Abstract:

Introduction:

This paper presents best practices for script optimization and maintenance in HP-QTP. These best practices are relevant for any project that uses QTP as its test automation tool.

The topics covered are:

- Relative path in QTP
- Optimizing scripts by reducing function calls to the object repository
- Wait statements and why should we avoid them
- QTP IDE options

Audience:

- Software Testers with exposure to QTP
- Senior Automation Testers using QTP
- Test Leads
- Test Managers

Area of Application:

These best practices should be incorporated in any project that uses HP-QTP; they are relevant for any QTP framework.

Benefits:

- Scripts optimization
- Maintainability of reports
- Portable scripts

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1.0 Introduction

QuickTest Professional is one of the most widely used functional and regression testing tools. It is seen that while the tool is used adequately to meet its objectives, aspects such as optimization, maintainability and portability of scripts are often ignored.

This paper discusses points on how to optimize run-time performance of QTP scripts, and to develop scripts that are portable and maintainable.

2.0 Content

Make use of relative paths while calling reusable actions in a script

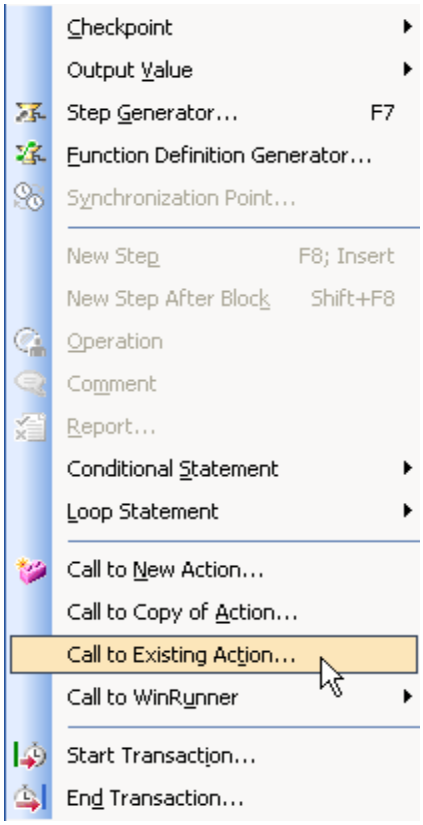
What is relative path?

There can be two types of path in your file System, absolute and relative.
A **full path** or **absolute path** is a path that points to the same location on one file system regardless of the working directory.
Example of a full path:
C:\Program Files\Mercury Interactive\QuickTest Professional\Tests
while

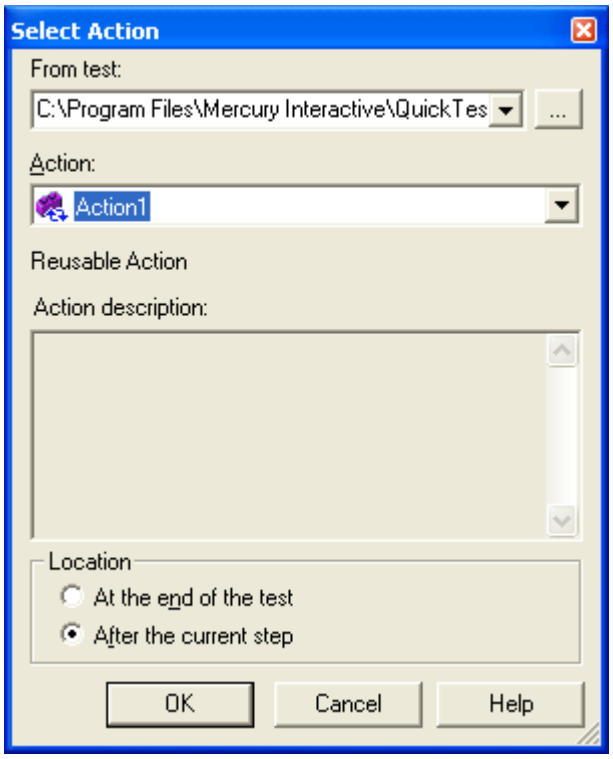
A **relative path** is a path relative to the current working directory, so the full absolute path may not need to be given.
Example of a relative path: Say your current working directory is **QuickTest Professional** as shown above so the relative path for the folder **Mercury Interactive** which is one level up would be **..\..\Mercury Interactive** similarly folder which is on same level can be referenced by ***..\Some Folder***

The benefits of using relative paths in QTP become evident now. Suppose you have a test where you need to call a reusable action that was created in a

different test. The normal steps we follow would be: Insert > Call to existing Action

