

WHITE PAPER

Test Automation Tool Evaluation

by Clara Abraham

Success in any Test Automation (TA) effort lies in identifying the right tool for automation. A detailed analysis of various tools must be performed before selecting a tool. This requires a lot of effort and planning. The effort and learning obtained during tool evaluation will in turn help during the execution of the TA project....

Table of Contents

1. Introduction.....	2
2. Requirements Gathering.....	2
3. Tools Selection.....	4
4. POC Using Selected Tool.....	4
5. Conclusion.....	5
9. About Aspire Systems.....	5



Test Automation Tool Evaluation

1. Introduction

Success in any Test Automation (TA) effort lies in identifying the right tool for automation. A detailed analysis of various tools must be performed before selecting a tool. This requires a lot of effort and planning. The effort and learning obtained during tool evaluation will in turn help during the execution of the TA project.

Many companies fall prey to the sales executives of tool vendors, who show how easy it is to create scripts using their tool. It therefore becomes necessary to go into the details of the script thus created, to check the way by which the tool identifies and works with the product. In many cases, organizations have bought a tool license because it worked fine using record/playback. Eventually, they find out that the tool worked by identifying the product and its controls using coordinate positions, which is not a very reliable method, and the tool gets shelved. Hence a systematic approach must be taken to evaluate tools.

The entire process of tool evaluation can be broken down into three major phases:

- Requirements Gathering
- Tool Selection
- POC using selected tool

2. Requirements Gathering

During the requirements gathering phase of tool evaluation one has to list out the requirements for the automation tool. Some of the important questions you will need to ask would be:

- What problems will the tool solve?
- What technical capabilities will the tool need, to be compatible with your environment?

Some of the items that will help you guide your requirements list:

- ① Compatibility issues
- ② Tool audience
- ③ Management goals
- ④ Testing requirements
- ⑤ Technology

Compatibility Issues

Your testing tool will need to be compatible with:

- The operating systems your product supports
- The development environments used to create your product



Test Automation Tool Evaluation

- Third party software with which your product integrates
- The test management tool used (in order to be able to integrate with it); this will eliminate data redundancy and will give the advantage of managing all test related data at a single location
- The tool should also be version control friendly so that scripts created can be brought under source code control

Tool Audience

The skills of people involved in test automation and that of the people who use the automation scripts is another important criterion for the test tool evaluation process. The benefits obtained through automation boils down to how effectively the tool is being put to use.

Will your organization allow for staff training? Can your organization, within the implementation time, allow for the learning curve required to become comfortable with the tool?

Management goals

Typically, this will be based on the product roadmap and the goal for automation from the management perspective. Based on the product roadmap, the management might consider reviewing the time for which the tool has been in the market. They may also consider whether the tool will be upgraded periodically to support newer technologies. Any management will have a budget and will fit efforts within a given budget. So it is also important for the management to consider the licensing and maintenance cost of a tool and the additional hardware required for running the scripts.

Testing Requirements

What type of testing problems do you want the testing tool to address?

- Manual testing problems
- Time constraints when implementing small changes in the system
- Shorter regression testing timeframes
- Test data setup
- Defect tracking
- Increased test coverage
- Increased efficiency of the testing process

Technology

When considering technology requirements in the automation perspective, there are two views that must be taken:

- Technologies that should be supported by the tool
- Features required in the tool



Test Automation Tool Evaluation

The requirement could be for the tool to support all technologies that are used in the product and any new technology that is being planned to be implemented in the future. A list of all the technologies used in the product and the platforms/browsers on which the product is supported must be created as the technical requirements for the tool. For a tool to be able to automate testing of the product, the important criterion is the tool's ability to identify, access and work with all controls used in the application. Hence it is important to create a list of all controls (standard, custom and third party) used in the application and check if the tool is able to identify and handle all the listed controls.

The technical stakeholders of the automation project will have a list of desirable features that they need in the tool. This list of desirable features must be created in consultation with the technical team. Apart from this, a list of all features supported by the tool must also be created so that all features of the tool are considered during evaluation. An example of few features that can be listed are the tool's support for testing Graphical User Interface (GUI), Application Programming Interface (API) and Command Line Interface (CLI), support to extend tool using Open APIs like Win32 APIs, verification points supported in the tool, support of an efficient Recovery System and support for test report creation.

At the end of the requirements gathering phase, all necessary points to consider for selecting an automation tool are available. These points form the evaluation criteria for the tool.

3. Tools Selection

The second step in test automation tool evaluation is the selection of tools. While selecting tools it is important to remember that no single tool will satisfy all the requirements. The tool that meets most of the evaluation criteria should be chosen after discussion with stakeholders. Based on the tools limitations with respect to requirements, the automation activities must be planned.

All tools that meet most of the evaluation criteria can be considered for evaluation. When many tools are found to satisfy the evaluation criteria, further analysis of tools should be done. Do a feature categorization by listing each tool according to the following features it provides:

- **Mandatory features:** These are the features that are essential to accomplish your goal in meeting your requirements within the constraints
- **Desirable features:** these are features that will distinguish the best tools from the others
- **Irrelevant features:** Features that are not important and will not provide any real benefit to your situation.

Rate these features and assess as many tools as possible to prepare a short list of a few tools. Contact the relevant vendors and possibly ask for an evaluation version to run your proof of concept (POC).

4. POC Using Selected Tool

The last phase of tool evaluation is doing a proof of concept. Though conceptually the tool appears to satisfy the evaluation criteria, it is necessary to try the tool for a few test scenarios / cases in the product. Every tool vendor provides an evaluation version of their tool for this purpose for a limited period of time. It is sufficient to use the evaluation version for the POC.

The scenarios chosen for POC are very important. They should be chosen in such a way that the scenarios cover most of the controls and a few common features present across the product. It should be a sample,



Test Automation Tool Evaluation

which, when automated should give the confidence that automation using the tool for the product will be successful. This will also help in finding available resources' competence in using the tool. In case the POC fails, the reasons for failure must be analyzed and documented. The next tool for POC should be selected and this can be an iterative process till you identify the tool that most likely suits your requirements.

Conclusion

Tool evaluation is indeed a process in itself and requires a lot of research irrespective of who does the evaluation. The above listed process allows for you to make an informed decision with regards to the best tool to assist you with your software test automation effort.

ABOUT ASPIRE SYSTEMS

Aspire Systems is an Outsourced Product Development firm committed to helping our customers build software products better and faster. We work with some of the world's most innovative Independent Software Vendors and software-enabled businesses, ranging from start-ups to established industry leaders, transforming the way software is built.

Aspire provides complete product lifecycle services, ranging from new product development and product advancement to product migration, re-engineering, sustenance and support. Our product development teams are spread between our Global Innovation Center in Chennai, India and offices in the United States.



Aspire Systems India Private Limited
Plot No 1/D-1, SIPCOT IT PARK, Siruseri, Tamil Nadu - 603 103
Tel : +91-44-67404000. Fax: +91-44-67404234
E-mail : info@aspresys.com
Web: www.aspiresys.com