

Testing Transactions Involving EDI (EDIFACT, HL7, HIPAA, X12) & Other Industry-Specific Message Formats

EXECUTIVE SUMMARY

Communication across today's composite applications often involves industry-standard message formats (EDIFACT, HL7, HIPAA, X12, etc.), as well as some very distinct, specialized formats used in niche markets. Although such formats have proven to be extremely efficient for electronic data exchange, they are typically difficult for humans to understand, manipulate, and validate.

When testing end-to-end transactions that leverage such message formats, sending a single inbound transaction and validating the result can be both difficult and error-prone. This challenge is exacerbated when QA teams need to exercise the broad range and volume of test cases needed to accurately determine whether the system is properly processing such transactions. This level of validation involves complex test suites that leverage large data sets and perform multi-layer validation on the outbound transactions.

Parasoft SOAtest is designed to ensure that organizations leveraging any of these industry standard message formats can take full advantage of a rich graphical interface when they're configuring, sending, and validating the messages that drive their business. By insulating the QA tester from the intricacy of the native format, it significantly simplifies the process of validating whether transactions satisfy functional and performance expectations. Moreover, by automating the complete message sending and validation process, it also enables continuous automated regression testing. This ensures that the team is immediately alerted if modifications unintentionally impact the previously-validated application behavior.



ABOUT PARASOFT SOATEST

Parasoft SOAtest helps QA teams ensure secure, reliable, compliant business applications with an intuitive interface to create, maintain and execute end-to-end testing scenarios. It was built from the ground up to reduce the complexities inherent in complex, distributed applications. Since 2002, Parasoft customers such as HP, IBM, Fidelity, Lockheed Martin, and the IRS have relied on SOAtest for:

- Ensuring the reliability, security, and compliance of composite, SOA, cloud, and web applications
- Reducing the time and effort required to construct and maintain automated tests
- Automatically and continuously validating complex business scenarios
- Validating performance and functionality expectations under load
- Rapidly diagnosing problems directly from the test environment
- Proprietary APIs. This allows you to customize SOAtest's tools according to your group's specific needs.

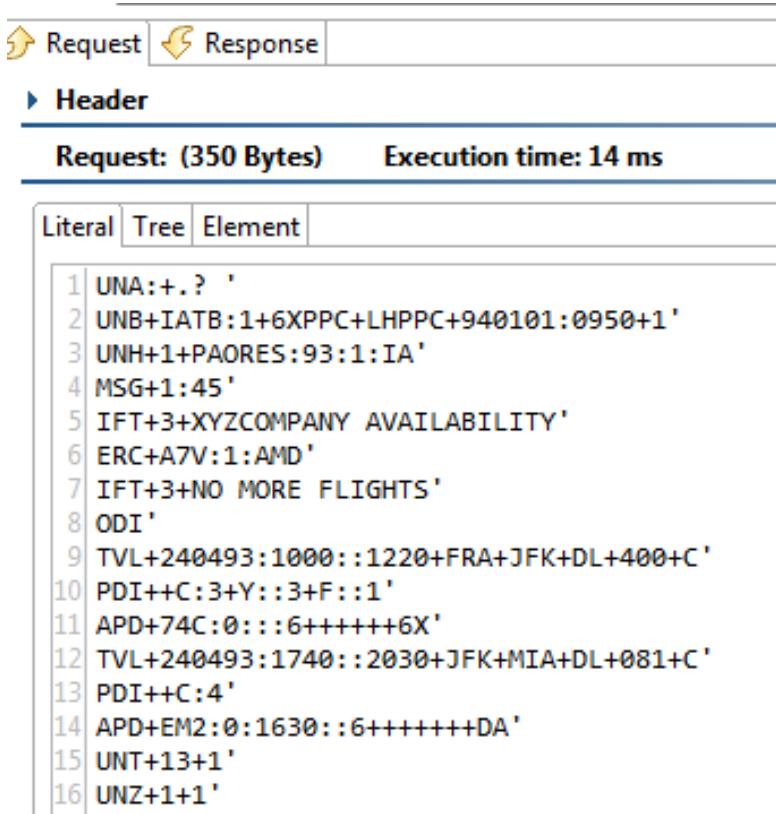
PARASOFT SUPPORT FOR EDI, FIXED LENGTH, AND DELIMITED MESSAGE FORMATS

Parasoft SOAtest enables organizations to rapidly configure, send, and validate virtually any text-format message via an intuitive, form-based interface. With SOAtest's support for a broad scope of native formats, organizations can take advantage of Parasoft SOAtest's wide variety of tools for performing sophisticated construction or validation of messages.