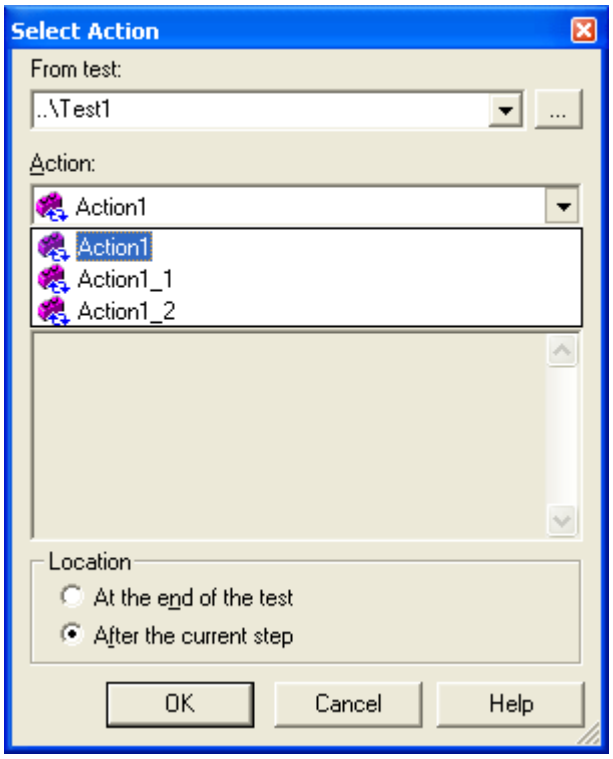


and then we select the reusable action from the drop down list.



The major drawback with this approach is that if you need to shift your files to another computer where an identical path does not exist, you will have to do a lot of rework and map the reusable actions all again.

To get over this problem, we can use relative path. In the Select Action box as shown below instead of selecting the test just type in **..\Test1.** If there is a test named "**Test1**" in the current directory, action drop down box would automatically populate the list of reusable actions under it.



Reduce as many function calls to the object repository as possible

Example of a function call is Window("Flight Reservation").WinEdit("Name:").Set "Ankur". In this example there are two calls to the object repository Window() and WinEdit().

Here is an experiment with the windows-based flight reservation sample application.

The example below shows the usage of With statement that helps in reducing a function call.

```
Dim StartTime, EndTime, StartTime1, EndTime1

SystemUtil.Run "C:\Program Files\Mercury
Interactive\QuickTest
Professional\samples\flight\app\flight4a.exe","","C:\Progra
m Files\Mercury Interactive\QuickTest
```

```
Professional\samples\flight\app\","open"

With Dialog("Login")
.WinEdit("Agent Name:").Set "mercury"
.WinEdit("Agent Name:").Type micTab
.WinEdit("Password:").SetSecure
"4864ede3f3f8f30757cf694e3e100d29bf1ea9b9"
.WinEdit("Password:").Type micReturn
End With

StartTime = Timer

With Window("Flight Reservation")
For i=1 to 1000
.WinEdit("Name:").Set "Ankur"
Next
End With
EndTime = Timer
Msgbox EndTime - StartTime
```

This was iterated 1000 times. QTP took 41.71875 seconds to complete these many iterations.

The example below shows the usage without With statement.

```
Window("Flight Reservation").Close


SystemUtil.Run "C:\Program Files\Mercury
Interactive\QuickTest
Professional\samples\flight\app\flight4a.exe","","C:\Progra
m Files\Mercury Interactive\QuickTest
Professional\samples\flight\app\","open"

With Dialog("Login")
.WinEdit("Agent Name:").Set "mercury"
.WinEdit("Agent Name:").Type micTab
.WinEdit("Password:").SetSecure
"4864ede3f3f8f30757cf694e3e100d29bf1ea9b9"
.WinEdit("Password:").Type micReturn
End With

StartTime1 = Timer
For i=1 to 1000
Window("Flight Reservation").WinEdit("Name:").Set "Ankur"
```

