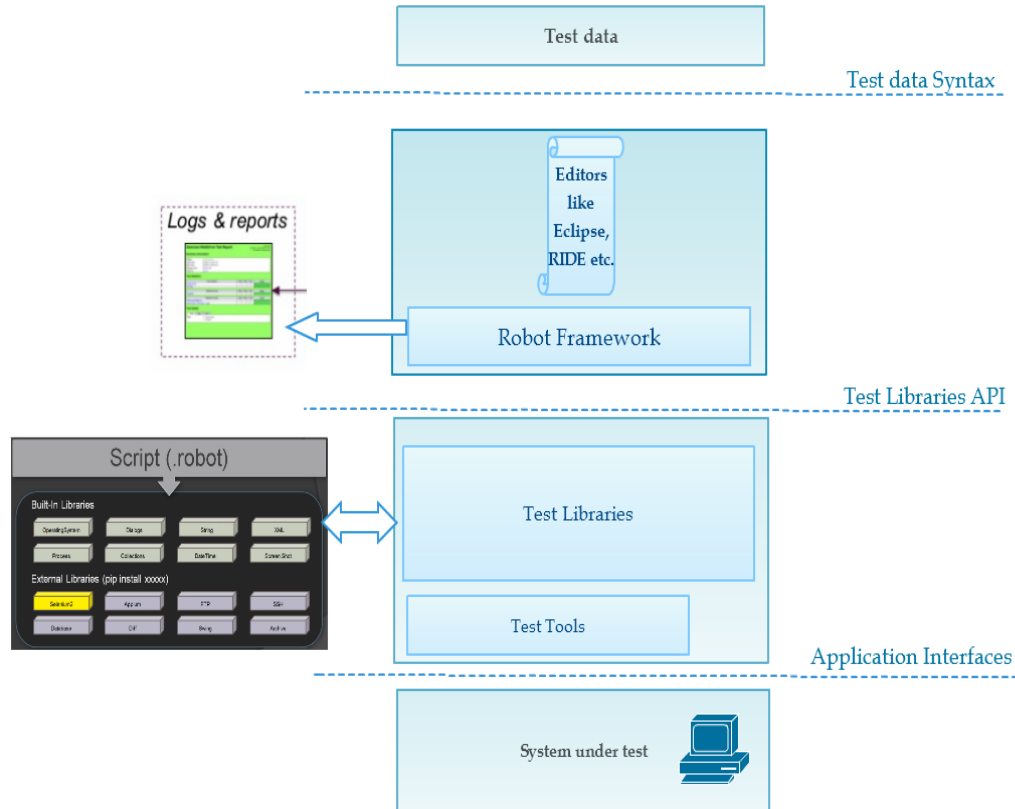


How to Use ROBOT Framework?

1. Install Python.
2. Install Robot Framework.
3. Use any editor, install the required Robot packages/plugins.
4. Start writing your Robot scripts and save them with .robot extension.

```
1  *** Settings ***
2  Documentation      A test suite to calculate sum and
3  ...                difference of two numbers.
4  ...
5  ...                Keywords are imported from the resource file
6  Resource            keywords.resource
7
8  *** Variables ***
9  ${num1}= 4
10 ${num2}= 10
11
12 *** Test Cases ***
13 Calculate Addition of Two Numbers
14     ${sum}= Evaluate    ${num1} + ${num2}
15     Log    ${sum}
16
17 Calculate Subtraction of Two Numbers
18     ${subtraction}= Evaluate    ${num1} - ${num2}
19     Log To Console    ${subtraction}
```

