

Automation Test Suite Using RoboGalaxy FrameWork

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Abstract - Automated testing tool is able to playback pre-recorded and predefined actions, compare the results to the expected behaviour and report the success or failure of these manual tests to a test engineer. This paper represents the test automation suite development and Re-architecture using RoboGalaxy Framework tool. This tool is built on top of an open source test framework Robot Framework. Which is python based and extensible keyword driven test automation framework for end-to-end acceptance testing. Here Eclipse software is used as editor to write the test cases. Python language is used for the development of functions and these functions are run by keywords used in the test cases. Ones the tool is designed Automation testing is done for Synergy 12000 which comes under the OneView networking component. OneView is one appliance which manages all the 3 major domains of HPE. Automation testing is done and results are obtained in the form of Log file and reports are created automatically by the tool. Log file contains the percentage of success or failure of the test cases.

Key Words Robot Framework, Synergy 12000, HPE ONEVIEW , Eclipse, RoboGalaxy Framework, Python

1.INTRODUCTION

Every software development group tests its products, yet delivered software always has defects, even with the best manual testing process. Test Automation software is the best way to increase the effectiveness, efficiency and coverage of your software testing. In this project RoboGalaxy Framework is used for Automation testing [4]. Main blocks of this framework are Test data, Test library, Test tools, Robot framework and System under test. Test data is defined in different sections namely settings, variables, Keywords, Test cases and Comments. Keywords are divided into two group library keywords and user keywords. In variable section different variables are defined which are used in creating the test cases. Python language is used for writing the scripts. Python is a high level interpreted language, which is best suited for writing python scripts for automation and code re-usability. Ease of

access and readability has made python one of the most popular programming language nowadays. Python regular expression (RE or regex) is used to check the text pattern match, it is a sequence of characters which describes textual patterns. Using regular expressions we can match input data for certain patterns (aka searching), extract matching strings (filtering, splitting) as well as replace occurrences of patterns with substitutions, all with a minimum amount A regular expression (RE or regex) is a sequence of characters which describes textual patterns.

2. System Development

2.1 Methodology adopted

Existing Robot framework architecture [4-6] and test data file structure were studied. Python language is learned to write the scripts and how python modules are used in the functions to reduce the code redundancy. Learned how Create user keywords using standard keywords that are used in test cases. Writing keyword driven test [5] cases which are easy to read and easy to understand by the developers.

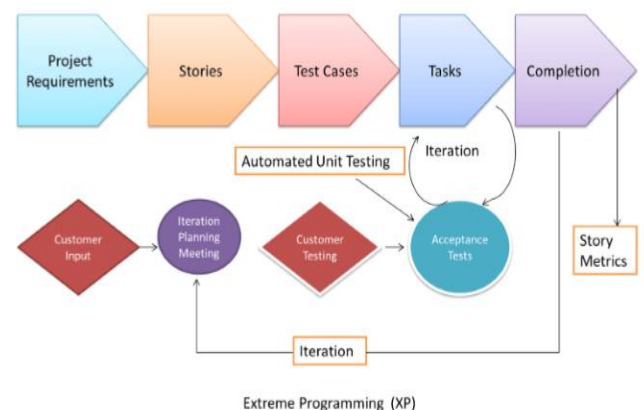


Fig -1: Flow Diagram of different steps in automation testing

The flow diagram shown in Fig.1 depicts the different steps involved in the automation unit testing. Initially the project requirements are obtained from the client and it is divided into smaller parts called stories. Test cases will be built to meet the specific requirements. Once the tasks are completed automated unit testing will be conducted. This project focus on the automated unit testing and this is briefly explained in the next section.

Testing architecture is designed in such a way that developer can easily develop new test cases and test scripts. Functional verification library has the functions, in previous suite some functions are depends on the other functions. In this project these functions are independent of each other, functions required for the testing are written in python and these functions are imported as library in the test scripts. Test scripts consist of test cases these test cases are written in particular order because they are executed in the same order as they written. Ones the test cases are run results are created in the form of log file and report.

2.2 Experimental Details

The general block diagram, shown in the Fig. 2, depicts the major components in Automation test suite using RoboGalaxy Framework. This is the final architecture of the test suite (Fig. 2)

