

## **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 ModellItems
- 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