ROBOT: Architecture

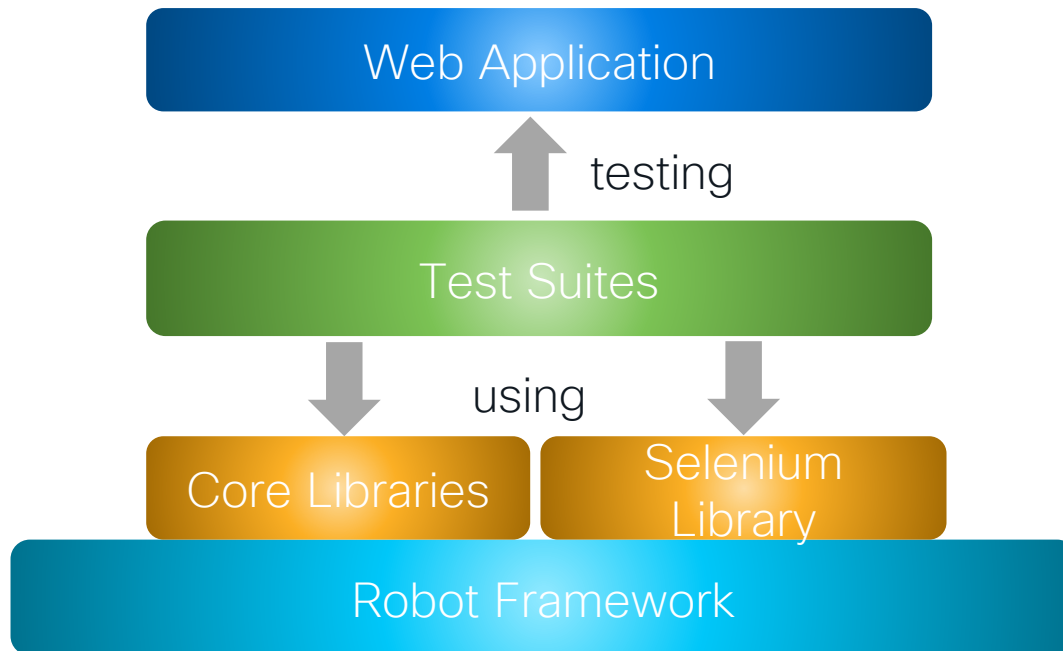


ROBOT: File Structure

Basic Rules of a Robot File:

- Each section start with ***** [section name] *****.
- The **mandatory sections** are **Settings** and **Test Cases**. However, there are other sections we can also implement in our files: Variables and Keywords.
- Sections and test cases names should be left-aligned and, test steps should have a tab.
- We should give 2 spaces between keywords and arguments.