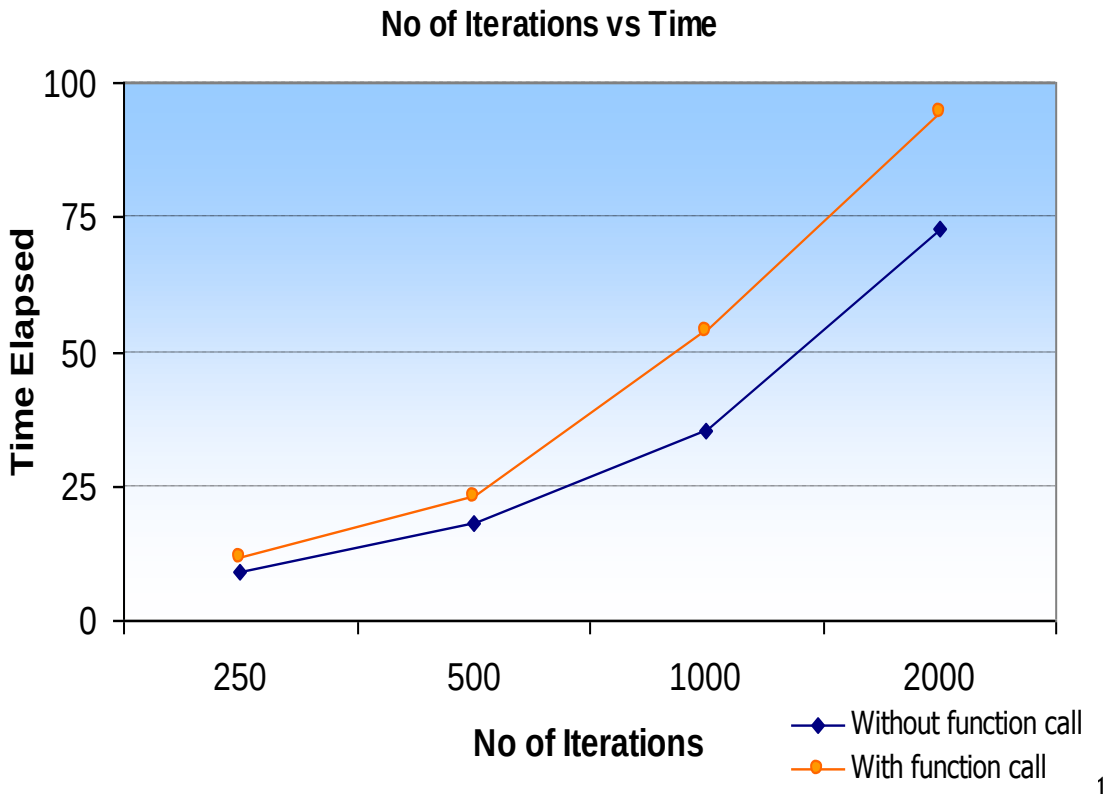
```
Next
EndTime1 = Timer

msgbox EndTime1 - StartTime1
```

'The above test was iterated 1000 times. QTP took 45.85938 seconds to complete these many iterations.

This experiment was carried out on a machine which has 2GB RAM. With 1000 iterations **the diff is > 4 sec**. The effect (performance degradation) would be much more pronounced on larger tests that have a higher number of function calls involved, and/or if it is carried out on machines that have configuration just on threshold (512MB, the minimum RAM recommended by HP).

The graph below shows effect of time on the two line graphs, as we increase the number of iterations.



Avoid using hard coded wait (x) statement

Wait statement waits for 'x' seconds, even if the event has already occurred. Instead use **.Sync** or .**Exist** statement. While using exist statement, specify a value inside it.

For ex: *.Exist(10)* Here QTP will wait max till 10 seconds and if it finds the object at (say) 3 secs , it will resume the execution immediately thereby saving execution time. On the other hand if you leave the parenthesis blank, QTP would wait for object synchronization timeout that has been mentioned under File > Test Settings > Run Tab.

QTP IDE options

QTP IDE provides many useful options. It is seen that people tend to overlook these. Below are some of these options that can help you in optimizing the script run time and ensure robustness of the script.

- Uncheck the options "*Save still image capture to results*" and "*Save movie to results*" present under Tools > Options > Run tab.
- Make the Run Mode as "fast". This setting is present under Tool > Options > Run tab. **Note:** If you intend to run your scripts from QC you need not worry about this option, as the scripts WILL run in fast mode whether you want it to or not.

3.0 Conclusion

The points discussed above are framework-independent. It is recommended that these should be incorporated in every project that employs HP-QTP as a test automation tool.

4.0 Definitions, Abbreviation and Acronyms

Acronym	Description
QTP	QuickTest Professional
HP	Hewlett Packard
IDE	Integrated Development Environment

5.0 References

Item	Description
QTP Documentation	HP QTP reference manual

Biography of the author

Ankur Jain has more than 6 years of experience on automation testing tools, and is a Mercury (now HP) certified Quick Test Pro specialist. He has worked on several QTP projects to perform large-scale regression tests, health checks after data conversion in ERP applications and automating data load in implementation projects. His experience covers various technologies like Visual Basic, Active X, Java, Siebel, Mainframes and Oracle.

In automation testing, he has played several roles, from a team member to a test architect to an automation test lead. He played a key role in creating a test strategy, which was implemented for the entire organization. He participates in feasibility/cost-benefit analysis for the usage of QTP in new

projects that are taken up by the organization, training consultants from the application teams on QTP, planning automation activities, design and execution of automated test scripts.

He also maintains a high traffic blog on QTP called http://www.learnqtp.com/ and is the owner and administrator of a successful forum on QTP (8000+ members, 3500 threads, 11719 posts). If he is not working on any of the above, you can be sure to find him online playing chess or researching on cool new technologies. Be it the news of Google acquiring Android or cool new wordpress plug-ins, he makes it a point to KNOW IT ALL.