Chapter 1: Web Services Testing and soapUI

- SOA and web services
- Service-oriented solutions
- Case study
- Building blocks of SOA
- Simple Object Access Protocol
- Alternatives to SOAP
- REST
- Java Script Object Notation
- Web Services Description Language
- Message exchanging patterns
- SOAP Faults
- Approaches of testing web services
- Unit testing of web services
- Functional testing
- Tool assisted testing
- Using client APIs provided by service container middleware
- Integration testing of web services
- Performance testing of web services
- The common challenges of Web services testing
- Use of external web services
- Implications of using complex standards and protocols
- Headless nature of web services
- What is soapUI?
- Capabilities of soapUI
- Installing soapUI
- System requirements
- Installing soapUI on Linux
- soapUI installation on Windows
- Installing soapUI on MacOS
- A glance at soapUI user interface

Chapter 2: The Sample Project

- The problem domain
- Project pre-requisites
- Java
- Apache Ant
- MySQL
- Setting up Apache Axis2
- Setting up project source directories
- Designing the web services
- Creating the database
• Implementing the web services
• Web services fault handling
• Managing database operations
• Completing the web service implementation classes
• Deploying web services

Chapter 3: First Steps with soapUI and Projects
• Understanding the web services definition
• Schema
• portType
• binding
• Service
• Creating a soapUI project
• Invoking the guest management web service
• A detailed look at SOAP requests and responses
• Generating SOAP Faults

Chapter 4: Working with Your First TestSuite
• A sample test scenario
• Creating a TestSuite
• Adding TestCases
• addRoom TestCase
• getRoomDetails TestCase
• deleteRoom TestCase
• Running the first TestSuite
• Adding test assertions
• Not SOAP Fault assertion
• XPath Match assertion
• The Contains assertion
• Adding properties to soapUI tests
• Reading property values from a file
• Transferring property values between TestSteps

Chapter 5: Load and Performance Testing with soapUI
• Non-functional testing of web services
• Performance testing
• Planning for web service performance testing
• Using soapUI for performance testing
• Working with load tests in soapUI
• Limit of a load test
• Threads in a soapUI load test
• Load test strategies of soapUI
• Simple load strategy
- Burst load strategy
- Thread load strategy
- Variance strategy
- A closer look at the load test report and statistics of soapUI
- Using load test assertions in soapUI
- The Max Errors assertion
- The Step Average assertion
- Step TPS assertion
- The Step Maximum assertion
- The Step Status assertion
- LoadTest options

Chapter 6: Web Service Simulation with soapUI
- Mocking in software testing
- Mocking in web services testing
- Mock services and contract-first web service development
- Simulating services that are not accessible
- Dealing with test environmental restrictions
- Mock services with soapUI
- The structure of soapUI MockService
- MockService details
- MockOperation details
- Dispatching styles of MockOperation
- MockResponse details
- soapUI mock services in action
- Static responses – the basic scenario
- Using dynamic responses

Chapter 7: Advanced Functional Testing with soapUI
- Introduction to web services extensions
- What is WS-Addressing
- What is WS-Security
- WS-Policy
- WS-SecurityPolicy
- WS-Trust
- WS-SecureConversation
- Configuring Apache Axis2 for WS-Addressing and WS-Security
- WS-Addressing in Apache Axis2
- WS-Security in Apache Axis2
- Testing the WS-Addressing with soapUI
- Validating the WS-Addressing responses
- Testing WS-Security with soapUI
- Web service authentication
- Securing GuestManagementService
- Testing the secured GuestManagementService with soapUI
• Project level WS-Security configurations in soapUI
• Testing asymmetric binding policy with soapUI
• Asymmetric binding
• Signing SOAP messages
• Securing RoomManagementService
• Project level WS-Security configurations in soapUI
• Testing asymmetric binding policy with soapUI
• Asymmetric binding
• Signing SOAP messages
• Securing RoomManagementService
• Testing secured RoomManagementService with soapUI
• Validating WS-Security responses

Chapter 8: Getting Started with REST Testing
• Introduction to REST
• Represent everything with URIs
• Using standard HTTP methods
• Linking resources together
• Multiple representations of resources
• Stateless communication
• Testing RESTful APIs using soapUI
• REST Services in soapUI
• Request and response representation
• Using POST or PUT requests in soapUI REST services
• Reading POST message content from a file
• Inserting the HTTP Basic Authentication header to requests
• REST parameters
• Query parameters
• Template parameters
• Matrix parameters
• Header parameters
• Functional testing of REST services
• WADL

Chapter 9: Testing Databases with soapUI
• Testing data in isolation
• Setting up soapUI to connect to the database
• JDBC Request TestStep
• JDBC Request properties
• JDBC test assertions
• Stored procedures with JDBC Request TestStep
• Accessing soapUI properties from SQL query

Chapter 10: JMS Testing with soapUI
• Introduction to JMS
• Setting up Apache ActiveMQ
• JMS integration in soapUI
• Working with JMS messaging in soapUI
• Validating JMS responses
- Verifying end-to-end JMS message delivery using the sample project
- Configuring JMS in Apache Axis2
- Configuring a session in HermesJMS
- Adding a JMS endpoint in soapUI

Chapter 11: Extending soapUI with Scripting
- Introduction to Groovy scripting language
- What is Groovy?
- HelloWorld with Groovy
- Variable and object declaration in Groovy
- Control structures in Groovy
- Class and method declarations in Groovy
- Groovy scripting in soapUI
- The context object
- The testRunner variable
- soapUI ModelItems
- Setup and TearDown scripts in soapUI
- Load Script at soapUI project level
- Request and response handling using Scripts
- Script assertion

Chapter 12: Automated Testing with soapUI
- Test automation
- Why is test automation essential in SOA?
- Continuous Integration (CI)
- soapUI JUnit integration
- soapUI command line executions
- Invoking a soapUI command line functional test runner
- Invoking test runners from the soapUI graphical user interface
- Maven soapUI plugin

Chapter 13: Miscellaneous Topics
- soapUI IDE plugins
- soapUI Eclipse plugin
- soapUI IntelliJ IDEA plug-in
- WS-I validation using soapUI
- soapUI integration with external web services' frameworks
- Sending attachments with SOAP messages using soapUI
- Deploying an MTOM-enabled web service
- Using soapUI to send an attachment to the web service