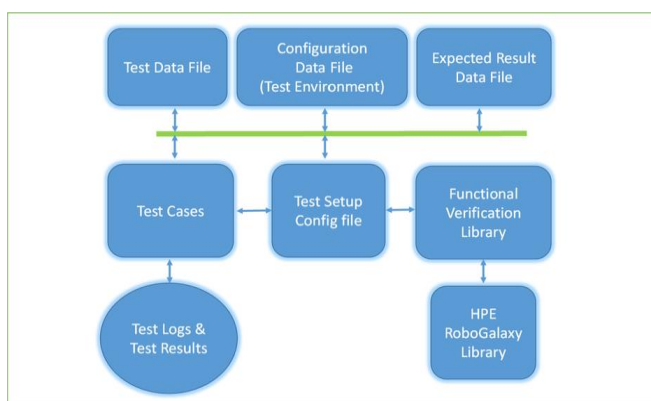


Fig -2: Block Diagram of Test Suite

The block labeled as Test data file in Fig.2 has the Global test data information, which are required for running all the test, This will have all combination of

data which is required for running each tests in a script based on test requirement. Test functions are written in python language are added to Functional library file which can be used for getting the test case work done. Each functions are written in such a way that they can be independently callable and it is not be tightly coupled. These functions are imported as library in test data file and test cases are written for the test. Global configuration data information to discover hardware that will be used for testing selected tests is added to the configuration data file. It helps in discovering and creating the Test environment.

After the test suite is designed test scripts are run based on the test requirement. Test results and log files of each test cases are generated as and when the tests are executed. And these results are compared with the expected results present in the Expected result file, then success or failure of the test is added to report file.

3 Results and Discussion

The test cases are run through command prompt using Pybot command before the test file name. Following snapshots shows the results obtained. Results are obtained in the form of log file and report file.

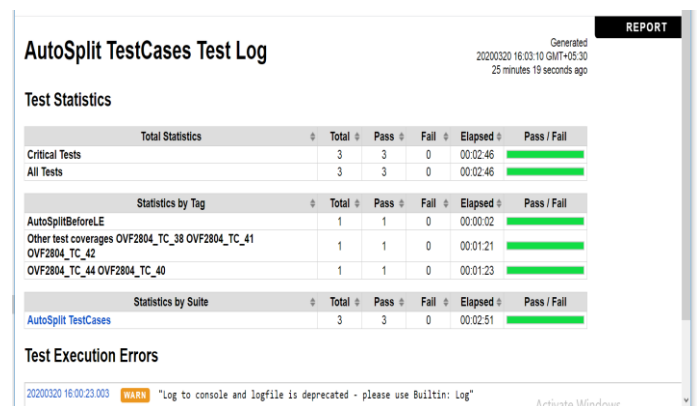


Fig. 3. Test log with the Test Statistics

Fig. 3 and Fig. 4 are the log files of the test cases. Total Test statistics and statistics by tags and suites are shown in Fig. 3. Each test cases are executed keyword by keyword that are used in it, the execution log of the Appliance Login test cases is shown in Fig.4. For login Appliance IP and Login details(User name and password) are passed as the variable to the keywords.

Time elapsed for each test case and keyword is maintained in the statistics.

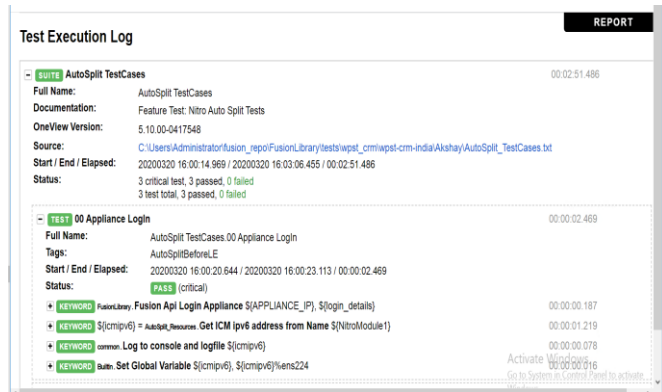


Fig. 4. Test Execution Log

Log files of the creation of Logical Interconnect Group(LIG), Logical Enclosure(LE) and Enclosure Group(EG) [3] test results are shown in Fig. 5. Data required for these tests are passed through the variables mentioned in the keywords. In similar manner log files for all the tests are created.

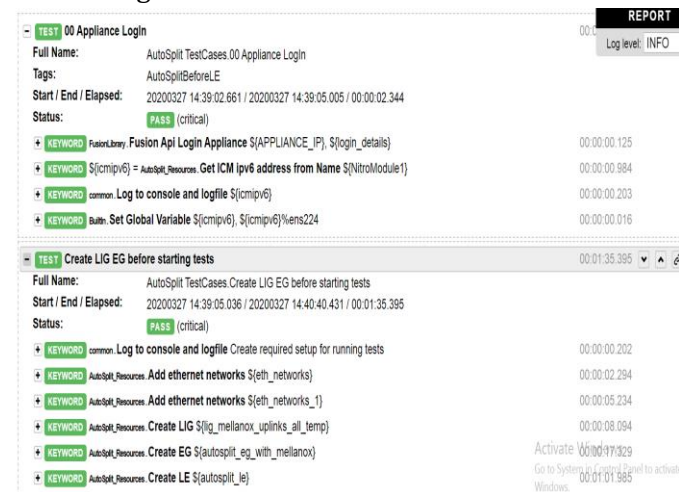


Fig. 5. Log files of the LIG EG creation

Test Report has the summary information of the test execution and the test statistics as shown in Fig. 6. It has the total number of test cases executed and number of test passed and failed during the execution is shown. Test details shown in Fig. 7 has the status of the test and tags used in it and also contains the Start time and end time of the test execution.