Selenium with ROBOT

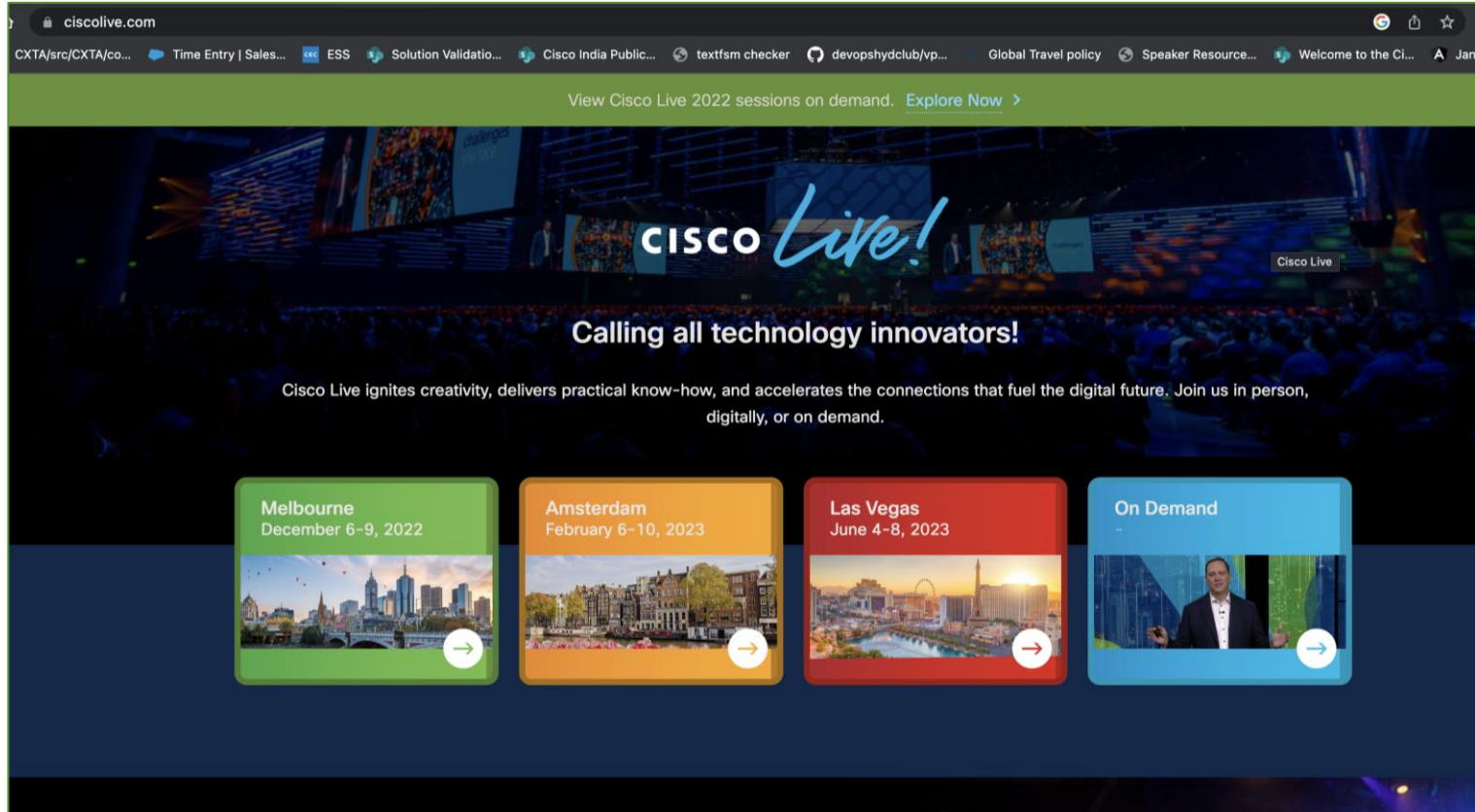


Selenium with ROBOT

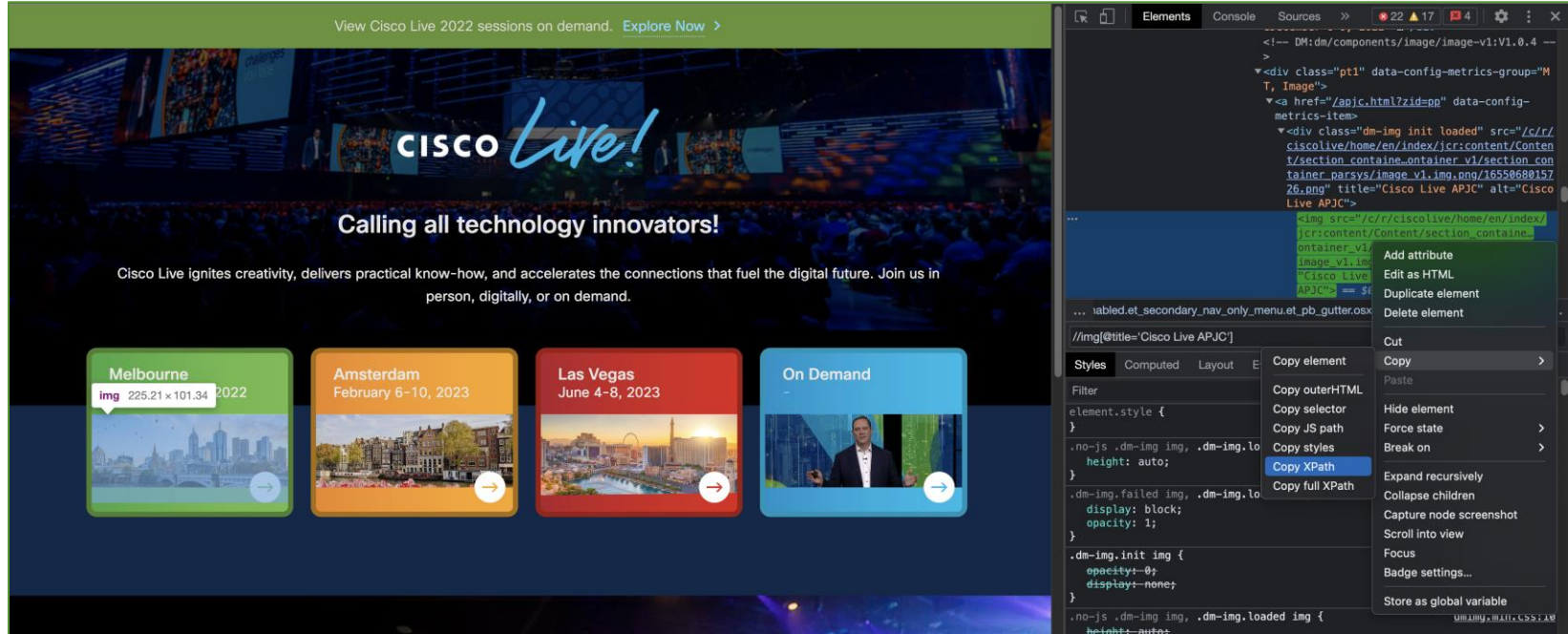
- Selenium Library is a web testing library for Robot Framework
- Can be used for testing all the major browsers.
- Install Selenium Library
- Install specific browser drivers
- Import the library using Library Setting