TESTING EDI MESSAGES WITH PARASOFT SOATEST

For a better understanding of how Parasoft SOAtest simplifies message configuration, sending, and validation, when working with very specialized message types, consider the following example.

To configure SOAtest to send an EDI message for testing purposes, you could simply copy a sample message into its EDI Client tool as follows:



The screenshot shows the Parasoft SOAtest EDI Client interface. At the top, there are 'Request' and 'Response' buttons. Below them is a 'Header' section. Under 'Header', the text 'Request: (350 Bytes) Execution time: 14 ms' is displayed. At the bottom, there are three tabs: 'Literal', 'Tree', and 'Element'. The 'Literal' tab is selected and contains the following EDI message text:

```
1 UNA:+.?
2 UNB+IATB:1+6XPPC+LHPPC+940101:0950+1'
3 UNH+1+PAORES:93:1:IA'
4 MSG+1:45'
5 IFT+3+XYZCOMPANY AVAILABILITY'
6 ERC+A7V:1:AMD'
7 IFT+3+NO MORE FLIGHTS'
8 ODI'
9 TVL+240493:1000::1220+FRA+JFK+DL+400+C'
10 PDI++C:3+Y::3+F::1'
11 APD+74C:0:::6+++++6X'
12 TVL+240493:1740::2030+JFK+MIA+DL+081+C'
13 PDI++C:4'
14 APD+EM2:0:1630::6+++++DA'
15 UNT+13+1'
16 UNZ+1+1'
```

The native format message will then be represented as shown on the following page; dialect, version, and message type are detected automatically. You can then modify the parameters for the test message using the available UI controls.

PARASOFT'S SUPPORT COVERS THE FOLLOWING FORMATS:

EDI (with optional license)

Parasoft SOAtest offers support for a wide array of EDI message formats that are used in a variety of sectors, including retail, healthcare, government, and more. Dialect, version, and message type are detected automatically when an existing message is pasted in for testing purposes. The following EDI message formats are supported:

- AL3 (ACORD AL3)
- CARGO (IATA Cargo-IMP)
- EANCOM
- EDIFACT
- EDIGAS (Edig@s)
- HIPAA
- HL7
- IATA (IATA PADIS)
- NCPDP (NCPDP SCRIPT)
- TELCO (NCPDP Telecommunication)
- TRADACOMS
- X12

Fixed Length

Parasoft SOAtest provides flexible fixed length message format support. Since many different fixed length formats exist (and there is no single standard), SOAtest is easily configured to recognize any fixed length message format that the organization works with. This enables you to take advantage of SOAtest's rich interface for message configuration, sending, and validation when working with very specialized message types.

Delimited (CSV)

Parasoft SOAtest's UI is preconfigured to facilitate the rapid configuration, sending, and validation of CSV messages.

Other/Custom

Parasoft provides a framework that allows you to extend the solution's built-in transports and protocols to support any that you are working with—for example, DDS, plain socket, or TCP/IP-based messaging, file-based messaging, messaging based on proprietary APIs. This allows you to customize SOAtest's tools according to your group's specific needs.

