Blackbox test of Device-Virtual with Robot Framework

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Date: 12 / 08 / 19

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Good study materials for understanding Robot Framework

Introduction: https://www.slideshare.net/pekkaklarck/robot-framework-introduction

How to write good test cases: https://github.com/robotframework/HowToWriteGoodTestCases/blob/master/HowToWriteGoodTestCases.rst

Dos and Don'ts: https://www.slideshare.net/pekkaklarck/robot-framework-dos-and-donts

User Guide: http://robotframework.org/robotframework/#user-guide

Reference: https://robotframework.org/#documentation

Introduce Device-Virtual Test Suite

https://github.com/FelixTing/Playground_RobotFramework/blob/master/suites/device_virtual_tests.robot

```
*** Settings ***
Library          ../lib/EdgeX.py     <- import library (supports Python and Java)
Resource         resource.robot      <- import other robot file (contains reusable variables and keywords)
Suite Setup      Deploy EdgeX        <- execute method “deploy_edgex” at suite setup
Suite Teardown   Shutdown EdgeX      <- execute method “shutdown_edgex” at suite teardown
```

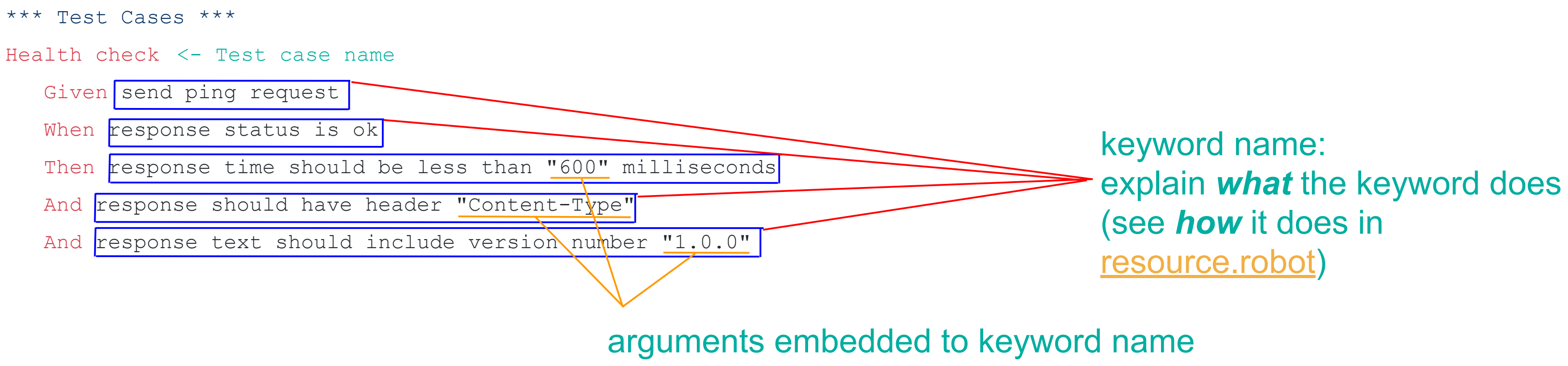
“Deploy EdgeX” and “Shutdown EdgeX” is implemented in EdgeX.py

Introduce Device-Virtual Test Suite (Cont.)

```
*** Variables ***
${DEVICE_PROFILE_BOOL}     Random-Boolean-Device
${DEVICE_PROFILE_INT}      Random-Integer-Device
${DEVICE_PROFILE_UINT}     Random-UnsignedInteger-Device
${DEVICE_PROFILE_FLOAT}    Random-Float-Device
${DEVICE_BOOL}             Random-Boolean-Device
${DEVICE_INT}              Random-Integer-Device
${DEVICE_UINT}             Random-UnsignedInteger-Device
${DEVICE_FLOAT}            Random-Float-Device
```

Introduce Device-Virtual Test Suite (Cont.)

Workflow test (in gherkin style)



```
*** Test Cases ***
Health check <- Test case name
    Given send ping request
    When response status is ok
    Then response time should be less than "600" milliseconds
    And response should have header "Content-Type"
    And response text should include version number "1.0.0"
```

keyword name:
explain ***what*** the keyword does
(see ***how*** it does in resource.robot)

arguments embedded to keyword name

Introduce Device-Virtual Test Suite (Cont.)