Demo

Web UI Automation Testing – The UI Under-Test

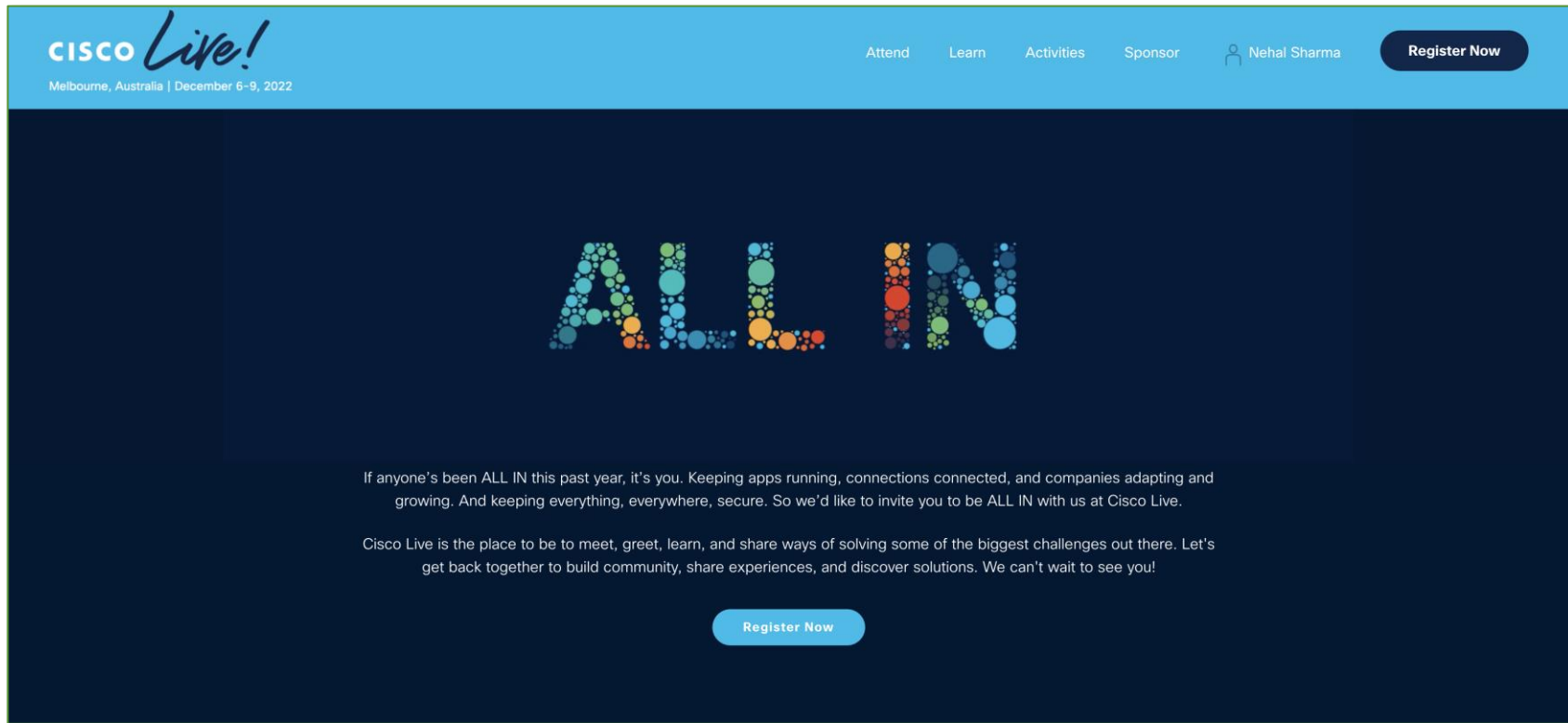


Web UI Automation Testing – Capturing Xpath



The screenshot shows the Cisco Live! website with a dark background and a large banner. The banner text reads "Cisco Live!" in a stylized font, followed by "Calling all technology innovators!" and "Cisco Live ignites creativity, delivers practical know-how, and accelerates the connections that fuel the digital future. Join us in person, digitally, or on demand." Below the banner are four event cards: Melbourne (2022), Amsterdam (February 6-10, 2023), Las Vegas (June 4-8, 2023), and On Demand. A browser developer tool is open on the right, showing the HTML structure. The XPath for the Cisco Live APJC image is highlighted: `//img[@title='Cisco Live APJC']`. The developer tool also shows the CSS styles for the image, including `height: auto;` and `display: block;`.