Schema for Modeling Request Payload Using Form Input

Dialect: IATA Version: 93-1 Message type: PAORES: Product Availability Offering Response

Schema URL: file:///C:/Users/SDEBRO~1/AppData/Local/Temp/edi-40733260143451124.xsd

Request Transport Success Criteria Conversion Options

Input Mode: Form Input Element: IATA {}

UNH0201-MessageTypeIdentifier: Fixed PAORES

UNH0202-MessageTypeVersionNumber: Fixed 93

UNH0203-MessageTypeReleaseNumber: Fixed 1

UNH0204-ControllingAgency: Fixed IA

UNH0205-AssociationAssignedCode: Fixed

To create a more sophisticated test scenario, you could then parameterize one of the fields in the EDI message using data specified in an Excel spreadsheet or table:

Table

First row specifies column names

	A
1	Company Availability
2	XYZCOMPANY AVAILABILITY
3	PARASOFT AVAILABILITY
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Schema for Modeling Request Payload Using Form Input

Dialect: IATA Version: 93-1 Message type: PAORES: Product Availability Offering Response

Schema URL: file:///C:/Users/SDEBRO~1/AppData/Local/Temp/edi-40733260143451124.xsd

Request Transport Success Criteria Conversion Options

Input Mode: Form Input Element: IATA {}

UNH0201-M: Fixed

UNH0202-M: Fixed

UNH0203-M: Fixed

UNH0204-Cc: Parameterized

MSG-MessageAction: Fixed

MSG01-Message: Fixed

MSG01-Bu: Fixed

MSG01-Mr: Fixed

IFT-InteractiveFreeT: Fixed

IFT01-FreeTextQ: Fixed

IFT01-Text: Fixed

IFT02-FreeText: Fixed

With this type of configuration, the test runs once for each row in the data source.

Data source row: 2. Company Availability=PARASOFT AVAILABILITY

Request Success Criteria Conversion Options

1. Company Availability=XYZCOMPANY AVAILABILITY

2. Company Availability=PARASOFT AVAILABILITY

Finally, assume that you want to validate the EDI response from the server. You can create assertions that specify your expectations for the response. The expected response values can be parameterized from a data source (e.g., to correspond to parameterized values used in the message request).

Differences

Text Compare

Expected Content

```
UNA++1:2'
UNB+IATB:1+6XPPC+LHPPC+940101:0950+1'
UNH+1+PAORES:93:1:IA'
MSG+1:45'
IFT+3+XYZCOMPANY AVAILABILITY'
ERC+47V:1:AVD'
IFT+3+NO MORE FLIGHTS'
ODI'
TBL+240493:1000:1220+FRA+JFK+DL+400+C'
PDI++C:3+Y:1+3F:1'
APD+74C:0::16+++++6X'
TBL+240493:1740:2030+JFK+MIA+DL+081+C'
PDI++C:4'
APD+EM2:0:1630::6+++++DA'
UNT+13+1'
UNZ+1+1'
```

Actual Content

```
UNA++1:2'
UNB+IATB:1+6XPPC+LHPPC+940101:0950+1'
UNH+1+PAORES:93:1:IA'
MSG+1:45'
IFT+3+PARASOFT AVAILABILITY'
ERC+47V:1:AVD'
IFT+3+NO MORE FLIGHTS'
ODI'
TBL+240493:1000:1220+FRA+JFK+DL+400+C'
PDI++C:3+Y:1+3F:1'
APD+74C:0::16+++++6X'
TBL+240493:1740:2030+JFK+MIA+DL+081+C'
PDI++C:4'
APD+EM2:0:1630::6+++++DA'
UNT+13+1'
UNZ+1+1'
```

The test can then be run as part of continuous regression testing, and the team will be alerted immediately if the expected values change.

ABOUT PARASOFT

Parasoft helps organizations perfect today's highly-connected applications by automating time-consuming testing tasks and providing management with intelligent analytics necessary to focus on what matters. Parasoft's technologies reduce the time, effort, and cost of delivering secure, reliable, and compliant software, by integrating static and runtime analysis; unit, functional, and API testing; and service virtualization. With developer testing tools, manager reporting/analytics, and executive dashboarding, Parasoft supports software organizations with the innovative tools they need to successfully develop and deploy applications in the embedded, enterprise, and IoT markets, all while enabling today's most strategic development initiatives — agile, continuous testing, DevOps, and security.

www.parasoft.com

Parasoft Headquarters:

+1-626-256-3680

Parasoft EMEA:

+31-70-3922000

Parasoft APAC:

+65-6338-3628

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Automated Software Testing