Data-driven test

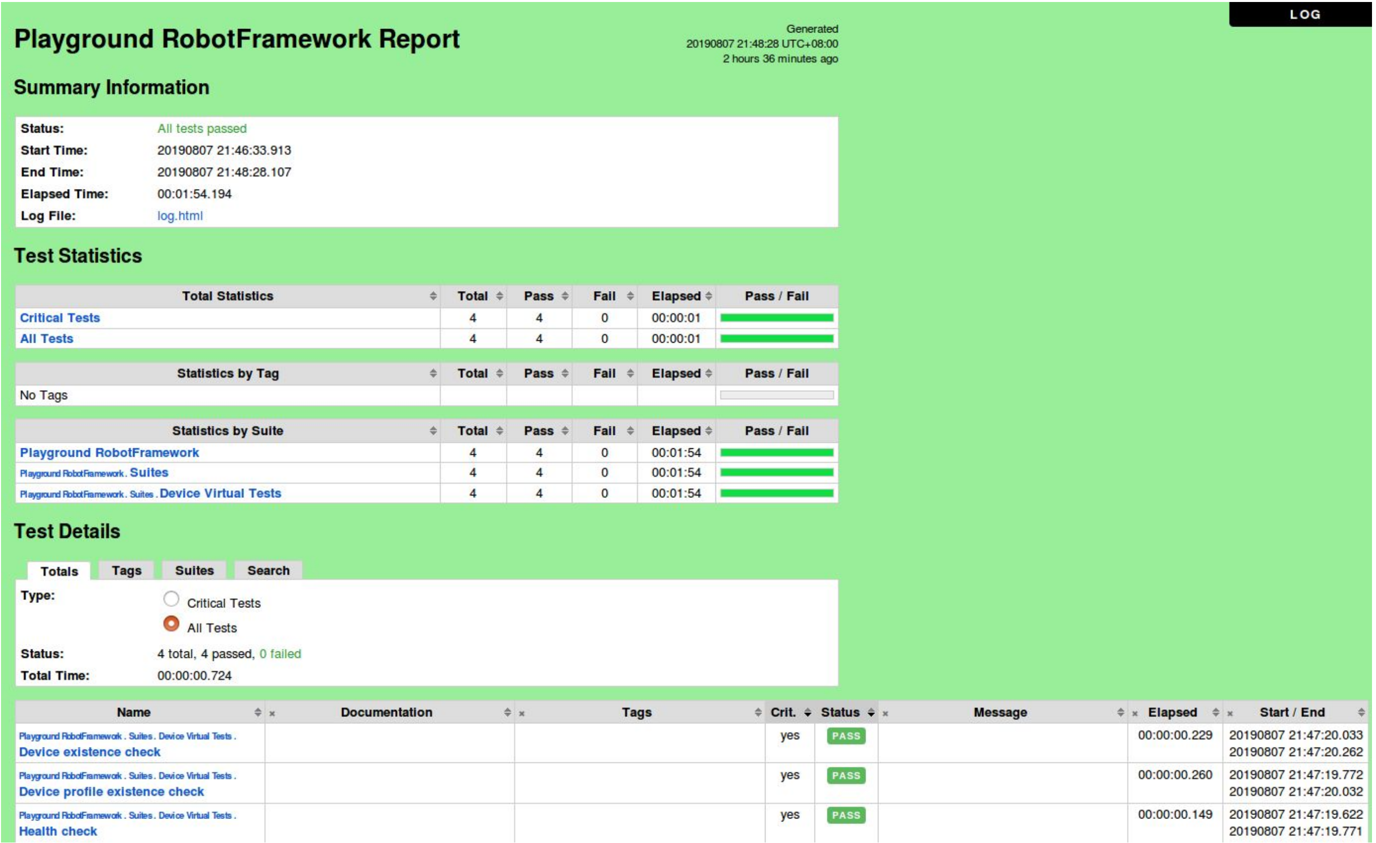
```
*** Test Cases ***
Device profile existence check
   [Template]    Device profile should exist in metadata
   ${DEVICE_PROFILE_BOOL}
   ${DEVICE_PROFILE_INT}
   ${DEVICE_PROFILE_UINT}
   ${DEVICE_PROFILE_FLOAT}

*** Keywords ***
Device profile should exist in metadata
   [Arguments]    ${device_profile_name}
   Given get device profile "${device_profile_name}"
   When response status is ok
   Then response time should be less than "600" milliseconds
   And response should have header "Content-Type"
   And content type is "application/json"
   And response body is json format
   And device profile name is "${device_profile_name}"
```

Test template convert keyword-driven test case into data-driven test

Testing report

https://github.com/FelixTing/Playground_RobotFramework/blob/master/sample_report/report.html



Playground RobotFramework Report

Generated
20190807 21:48:28 UTC+08:00
2 hours 36 minutes ago

Summary Information

Status:	All tests passed
Start Time:	20190807 21:46:33.913
End Time:	20190807 21:48:28.107
Elapsed Time:	00:01:54.194
Log File:	log.html

Test Statistics

Total Statistics	Total	Pass	Fail	Elapsed	Pass / Fail
Critical Tests	4	4	0	00:00:01	🟩
All Tests	4	4	0	00:00:01	🟩

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

Statistics by Suite	Total	Pass	Fail	Elapsed	Pass / Fail
Playground RobotFramework	4	4	0	00:01:54	🟩
Playground RobotFramework . Suites	4	4	0	00:01:54	🟩
Playground RobotFramework . Suites . Device Virtual Tests	4	4	0	00:01:54	🟩

Test Details

Type: ○ Critical Tests
● All Tests

Status: 4 total, 4 passed, 0 failed

Total Time: 00:00:00.724

Name	Documentation	Tags	Crit.	Status	Message	Elapsed	Start / End
Playground RobotFramework . Suites . Device Virtual Tests . Device existence check			yes	PASS		00:00:00.229	20190807 21:47:20.033 20190807 21:47:20.262
Playground RobotFramework . Suites . Device Virtual Tests . Device profile existence check			yes	PASS		00:00:00.260	20190807 21:47:19.772 20190807 21:47:20.032
Playground RobotFramework . Suites . Device Virtual Tests . Health check			yes	PASS		00:00:00.149	20190807 21:47:19.622 20190807 21:47:19.771

Pros

- Open source
- User doesn’t need programming skill to understand or write test cases
- Supports Keyword-driven, Data-driven and Behaviour-driven approaches
- Automatically generate testing report
- Plentiful libraries(https://robotframework.org/#libraries)
- Easy to maintain (compared with Postman collection)

Thank You

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