

# How Mature is Your Automated Test Suite?

by Mark Fewster

Are you realising the full potential of your automated test suite? A rough guide to the extent to which you are reaping the benefits of test automation is by considering the maturity of your test suite. The more mature the test suite the greater the efficiency and effectiveness of test automation.

You may be familiar with maturity levels used by the SEI's Capability Maturity Model. For maturity of an automated test suite my levels are on a human scale: infant; adolescent; and adult.

An automated test suite at the infant stage will need a lot of baby-sitting. Many tests will not run to completion, partly due to bugs in the software under test (and of course there will be a good number of them) and partly due to the test script being out of step with it.

Bugs in the software will cause the test to fail and possibly the script to stop execution or at least to invalidate anything else it tries to do. Inconsistencies between the software under test and the test script will always invalidate anything else the script does. In either case you have to fix the bug or update the script and then re-run the test to find the next problem.

This is baby-sitting at its best (or worst!) you cannot leave the tests running unattended for more than a few minutes at a time. (Doesn't sound much like automation does it?) If you're lucky you won't spend much more time encouraging the script to run to completion than you would have done running the test manually in the first place. Unfortunately though, such luck is rare!

At the adolescent stage the test suite can be left alone to execute the tests unattended for a reasonable time. Perhaps a few hours and at the most overnight. A single error in the software will cause a lot of tests to fail. The error may be important to know about but we don't need dozens of tests telling us about the same one. A lot of

time can be wasted analysing the cause of each failure and this prevents many tests revealing other errors that we don't know about. To find these errors it is necessary to fix the problems and re-run the tests, a cycle that may have to be repeated many times.

A mature test suite can be left to run unattended for a long time, even over a whole weekend. At the end of the test run there will be a lot of useful information. Some tests will have failed (perhaps most of them) but, by and large, they will all tell you something different and mostly about the software under test, not the test script. Now you can concentrate on finding and fixing problems in the software. Your test suite has done its job without your intervention. Furthermore, most if not all of the environment set up and clear down before and after testing will be performed by the test suite. You will be free to concentrate on other more creative tasks. Each test suite will have to grow up through these stages but you don't have to let nature take its course. With a bit of thought and careful nurturing you can speed it up.

Implementing an efficient and effective automated test suite is not an art but an engineering discipline in its own right. The fallacy of creating automated tests using record and playback techniques alone is now fairly well understood but that is only the first lesson. There is more to a mature test suite than automated test validation, programmed scripts and test completion reports. It involves a planned approach to many other issues such as data organisation, test design and test maintenance. Only by managing all aspects of test automation will the full benefits be realised.

Make sure your automated test suite grows up and gives you all the benefits you deserve.