

**TESTING AUTOMATION TOOLS
COMPARISON AUGUST 2017
DECISION, ANALYSIS, RESOLUTION
(DAR)**

VER.1.0

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1. Overview

This DAR was produced originally to evaluate MUIT (Mitrais UI Test Automation), Squash TA with Selenium as a Test Automation tools and Telerik Test Studio

We decided to publish this evaluation to assist our clients in choosing the correct test automation tool for their own unique requirements.

2. Evaluated Platforms

PLATFORM	
1	MUIT
2	Squash TA
3	Test Studio
4	Ranorex

Table 1 – Evaluated Platforms

3. Other Platforms

Other platforms which are not evaluated but may be included in the future are listed below:

- NA

4. Evaluation Criteria

The evaluation criteria give points to selected criteria where the weight of each criteria is determined by the importance of that criteria.

NB: This document uses a weighting schema which is currently relevant for Mitrais use.

4.1. Non-Feature Related Criteria

CRITERIA	MITRAIS WEIGHTING
Entry Cost	40
License Cost for Per User	30
Ability to be Commercialized	50
Documentation	20
Training Options	30
Technical Support	20

Table 2 – Non-Feature Related Criteria

Criteria used:

1. **Entry Cost**
Entry cost means the initial cost to start using the tools. In essence this is the license cost of minimal amount of user where it may not be the same between tools. The lower the better.
2. **License Cost per User**
This is the cost per user as the entry cost for the tools does not always equal to the cost per user. The lower the better.
3. **Ability to be commercialized.**
Free or cheap tools sometimes have some limitations on the license or feature. This criteria tries to capture whether there is there any limitations that makes solution using the BI tools not suitable for selling. Lower points mean that there are some factors that makes it not suitable for commercial purpose.
4. **Documentation**
This is availability and comprehensiveness of the documentation on how to work with the tools.
5. **Training Options**
In general, this is the "cost" to train resources in how to use the tool. The evaluation should be based on:
 - a. The availability online training material and/or formal class and their price. Ideally all training material should be available online.
 - b. The learning curve a new developer will have to face to understand how to implement the product. The easier it is to implement the better.
6. **Technical Support**
The speed and availability of support when required. The team evaluated this criteria by analysing reviews of the product.

4.2. Feature Related Criteria

CRITERIA	MITRAIS WEIGHTING
Platform Supported	50
Browser Supported	50
Mobile App Support	10
Installation	10
Scripting Language Supported	50
Scripting Creation Time	50
Object Recognition	25
Continues Integration	40
Data Store	25
Reporting/Test Report	25

Table 3 – Feature Related Evaluation Criteria

Criteria used:

1. Platform Supported
This criterion evaluates the platform supported by the tool. a/ What operating systems are supported (Linux/Unix, Mac OS, Windows, Android, iOS)? The more the better.
2. Browser Supported
This criterion evaluates the browsers supported by the tool (IE, Chrome, Firefox, etc). The more the better.
3. Mobile App Support
This criterion evaluates whether the tool support testing for native or hybrid mobile application.
4. Installation
This criterion evaluates how easy installation of the tools.
5. Scripting Language Supported
This criterion evaluates how many scripting languages that the tools can work with. The more the better.
6. Scripting Creation Time
This criterion evaluates how fast QA engineering creates a script for any test case.
7. Object Recognition
This criterion evaluates how user to define the object. How will your test know which button it's supposed to click? We (as humans) can easily tell the difference between the two buttons above, but it's slightly more whether the tool is able to use data integration and create data warehouses.
8. Continues Integration
This criterion evaluates hoe the tool can be integrated with other tools to maintain code repository, automate the build, make the build self-testing, automate reporting and delivery.
9. Data Store
This criterion evaluates how framework can load data for testing from data store.
10. Reporting/Test Report
This represent how well the tool shows the report after executing certain test.

5. Platform Evaluation

PLATFORM	NON-FEATURE CRITERIA						FEATURE CRITERIA										TOTAL SCORE
	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	
MUIT	360	270	350	120	240	80	300	350	50	80	300	400	175	280	150	150	3655
Squash TA	360	270	350	160	180	120	400	450	70	60	400	300	175	320	200	200	4015
Test Studio	200	210	350	180	240	160	300	450	80	80	400	400	175	320	200	200	3945
Ranorex	200	150	350	180	240	140	300	400	80	80	400	400	175	320	200	225	3840

Table 4 – Platform Evaluation

6. Platform Recommendation

6.1. Non-Feature Related Criteria

6.1.1. Entry Cost

SOLUTION	EVALUATION
MUIT	MUIT is an internal tool for Mitrais and is free for Mitrais
SquashTA	SquashTA is open source software and is free
Test Studio	Telerik Test Studio prices starts at \$3449/year for 100 virtual user
Ranorex	Ranorex license is starting from € 2290/year per user

Conclusion:

- MUIT: 9
- SquashTA: 9
- Test Studio: 5
- Ranorex: 5

Both MUIT and SquashTA are free, but Test Studio and Ranorex have a price to use them.

