**Test Plan for the**   
**DataFlex Web Service for Testing ISBN Numbers**

**✅ Test Plan: SOAP API — IsValidISBN10**

**1. Overview**

This test plan outlines the strategy for testing the IsValidISBN10 operation of the DataFlex SOAP web service. This API validates 10-digit ISBN numbers using checksum logic.

**2. Objective**

To ensure the IsValidISBN10 API accurately identifies valid and invalid ISBN-10 numbers via:

* Functional correctness
* Protocol compatibility (SOAP 1.1, SOAP 1.2, JSON)
* Error handling
* Performance and reliability

**3. Test Scope**

**In Scope:**

* Functional testing for various ISBN formats (valid, invalid, edge cases)
* Protocol testing (SOAP 1.1, SOAP 1.2, JSON)
* Negative testing and error handling
* Response structure and content validation
* Load/Performance Testing (optional in staging)

**Out of Scope:**

* Testing ISBN-13 numbers
* UI Testing
* Security/Penetration Testing

**4. Test Environment**

|  |  |
| --- | --- |
| **Component** | **Detail** |
| Endpoint | http://webservices.daehosting.com/services/isbnservice.wso |
| Protocols Supported | SOAP 1.1, SOAP 1.2, JSON |
| Response Type | Boolean |
| Authentication | None |
| Tools | Postman / SOAP UI / JMeter / Curl / Custom Java or Python scripts |

**5. Test Data**

|  |  |  |
| --- | --- | --- |
| **Test Case Type** | **Sample ISBN** | **Expected Result** |
| Valid ISBN | 0306406152 | true |
| Valid with X | 048665088X | true |
| Invalid ISBN | 1234567890 | false |
| Invalid characters | ABCDEF1234 | false / error |
| Too short | 12345 | error/false |
| Too long | 1234567890123 | error/false |
| Empty string | "" | error/false |
| Null | null | error |

**6. Test Scenarios**

**6.1 Functional Tests**

* [✓] Validate correct response for known valid ISBN-10
* [✓] Validate correct response for invalid ISBN-10
* [✓] Verify behavior with ISBN ending in X
* [✓] Test with lowercase x if allowed
* [✓] Validate handling of null, empty string, special characters

**6.2 Protocol/Transport Tests**

* [✓] Send valid request over SOAP 1.1 and assert proper response
* [✓] Send valid request over SOAP 1.2 and assert proper response
* [✓] Send valid request using JSON format and verify behavior

**6.3 Negative Tests**

* [✓] Malformed SOAP envelope
* [✓] Missing sISBN element
* [✓] Invalid Content-Type
* [✓] Non-numeric or alphanumeric ISBNs
* [✓] Long payloads (DoS-type check)

**6.4 Response Validation**

* [✓] HTTP 200 status check
* [✓] Content-Type matches the protocol
* [✓] XML/JSON schema matches documented structure
* [✓] Boolean response is correct (true/false)

**6.5 Performance Tests (Optional)**

* [✓] 100 concurrent requests — should not fail or delay
* [✓] Average response time under 500ms

**7. Test Approach**

|  |  |  |
| --- | --- | --- |
| **Phase** | **Tool** | **Description** |
| Manual Testing | Postman, SOAP UI | Manual execution of all scenarios across protocols |
| Automation | Python + zeep / Java + TestNG | Automate basic validation using scripts |
| Load Testing | JMeter / Locust | Optional stress testing with varied payloads |

**8. Roles & Responsibilities**

|  |  |
| --- | --- |
| **Role** | **Responsibility** |
| QA Engineer | Design & execute test cases |
| Automation Engineer | Automate SOAP/JSON scenarios |
| Developer (Optional) | Fix backend issues based on test results |

**9. Entry and Exit Criteria**

**Entry Criteria:**

* API documentation is available
* Endpoint is stable and responsive
* Test environment is accessible

**Exit Criteria:**

* All functional and negative test cases executed
* All critical defects resolved
* API response verified across all supported protocols

**10. Risks & Mitigation**

|  |  |
| --- | --- |
| **Risk** | **Mitigation** |
| Service downtime | Check availability before execution |
| Invalid/missing documentation | Use actual responses to build test cases |
| Protocol mismatch | Test against all Content-Type variations |

**11. Sample SOAP Request (SOAP 1.1)**

POST /services/isbnservice.wso HTTP/1.1

Host: webservices.daehosting.com

Content-Type: text/xml; charset=utf-8

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">

  <soap:Body>

    <IsValidISBN10 xmlns="http://webservices.daehosting.com/ISBN">

      <sISBN>0306406152</sISBN>

    </IsValidISBN10>

  </soap:Body>

</soap:Envelope>

**12. Reporting & Metrics**

* Test Execution Report
* Defect Summary Report
* Protocol-wise success/failure matrix
* Performance test graphs (if applicable)