Web UI Automation Testing – The UI Under-Test



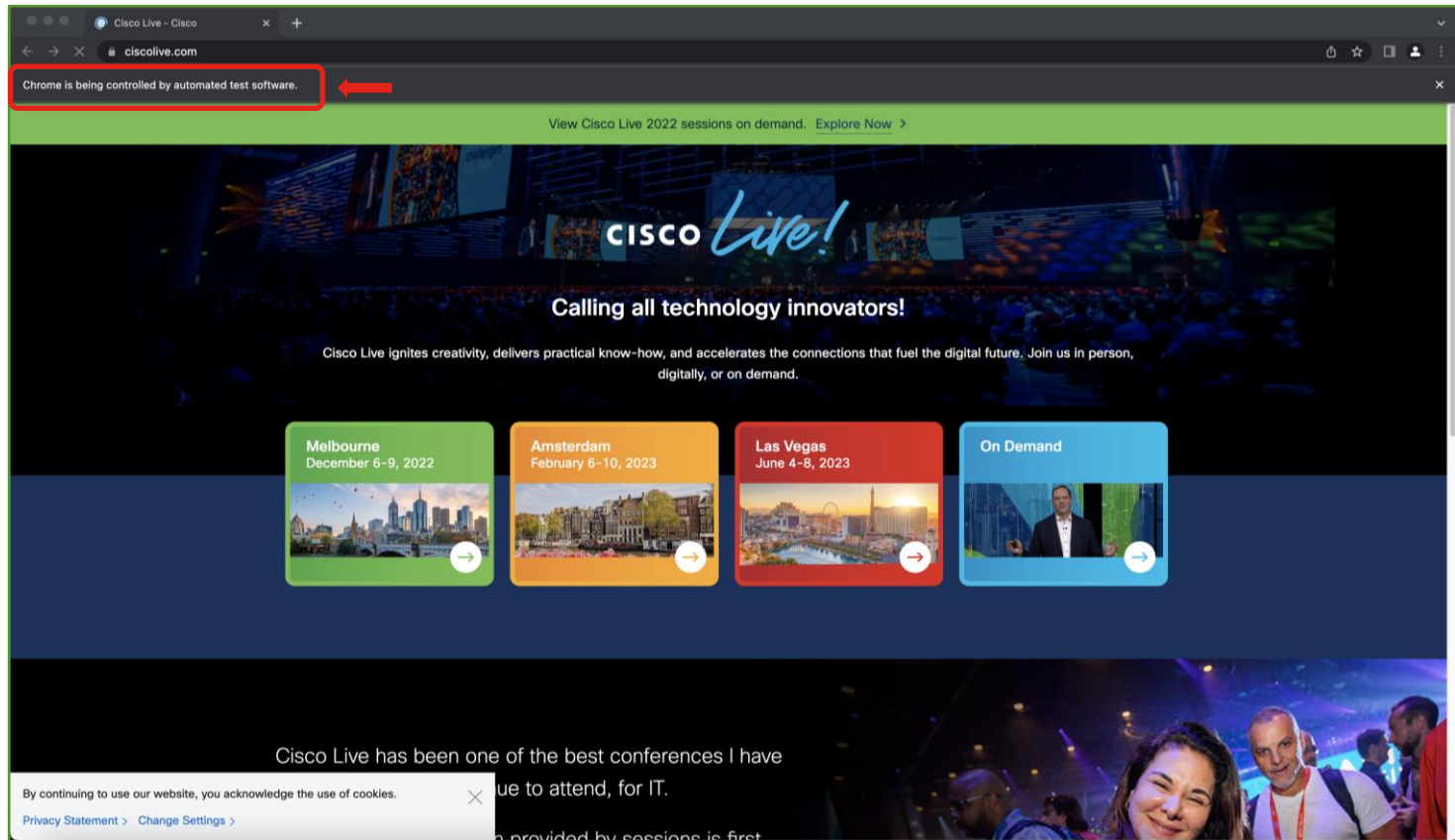
Web UI Automation Testing – Sample Script

```
ciscolive_apjc.robot
1  *** Settings ***
2  Library  SeleniumLibrary
3
4  *** Test Cases ***
5  CHECK MAIN PAGE
6      Open Browser  https://www.ciscolive.com/  Chrome
7      Maximize Browser Window
8      Click Element  //img[@title='Cisco Live apjc']
9      Sleep  3
10     Capture Page Screenshot  screenshots/ciscolive_apjc.png
11     Close Window
```

Web UI Automation Testing – Running Logs

```
(base) nehalsha@NEHALSHA-M-C69C Demo % robot ciscolive_apjc.robot
=====
Ciscolive Apjc
=====
CHECK MAIN PAGE | PASS |
-----
Ciscolive Apjc | PASS |
1 test, 1 passed, 0 failed
=====
Output: /Users/nehalsaha/Desktop/Cisco Live/Presentation/Demo/output.xml
Log:    /Users/nehalsaha/Desktop/Cisco Live/Presentation/Demo/log.html
Report: /Users/nehalsaha/Desktop/Cisco Live/Presentation/Demo/report.html
```

Web UI Automation Testing – The UI Under-Test



Web UI Automation Testing – Testcase results

Test Report

Generated
20221117 13:17:06 UTC+05:30
8 days 6 hours ago

Summary Information

Status: All tests passed
Start Time: 20221117 13:16:43.690
End Time: 20221117 13:17:06.418
Elapsed Time: 00:00:22.728
Log File: [log.html](#)

Test Statistics

Total Statistics	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	1	1	0	0	00:00:22	

Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						

Statistics by Suite	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
Test	1	1	0	0	00:00:23	

Test Details

All Tags Suites Search

Suite:

Test:

Include:

Exclude:

[Help](#)

Test Execution Log

SUITE Test

Full Name: Test
Source: /Users/nehhalsha/Desktop/Cisco Live/Demo/test.robot
Start / End / Elapsed: 20221117 13:16:43.690 / 20221117 13:17:06.418 / 00:00:22.728
Status: 1 test total, 1 passed, 0 failed, 0 skipped

