

BACKGROUND

WinRunner has been a popular tool for automatic regression testing of Graphical User Interfaces (GUIs) of software systems. Automatic testing of GUIs is critical because software is increasingly becoming web-based and/or being operated through sophisticated graphical interfaces. WinRunner, a pioneering tool developed by Mercury/HP, has also been the most widely adopted tool for GUI-testing. WinRunner allows one to record a sequence of actions and then play them back. The sequence of actions can be recorded as a script, which can be further enhanced by the human tester for more sophisticated and extensive testing. A WinRunner test consists of two main files: the GUI map file and the script file itself. The GUI map file has a description of the various objects that constitute the GUI. The script file contains the sequence of actions that constitute the actual test. The scripts are written in a language called TSL (Test Scripting Language). TSL is a powerful, Turing-complete programming language. TSL is based on "older" programming conventions of the 1980s.

HP has developed a newer tool for GUI testing called Quick Test Pro (QTP). QTP is based on modern, object-oriented programming conventions. On Feb 15, 2008, HP announced that WinRunner system will be retired. Bug fixes and telephone support will be provided for WinRunner until Aug 1, 2009. Only telephone support will be provided after Aug 1, 2009. No support in any form will be provided Jan 1, 2011, onwards.

MIGRATING WINRUNNER SCRIPTS

HP customers who have made significant investments in WinRunner have developed tens of thousands of lines of scripting code. Many customers have developed extensive libraries and frameworks to facilitate the testing of their GUI-based systems. Such customers need a solution that will allow them to smoothly transition from the WinRunner system to the QTP system. This transition process essentially will have to convert WinRunner GUI map files to QTP object map files (expressed in XML for QTP version 9.2 and higher) as well as convert scripts written in WinRunner TSL to those written in QTP's VBScript.

There are two approaches that one can take for migration:

1. **Perform the conversion manually:** This is a costly and error-prone process as the logic of each TSL script has to be understood, the object map manually recorded and then the QTP scripts constructed. This approach works only if the code base is small.
2. **Build a language translator** that automatically converts WinRunner's GUI-map files and scripts to QTP's object map files and scripts. Two companies have already built such translators in the past, however, both these translators (Win-Quick and QTP Genie) convert only around 80% of the code. Rest of the conversion has to be done manually. This manual conversion step requires understanding the script code in order to correct it. Significant investment of time is needed. One could argue that a translation-based approach that is not nearly 100% automatic is no better than the manual approach.

INTEROPERATE'S DISRUPTIVE WR2QTP TRANSLATOR

Interoperate has recently developed a translator that converts WinRunner scripts to QTP with nearly 100% automation. Interoperate's translator relies on a path-breaking technology based on formal semantics and rule-based languages that allows translators for the most complex languages to be constructed in a few months as opposed to a few years.

Interoperate's WR2QTP translator works as follows: it first converts the WinRunner GUI map files to QTP's object repository files and the TSL scripts to QTP's VBScript scripts respectively. Since in WinRunner the object hierarchy has only two levels, while QTP requires the complete hierarchy of a GUI-object to be specified, minor manual intervention is required at this point. The modification mainly consists of inserting intermediate levels of the object-hierarchy and possibly adding/modifying properties of existing GUI-objects to ensure that these objects will be recognized correctly by QTP. The modifications and additions to be made are easily found by loading the object map file on to the QTP tool. These modifications are obvious to any one who is conversant with the QTP tool. In many situations (such as for Oracle forms), even this manual modification is not needed as Interoperate's translator can figure out the entire object hierarchy in QTP. The scripts are re-translated with the corrected object map file to obtain the final scripts. Note that with Interoperate's translation technology, the scripts are never touched, i.e., script translation is completely automatic.

At present Interoperate's WR2QTP translator can handle

1. Web-based GUIs
2. Windows-based GUIs
3. Oracle apps
4. Java-based GUIs

For Oracle apps, the translator rarely needs any manual intervention, as the entire object map can be automatically generated. This holds true for other types of applications also. The scripts generated by the translator are highly readable; a tester can further enhance/modify them as the GUI and its testing evolves.

With Interoperate's innovative translator, one can translate several thousand lines of WinRunner scripts to QTP per day. The translator is as close to a push-button translation technology as one can get, and can be used by a QTP consultant. A customer who wishes to translate their WinRunner scripts to QTP scripts can simply license Interoperate's translator; a testing professional who is conversant with QTP can then perform the automatic translation and run the converted scripts in QTP.

Other salient features of Interoperate's translator:

1. handles descriptive programming techniques used in WinRunner scripts;
2. handles framework-based automation testing scripts efficiently;
3. handles checkpoints in a manner transparent to the user;
4. handles user-defined libraries, procedures and functions developed in TSL; and,
5. any changes are non-recurring, i.e., once a feature enhancement is identified, the translator can be fixed on-the-fly once and for all and the code retranslated to incorporate the change everywhere in all the scripts involved.

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