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2nd Edition

Jamie L. Mitchell · Rex Black

Advanced Software Testing Vol. 3

Guide to the ISTQB Advanced Certification
as an Advanced Technical Test Analyst

Advanced Software Testing—Vol. 3
2nd Edition

About the Authors



Jamie L. Mitchell

Jamie L. Mitchell has over 32 years of experience in developing and testing both hardware and software. He is a pioneer in the test automation field and has worked with a variety of vendor and open-source test automation tools since the first Windows tools were released with Windows 3.0. He has also written test tools for several platforms.

The former Lead Automation Engineer for American Express Distributed Integration Test / Worldwide, Jamie has successfully designed and implemented test automation projects for many top companies, including American Express, Mayo Clinic, IBM AS/400 division, ShowCase Corporation, and others. Jamie holds a Master of Computer Science degree from Lehigh University in Bethlehem, Pennsylvania, and a Certified Software Test Engineer certification from QAI.

He has been a frequent speaker on testing and automation at several international conferences, including STAR, QAI, and PSQT.



Rex Black

With over 30 years of software and systems engineering experience, Rex Black is president of RBCS (www.rbc-us.com), a leader in software, hardware, and systems testing. For 20 years, RBCS has delivered consulting, outsourcing, and training services in the areas of software, hardware, and systems testing and quality. Employing the industry's most experienced and recognized consultants, RBCS conducts product testing, builds and improves testing groups, and provides testing staff for hundreds of clients worldwide. Ranging from Fortune 20 companies to start-ups,

RBCS clients save time and money through higher quality, improved product development, decreased tech support calls, improved reputation, and more.

As the leader of RBCS, Rex is the most prolific author practicing in the field of software testing today. He has written over 50 articles and ten books that have sold over 100,000 copies around the world, including numerous translations and foreign releases such as Japanese, Chinese, Indian, Spanish, Hebrew, Hungarian, and Russian editions. He is a popular speaker at conferences and events around the world.

Rex is the past president of the International Software Testing Qualifications Board (ISTQB) and of the American Software Testing Qualifications Board (ASTQB).

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This book is printed on acid-free paper.

Jamie Mitchell's Acknowledgements

What a long, strange trip it's been. The last 30 years have taken me from being a bench technician, fixing electronic audio components, to this time and place, where I have cowritten a book on some of the most technical aspects of software testing. It's a trip that has been both shared and guided by a host of people that I would like to thank.

To the many at both Moravian College and Lehigh University who started me off in my "Exciting Career in Computers," for your patience and leadership that instilled in me a burning desire to excel, I thank you.

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In my professional life, I have been tutored, taught, mentored, and shown the way by a host of people whose names deserve to be mentioned, but the list is too abundant to recall every name. I would like to give all of you a collective thanks; I would be poorer for not knowing you.

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driven framework in the late 90's that was a wild success until the 16-bit tool finally maxed out and caused the whole architecture to fold in on itself: I appreciate your patience and regret you lost your job for letting me go so long on my seminal failure.

To Rex Black, for giving me a chance to coauthor the Advanced Technical Test Analyst course and this book: Thank you for your generosity and the opportunity to learn at your feet. For my partner in crime, Judy McKay: Even though our first tool attempt did not fly, I have learned a lot from you and appreciate both your patience and kindness. Hoist a fruity drink from me. To Laurel and Dena and Leslie: Your patience with me is noted and appreciated. Thanks for being there.

In the spirit of "It Takes a Village," no one really works alone today. While writing this book, I got help from several people who tried to keep me on the straight and narrow. I want to especially thank Amr Ali who added valuable input in his timely book reviews and gave me many valued suggestions during the review period. I would also like to thank Leslie Segal who provided deep insight into several topics while I worked on this book.

And finally, to my family, who have seen so much less of me over the last 30 years than they might have wanted, as I strove to become all that I could be in my chosen profession; words alone cannot convey my thanks. To Beano, who spent innumerable hours helping me steal the time needed to get through school and set me on the path to here, my undying love and gratitude. To my loving wife, Susan, who covered for me at many of the real-life tasks while I toiled, trying to climb the ladder: my love and appreciation. I might not always remember to say it, but I do think it. And to my kids, Christopher and Kimberly, who have always been smarter than me but allowed me to pretend that I was the boss of them, thanks. Your tolerance and enduring support have been much appreciated.