6.1.2. License Cost Per User

SOLUTION	EVALUATION
MUIT	MUIT is an internal tool for Mitrais so no license cost for Mitrais
SquashTA	SquashTA is open source software and is free
Test Studio	Already included on entry cost for 100 virtual users
Ranorex	Just for 1 user per license and shared with 1 concurrent user

Conclusion:

- MUIT: 9
- SquashTA: 9
- Test Studio: 7
- Ranorex: 5

Both MUIT and SquashTA are free. Test Studio is free 100 virtual users. Ranorex just for 1 user and shared with 1 concurrent user.

6.1.3. Ability to be commercialized

SOLUTION	EVALUATION
MUIT	No limitations on license or feature
SquashTA	No limitations on license or feature
Test Studio	No limitations on license or feature

SOLUTION	EVALUATION
Ranorex	No limitations on license or feature

Conclusion:

- MUIT: 7
- SquashTA: 7
- Test Studio: 7
- Ranorex: 7

MUIT is Mitrais' internal product. Squash TA is open source. No limitation for Test Studio and Ranorex.

6.1.4. Documentation

SOLUTION	EVALUATION
MUIT	Limited documentation or user guide
SquashTA	Some references are available on Squash TA Web and wiki
Test Studio	Multiple options directly from Telerik with complete documentation for all modules
Ranorex	Cover all documentation from basic usage, advanced, and multi platform.

Conclusion:

- MUIT: 6
- SquashTA: 8
- Test Studio: 9
- Ranorex: 9

MUIT doesn't have user guide. Learning will come from some QA experience available in Mitrais. Squash TA has completed user guide as reference. Test studio provides multiple options directly from Telerik with complete documentation for all modules.

Ranorex cover all documentation from basic usage, advanced, and multi-platform.

6.1.5. Training Options

SOLUTION	EVALUATION
MUIT	No online training available. Learning curve for a new QA engineer is much easier. It only need to know proprietary keywords only
SquashTA	No online training available. For a new QA engineering requires knowledge of the used scripting language, which usually forces the tests to be written by an experienced automation engineer.
Test Studio	4-hour video track covers functional test automation for web, Silverlight and WPF applications, and will help you learn how to solve common automation issues and keep your tests maintainable. Price: \$899
Ranorex	Support webinar, online conference, forum and workshop

Conclusion:

- MUIT: 8
- SquashTA: 6
- Test Studio: 8
- Ranorex: 8

6.1.6. Technical Support

SOLUTION	EVALUATION
MUIT	No technical support since the MUIT is internal tool which is created by experienced SE and QA
SquashTA	Limited support comes from open source community
Test Studio	Telerik provides 24 hours' technical support
Ranorex	Technical support all in online documentation doesn't provide call services

Conclusion:

- MUIT: 4
- SquashTA: 6
- Test Studio: 8
- Ranorex: 7

6.2. Feature Related Criteria**6.2.1. Platform Supported**

SOLUTION	EVALUATION
MUIT	MUIT is available on Windows OS only.
SquashTA	Squash TA is available on Windows OS, Linux, Mac OS
Test Studio	Test Studio is available on Windows OS only.
Ranorex	Ranorex is available on Windows OS only.

Conclusion:

- MUIT: 6
- SquashTA: 8
- Test Studio: 6
- Ranorex: 6

6.2.2. Browser Supported

SOLUTION	EVALUATION
MUIT	MUIT can test application run on Firefox, IE, Chrome
SquashTA	SquashTA can test application run on Firefox, IE, Chrome, Opera, Safari
Test Studio	Test Studio can test application run on Firefox, IE, Chrome, Opera, Safari
Ranorex	Ranorex can test application run on Firefox, Chrome, IE, Chromium

Conclusion:

- MUIT: 7
- SquashTA: 9
- Test Studio: 9
- Ranorex: 8

6.2.3. Mobile App Support

SOLUTION	EVALUATION
MUIT	The current version of MUIT is not supported for mobile app, only supported for Web App only.
SquashTA	Since SquashTA can using PLC Selenium, so it supported mobile app testing
Test Studio	Easily test iOS and Android apps. Run tests on real devices and emulators without writing a single line of code
Ranorex	Support both Android and IOS.