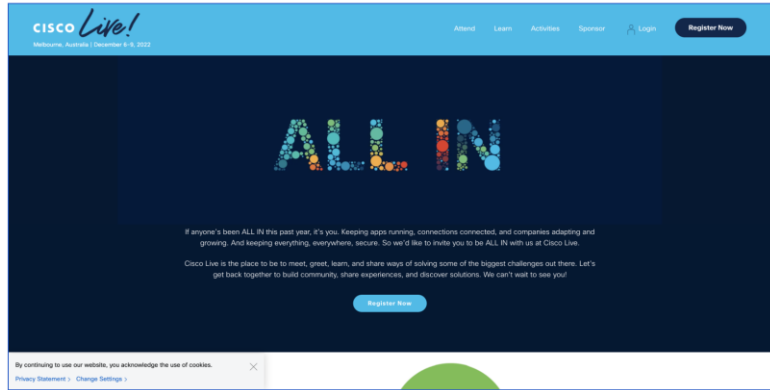
TEST Check main page

Full Name: Test.Check main page
Start / End / Elapsed: 20221117 13:16:44.072 / 20221117 13:17:06.417 / 00:00:22.345
Status: **PASS**

- KEYWORD** SeleniumLibrary.Open Browser https://www.ciscolive.com/, Chrome
- KEYWORD** SeleniumLibrary.Maximize Browser Window
- KEYWORD** SeleniumLibrary.Click Element //img[@title='Cisco Live APJC']
- KEYWORD** BuiltIn.Sleep 3
- KEYWORD** SeleniumLibrary.Capture Page Screenshot screenshots/searchExample.png

Documentation: Takes a screenshot of the current page and embeds it into a log file.
Start / End / Elapsed: 20221117 13:17:05.616 / 20221117 13:17:06.294 / 00:00:00.678
13:17:06.294 [INFO](#)

KEYWORD SeleniumLibrary.Capture Page Screenshot [PASS]



KEYWORD SeleniumLibrary.Close Window

Web UI Automation Testing – Sample Script

```
ciscolive_session_testing.robot
1  *** Settings ***
2  Documentation    The test case verifies a Cisco Live session against the given session ID
3  ...              [PASS] If the session corresponding to given session ID is as expected, the test case passes.
4  ...              [FAIL] If the session is not as expected, the test case fails
5  Library          SeleniumLibrary
6
7  *** Variables ***
8  ${session_id}    DEVNET-1165
9  ${session_title} WEB UI Automation for BEGINNERS using ROBOT Framework [DEVNET-1165]
10
11 *** Test Cases ***
12 OPEN SESSION CATALOGUE
13     Open Browser    https://www.ciscolive.com/    Chrome
14     Maximize Browser Window
15     Capture Page Screenshot    screenshots/ciscolive_mainpage.png
16     Click Element    //img[@title='Cisco Live APJC']
17     sleep    1
18     Capture Page Screenshot    screenshots/ciscolive_apjc.png
19     Scroll Element Into View    //a[contains(text(), 'Schedule Your Sessions')]
20     Click Element    //a[contains(text(), 'Schedule Your Sessions')]
21     sleep    10
22     Capture Page Screenshot    screenshots/session_catalogue.png
23
24 SEARCH FOR SESSION USING SESSION ID
25     Wait Until Element Is Visible    //input[@type='search']
26     Input Text    //input[@type='search']    ${session_id}
27     Press Keys    //input[@type='search']    RETURN
28     sleep    4
29     Capture Page Screenshot    screenshots/${session_id}.png
30     ${session_captured}=    Get Text    //div[@class='catalog-result-title-text']/button/div
31     Log    ${session_captured}
32     IF    '${session_captured}' != '${session_title}'
33         FAIL    The session is not as expected
34     ELSE
35         Set Test Message    ++SUCCESS++ The session corresponding to the given session ID is as expected
36     END
```

