



# WinRunner to QTP Migration for Spectra Energy

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*Translation – Case Study*

*Version 1.0*



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## Introduction

Interoperate uses an advanced methodology to translate legacy and obsolete software to its modern version. We typically achieve automation in excess of 95%. Other translation techniques take longer and have less automation resulting in lower accuracy, longer time, higher cost and more manual effort. With Interoperate's semantic translation techniques, projects can be completed in a fraction of the time with very accurate results and much lower cost. This case study illustrates how Interoperate successfully completed the migration of Spectra Energy's winrunner testing framework to the QTP testing framework using its translation tool "WR2QTP".

## Our Client: "Spectra Energy"

Spectra Energy Corp (NYSE: SE), a FORTUNE 500 company, is one of North America's premier natural gas infrastructure companies serving three key links in the natural gas value chain: gathering and processing, transmission and storage, and distribution. For nearly a century, Spectra Energy and its predecessor companies have developed critically important pipelines and related infrastructure connecting natural gas supply sources to premium markets. The company has one of the largest natural gas transportation systems in the country. It has following five primary U.S. transmission systems: Texas Eastern, Algonquin, East Tennessee, Maritimes & Northeast Pipeline, and Gulfstream.

## Business Challenge

On Feb 15, 2008, HP announced that WinRunner system will be retired. No support in any form will be provided Jan 1, 2011, onwards. Spectra Energy has made significant investments in WinRunner. They have more than eighty thousands of lines of scripting code and fifty thousand lines of WinRunner GUI files. They needed 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 were two approaches that **Spectra Energy** could 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.
2. **Build a Language Translator:** 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.



## Solution

Using Interoperate's migration tool WR2QTP we could migrate Winrunner's TSL scripts to QTP scripts with 100% automation. Once all the scripts were translated we ran them all to validate to confirm they behave exactly same as it were in winrunner.

## Migration Approach

### Objectives

- Migration of Winrunner scripts to QTP scripts with exactly same test framework and test data files
- Migrated Scripts should functionally behave exactly same as the winrunner scripts
- The winrunner coding structure and comments must be preserved in QTP side
- Complete the migration in 10 weeks time
- Provide onsite training to the customers on the migrated framework

### Challenges and Solution Approaches

- The biggest challenge in any project is estimating the project. We have tools which can estimate exactly the number of lines of script code excluding comments and blank lines. The tool also detects syntax errors in winrunner and the errors that may cause problem after translation even though it is not a problem in winrunner. One of the examples is in winrunner it is possible to declare a function with a name and the same name can be used as an argument variable for the same function. In QTP this scenario is not allowed. Hence these cases have to be handled manually. But our tool generates reports for these types of errors so that we know where to fix the code after translation. This gives us very good information to estimate the project.
- The winrunner GUI objects were not recorded with proper plug-ins. Hence even though the objects were getting recognized in winrunner, translating the GUI object is impossible with any automated tool. Therefore we recorded all the objects for the entire application in QTP side in one week and all the missing objects were recorded as we validate the scripts.
- The GUI objects were not generic and hence they had duplicate objects. Therefore the number of objects was more than 10,000 with more than 50000 lines of GUI files. We analyzed the objects and applied the maximum level of abstraction to shrink the repository in QTP side by 70%. This resulted in more maintainable object repository and better performance.
- As the number of objects shrunk, the logical names in translated QTP scripts have to be modified accordingly. It will take a lot of manual effort to achieve this objective. But we have developed few utilities which can modify the logical names automatically using common pattern matching techniques.
- In winrunner Spectra Energy used the built in Exception functions to handle bad execution path of scripts. QTP provides recovery scenarios for the same thing. It is impossible to automate the process of migration from one solution paradigm to another. Hence manually doing it in all the 1600 scripts will take lot of time and manual effort. But at Interoperate we have solution to

record all the QTP recovery scenarios corresponding to each exception in winrunner and then automatically add those to all the scripts. This saves a lot of manual effort and speeds up the migration process.

- Spectra Energy had more than 1600 winrunner projects. To create corresponding QTP projects is a time consuming process. But our translator not only translates the scripts but also automatically creates QTP projects for every winrunner projects and associates the required resources to the projects automatically.

## Plan

- Used our project management utilities to estimate the size of the project.
- Divided the complete framework in to modules to be translated and validated as individual and independent groups.
- Divided the total time into three phases. The initial phase is to customize the translator to meet the specific needs of Spectra and achieve maximum automation. The second phase of the project was to record the object repository and translate all the modules. In the third phase which is actually the 70% of the time was allocated for the validation.
- We planned for a three weeks of post delivery support to make sure the team at Spectra is comfortable with the migration and trained in every aspects of the new framework.

## Execution

- Recorded separate object repositories for different modules. We usually translate objects but in this case as mentioned before it was impossible to translate due to use of wrong plug-ins in winrunner to record objects.
- Translated individual modules separately. This created the QTP projects with necessary resources required such library files and object repositories
- Associated recovery scenarios to all the projects automatically
- Validated the modules in parallel to confirm exactly same winrunner behavior

## Tracking

- During the course of project we used our statistics utility which generates daily statistics information such as
  1. Number of lines validated
  2. Number of script files validated
  3. Total number of remaining lines of code
  4. Total number remaining script files
  5. Percentage of project completed
- We sent weekly reports to Spectra Energy to keep the customer informed about our progress.

## Acceptance

- As we deliver every migrated module to the customer, they run the scripts in QTP and confirm that it is accepted by them as per the previously set requirements.



## Value Addition

- We provided Spectra Energy on site training on the migrated framework.
- Post migration support was provided to the client in case of any technical issues and bug fixes.
- Prepared and submitted a report with information to further re-architecture the scripts for better performance and code reusability.

## Conclusion

It was very business critical to quickly migrate to QTP from winrunner .Spectra Energy had a goal to completely migrate to QTP in 3 months time and then use both winrunner and QTP simultaneously for 2 testing cycles to confirm that the migration is successful and safe. Interoperate successfully migrated all the 80000 lines of scripts and 50000 lines of GUI objects in 10 weeks times with the customer's acceptance to the migrated scripts and object repository.

## Appreciations

## Contacts

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