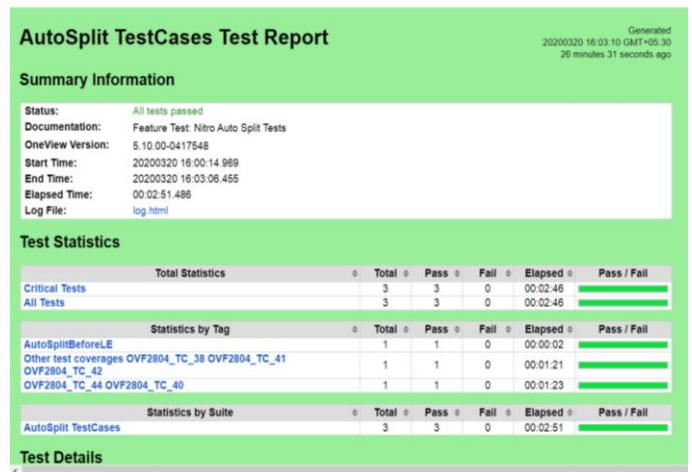


Fig. 6. Test report displaying the Summary and test statistics of the test cases

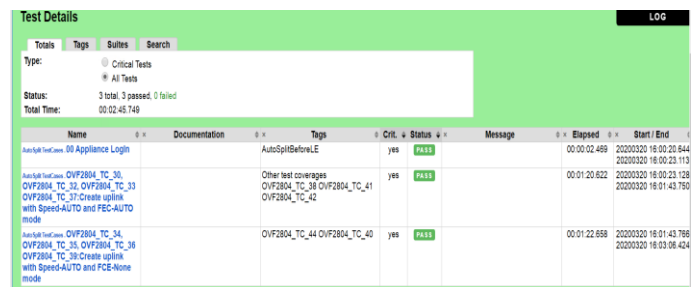


Fig. 7. Test report with the Test details

Finally the software testing is done and the result log files showing the port configuration check and the uplink speed test of the product are shown in the fig.8.

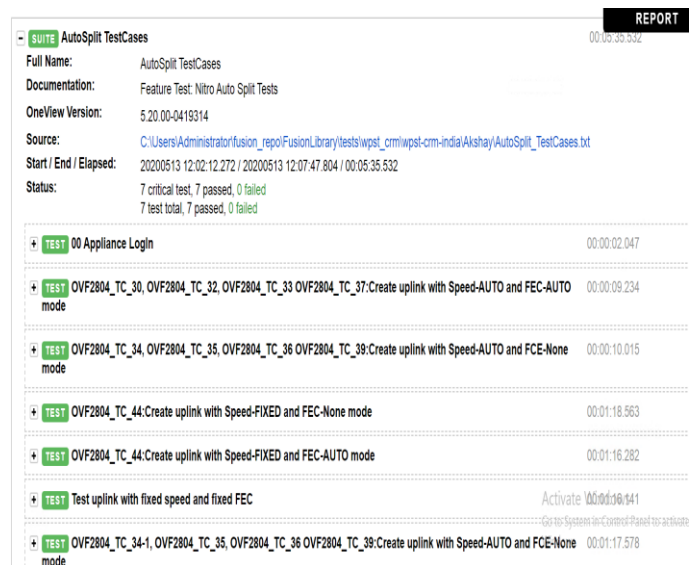


Fig. 8. Test log of software testing

3. CONCLUSIONS

The test suite is successfully developed using RoboGalaxy Framework. After doing this project get some knowledge of the Automation tool. Python language is learnt so well, python modules and Regular expression in python are learnt, which plays major role in reducing the code redundancy. Got to know that how tags and keys used in the test cases helps in finding the error if any. Creating our own keywords using standard keyword will help more in writing the test which can be reused.

The manner of testing earlier, was manual which was time consuming and often contains the bugs due to human intervention. In this the project, complete testing process is automated which resulted, the drastic decrease in the time consumed. The automation test suite is created and test cases are executed. Functional library file is modified such that each and every function in the library are independent of each other.

The key learnings of this project development of automation testing processes in the project life cycle. They include the understanding of fundamentals of networking, obtaining an understanding of working of OneView, Synergy composer and Big Data technologies, understanding about various APIs [10] for data transfer as well as testing.

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