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Rex Black's Acknowledgements

A complete list of people who deserve thanks for helping me along in my career as a test professional would probably make up its own small book. Here I'll confine myself to those who had an immediate impact on my ability to write this particular book.

First of all, I'd like to thank my colleagues on the American Software Testing Qualifications Board, the International Software Testing Qualifications Board, and especially the Advanced Syllabus Working Party, who made this book possible by creating the process and the material from which this book grew. Not only has it been a real pleasure sharing ideas with and learning from each of the participants, but I have had the distinct honor of twice being elected president of both the American Software Testing Qualifications Board and the International Software Testing Qualifications Board. I continue to work on both boards. I look back with pride at our accomplishments so far, I look forward with pride to what we'll accomplish together in the future, and I hope this book serves as a suitable expression of the gratitude and sense of accomplishment I feel toward what we have done for the field of software testing.

Next, I'd like to thank the people who helped me create the material that grew into this book and the previous edition of it. The material in this book, in our Advanced Technical Test Analyst instructor-led training course, and in our Advanced Technical Test Analyst e-learning course were coauthored by Jamie Mitchell, and reviewed, re-reviewed, and polished with hours of dedicated assistance by Bernard Homés, Gary Rueda Sandoval, Jan Sabak, Joanna Kazun, Corné Kruger, Ed Weller, Dawn Haynes, José Mata, Judy McKay, Paul Jorgensen, and Pat Masters.

Of course, the Advanced Technical Test Analyst syllabus could not exist without a foundation, specifically the ISTQB Foundation syllabus. I had the honor of being part of that working party as well. I thank them for their excellent work over the years, creating the fertile soil from which the Advanced Technical Test Analyst syllabus and thus this book sprang.

In the creation of the training courses and the materials that make up this book, Jamie and I have drawn on all the experiences we have had as authors, practitioners, consultants, and trainers. So I have benefited from individuals too numerous to list. I thank each of you who have bought one of my previous books, for you contributed to my skills as a writer. I thank each of you who have worked with me on a project, for you have contributed to my abilities as a test manager, test analyst, and technical test analyst. I thank each of you who have hired me to work with you as a consultant, for you have given me the opportunity to learn from your organizations. I thank each of you who have taken a training course from me, for you have collectively taught me much more than I taught each of you. I thank my readers, colleagues, clients, and students and hope that my contributions to each of you have repaid the debt of gratitude that I owe you.

For over 20 years, I have run a testing services company, RBCS. From humble beginnings, RBCS has grown into an international consulting, training, and outsourcing firm with clients on six continents. While I have remained a hands-on contributor to the firm, over 100 employees, subcontractors, and business partners have been the driving force of our ongoing success. I thank all of you for your hard work for our clients. Without the success of RBCS, I could hardly avail myself of the luxury of writing technical books, which is a source of pride for me but not a whole lot of money. Again, I hope that our mutual successes have repaid the debt of gratitude that I owe each of you.

Finally, I thank my family, especially my wife, Laurel, and my daughters, Emma and Charlotte. It's hard to believe that my first book, *Managing the Testing Process*, was published the year before my first daughter was born, and now she is a 14-year-old young lady. My second daughter was born right about the time I first got involved with the ISTQB program, in 2002. As proud as I am of my books and my work with the ISTQB, well, those two girls are the greatest things I've ever been part of doing. My wife (who also happens to be my astute business partner) has done all of the hard work of keeping the plates spinning on the pencils while I do things like speak at conferences and write books. As Brad Paisley put it, "Now there are men who make history, there are men who change the world, and there are men like me that simply find the right girl." If I had nothing but my family, I'd still be the luckiest guy I know.

Of course, in every life, even the luckiest life, some rain will fall. Earlier this year, my family and I lost our dog Cosmo after a long—one might say interminable—series of illnesses spanning years. To all but the last of these maladies, he absolutely refused to succumb, due to the fact, as I'm sure he saw it, that there

was surely more food to steal from someone's plate. Within two weeks of Cosmo's sad departure, a much less predictable canine tragedy occurred. Our other dog, a rescue black Labrador named Hank, was stricken with a cruel, aggressive, and incurable cancer. He fought it with his usual brio and quirky style, enjoying every day of life. However, as cancer will do to dogs, it killed him in September as I was working my way through this book. Chase butterfly shadows and chipmunks in heaven, my friend, and maybe I'll see you there someday.