

# SQC WinRunner 7.5 TSL Toolkit

**Purpose** The toolkit provides routines for performing common tasks, reducing coding effort and improving the reliability of scripts at run-time. The routines fall in to three categories.

Enhanced script support - functions / utilities which can be used in a single script.

Execution Management - functions / utilities which manage the use of test components.

Advanced Architecture support - functions / utilities which operate to support a test framework.

## Enhanced Script Support

**Data Type Enhancements** Routines are provided that force a character by character comparison of strings, that do boolean conversions & validity checks, to check if values are numeric and that convert values to a pure numeric form. Support for mathematical set types including intersection, union and set difference is provided.

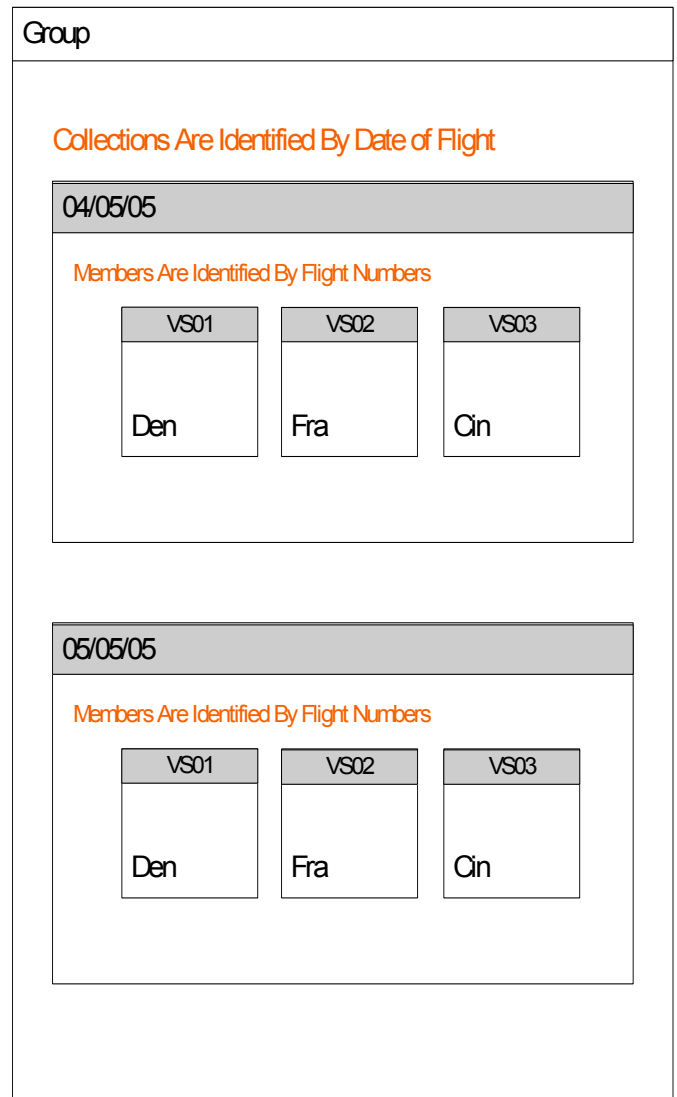
**Array Utilities** Operations to access and manipulate data stored in arrays are provided. Common tasks such as filtering arrays based on array index matches or payload matching are provided. For multi dimensional arrays, selections can be done using a subset of the indices. An array can be cloned, counted and added to with overwrite.

Routines exist to write an array to and read an array from a file. This is beneficial for data driven tests and where data captured at run-time must be stored for later off-line analysis.

**Collections of Data Values** Support is provided for storing sets of records where each record consists of named fields, each with a value. This Group of Collections is illustrated in Figure 1. Each group contains collections, each with an identifier and each collection has members, each with an identifier and an associated payload. Support is provided for extracting, setting and deleting members, identifying the member(s) to work with by either using specific values or regular expressions.

**Descriptor Operations** Identifying windows and objects to operate on is a fundamental part of using WinRunner. Dealing with applications where there are multiple instances of the same window, pop up windows or where windows may move about on the screen can be difficult. The existing functionality in WinRunner is enhanced with routines to operate on descriptions to overcome the difficulties.

Figure 1 Group of Collections



**Window Searches** Support is provided to obtain lists of window handles or a count of the number of windows that exist matching a window descriptor.

**Window Audits** Comparing the windows that exist before and after an operation may be necessary to verify the result of an operation. The toolkit window audit provides this functionality. Snapshots of windows are stored before and after an operation. Query functions provide for the identification of instances of new and closed windows. This can be used to allow scripts to work

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which create multiple instances of the same window - each new instance can be uniquely identified.

**Window Clean-Up** This functionality finds and closes all instances of windows matching specified criteria. It is useful for setting a system to initial conditions particularly where there is uncertainty regarding the windows open.

A custom close function can be specified where special action is required to close the window. If no function is specified then the default method of closure is applied.

**Regular Expression Data Parsing** Utility functions are provided for extracting fields from strings. A string is split into a prefix, a payload and a postfix Regular expressions are used to define the make up of each element. A good example of the benefit of the use of this function can be seen in the WinRunner sample application Flight1a for extracting the data in the fax preview window.

**Stuffing / De-stuffing Escape Characters in Strings** Problems can be encountered where values stored in string variables (not the source statements) contain a backslash character followed by another character that together form an escape character sequence. Generally this is not a problem, but some functions, for example the eval function, re-parse their input and so corrupt the string. Functions are provided that can be used to eliminate the problem.

## Execution Management

**Testware Component Load Management** Handles the difficult task of managing resources through a test set. Routines allow a script to specify the start and end period over which a resource is required and provide for the safe embedding of these periods. The mechanism prevents resources being unloaded when they are still required or remaining loaded when they are not. Using these routines improves reliability and avoids unnecessary conflicts. The resources managed are compiled modules, DLLs and GUI maps.

For compiled modules, there is the additional capability to automatically load and unload resources it is dependent on when it is loaded.

**Stacked Variable Updates Service** Safely changing WinRunner environment variables requires the ability to restore them to their original value. The stacked variable updates service does this for you in an elegant, generic and reliable manner, removing the risk of corruption of the variables as nested components execute.

## Architecture Support

**Diagnostic Logging.** Sophisticated testware requires diagnostic logging support to be reliable and understandable. The toolkit provides a diagnostic logging service which is configurable on the fly during a test run and the test results output file does not become cluttered.

**Event Service** This allows a script to broadcast an event.

Interested modules, "listeners" can register for an event and provide an event handler function. This function is automatically executed when the event is triggered. This is useful, for example, for tracking events that occur on a test item, say, a user account. The need to pass events through the call chain is removed.

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**WinRunner 7.5** The toolkit has been developed for use with WinRunner 7.5. The functionality provided has been designed from the use of WinRunner and a knowledge of the complexities and difficulties of automated testing. It provides routines and facilities to assist the building of a reliable test suite.

**More Detail...** Can be found in SQCTKDOC02-V04(Scope-Of-The-Toolkit) and SQCTKDOC03-V03(Reference-Manual).