Conclusion:

- MUIT: 5
- SquashTA: 7
- Test Studio: 8
- Ranorex : 8

6.2.4. Installation

SOLUTION	EVALUATION
MUIT	MUIT requires simple installation and prerequisite (e.g. Java SDK, Gradle, cucumber)
SquashTA	SquashTA requires complex installation procedure, such as SquashTA toolbox, SquashTA server, Squash Eclipse
Test Studio	Requires simple installation and prerequisite .NET Framework
Ranorex	Requires simple installation and prerequisite .NET Framework

Conclusion:

- MUIT: 8
- SquashTA: 6
- Test Studio: 8
- Ranorex: 8

6.2.5. Scripting Language Supported

SOLUTION	EVALUATION
MUIT	MUIT script is keywords driven, like human language. For the inspect element needs basic programming skill only.
SquashTA	Since Squash TA using Selenium, it is supported by Java, Python, Ruby, Php, Perl, JavaScript
Test Studio	Supported by C# and VB
Ranorex	Supported by C# and VB

Conclusion:

- MUIT: 6
- SquashTA: 8
- Test Studio: 8
- Ranorex: 8

6.2.6. Scripting Creation Time

SOLUTION	EVALUATION
MUIT	MUIT script is keywords driven, like human language and easy to understand. For the inspect element needs basic programming skill only.
SquashTA	Need much more creation time depends on skill level of QA engineering.
Studio Test	Need less creation time since it has recording tool
Ranorex	Need less creation time since it has recording tool

Conclusion:

- MUIT: 8
- SquashTA: 6
- Test Studio: 8
- Ranorex: 8

6.2.7. Object Recognition

SOLUTION	EVALUATION
MUIT	Able to use SeleniumIDE, FireBug, FirePath to define an object definition
SquashTA	Able to use SeleniumIDE, FireBug, FirePath to define an object. Using exporting from SeleniumIDE, the test script can be generated
Test Studio	Easy for object recognition since it use recording tool
Ranorex	Easy for object recognition since it have recording tool

Conclusion:

- MUIT: 7
- SquashTA: 7
- Studio Test: 7
- Ranorex: 7

6.2.8. Continues Integration

SOLUTION	EVALUATION
MUIT	Can be achieved through Gradle and Jenkins
SquashTA	Can be achieved using Squash TM including Jenkins and also reporting to JIRA
Test Studio	Able to integrate with any Build Server, such as Jenkins, CruiseControl, Bamboo, Visual Studio, TeamCity
Ranorex	Support code maintenance or versioning (git), TFS

Conclusion:

- MUIT: 7
- SquashTA: 8
- Test Studio: 8
- Ranorex: 8

6.2.9. Data Store

SOLUTION	EVALUATION
MUIT	MUIT unable to read data from external source, we just add several data inside the scripting file using json
SquashTA	Squash TA is able to read from DB and other file type such as csv and excel file and many more
Test Studio	Test Studio is able to read from DB and other file type such as xml, csv and excel file and many more
Ranorex	Ranorex is able to read from DB and csv, other type file such as excel

Conclusion:

- MUIT: 6
- SquashTA: 8
- Test Studio: 8
- Ranorex: 8

6.2.10. Reporting/Test Report

SOLUTION	EVALUATION
MUIT	MUIT produces cucumber report after running process is finished. It contains the testing scenario and the error
SquashTA	SquashTA doesn't produce report directly. The report will be produced by Squash TM
Test Studio	Test results are visualized through interactive graphs and charts. Users can explore their test list results over time, export reports in common file formats (as image or html), and leave comments within reports. Once the test is executed and the results are analyzed, the test can be directly published to the selected project build by instantly connecting to the TFS
Ranorex	Test result are complete starting from status, computer user, OS, execution time, total error(s) total warning(s), within the screenshot each step and each action and also graph

Conclusion:

- MUIT: 6
- SquashTA: 8
- Test Studio: 8
- Ranorex : 9

7. Conclusion

Using Mitrais weighting criteria, the team recommended Squash TA.

As an agent, using Squash TA drives open source third party PLCs like Selenium, Sahi or SoapUI, and also adds functionalities to control a batch.

Please note that this is the result from the Mitrais criteria weighting schema which correlates with Mitrais current need. Other clients may use this report with different weightings to meet their unique requirements and come to a different conclusion.

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