Web UI Automation Testing – Sample Script

Test Execution Log

SUITE CiscoLive Session Testing

Full Name: CiscoLive Session Testing

Documentation: The test case verifies a Cisco Live session against the given session ID [PASS] If the session corresponding to given session ID is as expected, the test case passes. [FAIL] If the session is not as expected, the test case fails

Source: /Users/nehalsa/Desktop/Cisco Live/Presentation/Demo/ciscolive_session_testing.robot

Start / End / Elapsed: 20221128 16:06:08.511 / 20221128 16:07:21.311 / 00:01:12.800

Status: 2 tests total, 2 passed, 0 failed, 0 skipped

TEST OPEN SESSION CATALOGUE

TEST SEARCH FOR SESSION USING SESSION ID

Full Name: CiscoLive Session Testing.SEARCH FOR SESSION USING SESSION ID

Start / End / Elapsed: 20221128 16:07:15.977 / 20221128 16:07:21.311 / 00:00:05.334

Status: **PASS**

Message: ++SUCCESS++ The session corresponding to the given session ID is as expected

KEYWORD SeleniumLibrary.Wait Until Element Is Visible //input[@type='search']

KEYWORD SeleniumLibrary.Input Text //input[@type='search'], \${session_id}

KEYWORD SeleniumLibrary.Press Keys //input[@type='search'], RETURN

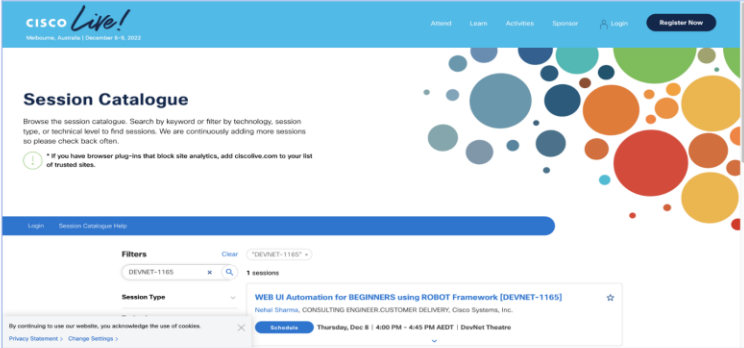
KEYWORD BuiltIn.Sleep 4

KEYWORD SeleniumLibrary.Capture Page Screenshot screenshots/\${session_id}.png

Documentation: Takes a screenshot of the current page and embeds it into a log file.

Start / End / Elapsed: 20221128 16:07:20.837 / 20221128 16:07:21.288 / 00:00:00.451

16:07:21.288 **INFO**



KEYWORD \${session_captured} = SeleniumLibrary.Get Text //div[@class='catalog-result-title-text']/button/div

KEYWORD BuiltIn.Log \${session_captured}

IF '\${session_captured}' != '\${session_title}'

ELSE

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#CiscoLiveAPJC DEVNET-1165

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SUMMARY

Why should I Use ROBOT Framework?

- Free & Open-Source
- Easy to install
- Has an easy syntax
- OS/Application independent
- Supports all major browsers
- Generates XML and HTML report
- Test capabilities are extended by test libraries





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References

- <https://robotframework.org/>
- <https://robotframework.org/robotframework/latest/RobotFrameworkUserGuide.html#getting-started>
- <https://robotframework.org/SeleniumLibrary/SeleniumLibrary.html>
- <https://www.selenium.dev/>
- <https://blog.devgenius.io/robot-framework-how-to-guide-for-web-testing-6a5bfa877064>
- <https://www.geeksforgeeks.org/introduction-to-xpath/>

Session Surveys

We would love to know your feedback on this session!

- Complete the session surveys in the Cisco Events mobile app. You'll earn some points in the Cisco Live Game and potentially win a prize.
- Complete a minimum of four session and the overall event surveys to claim a Cisco Live cable bag.

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Cisco Guided Study Groups

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Cisco Continuing Education Program

Recertification training options for Cisco certified individuals





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Thank you

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