

AS2 Interoperability Test

(8018) 08622830000000085

Final Report

3Q03 Interoperability

September 4, 2003

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Prepared & Facilitated By:
DRUMMOND GROUP INC.
www.drummondgroup.com

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Cover Letter

DRUMMOND GROUP Inc. is pleased to announce that the following participants in the AS2-3Q03 Interoperability Test Round have completed all requirements and passed tests (see Interoperability Test Summary below) between each product demonstrating interoperability and conformance. Final tests were run during the days of August 26, 2003 through September 2, 2003.

To fully understand what completing the test means in the use of the products in production, please read this document carefully.

Sincerely,










Rik Drummond
CEO,
Drummond Group Inc.



Disclaimer

Drummond Group Inc. (DGI) conducts interoperability and conformance testing in a neutral test environment for various companies and organizations ("Participant"). At the end of the testing process, DGI may list the name of the Participant in the final test report along with an indication that the Participant passed the test. The fact that the name of the Participant appears in the final report is not an endorsement of the Participant or its products or services, and DGI therefore makes no warranties, either express or implied, regarding any facet of the business conducted by the Participant.

Test Participants

 <p>Boomi Inc.</p> <p>http://www.boomi.com</p> <p>Product Name: Boomi AS2 Transport 3.0</p>	 <p>bTrade, inc.</p> <p>http://www.btrade.com</p> <p>Product Name: TDAccess/TDImage/TDPeer/TDNgine/Workflow Portal, Business Process Agent, Business Process Router using EDIINT Engine vs. 6.0</p>
 <p>Classified Information Inc.</p> <p>http://www.templarsoftware.com</p> <p>Product Name: Templar Engine 5.3</p>	 <p>Cleo Communications</p> <p>http://www.cleo.com</p> <p>Product Name: Cleo Communications, VersaLex 2.1</p>
 <p>Covast</p> <p>http://www.covast.com</p> <p>Product Name: Covast AS2 Adapter 2.2</p>	 <p>Cyclone Commerce</p> <p>http://www.cyclonecommerce.com</p> <p>Product Name: Cyclone Commerce, Central v4.2</p>
 <p>Cyclone Commerce</p> <p>http://www.cyclonecommerce.com</p> <p>Product Name: Cyclone Commerce, Interchange/Activator v4.2</p>	 <p>Cyclone Commerce</p> <p>http://www.cyclonecommerce.com</p> <p>Product Name: Cyclone Commerce, Cyclone v5</p>
 <p>EDS</p> <p>http://www.eds.com</p> <p>Product Name: EDS*ELIT AS2 Connector, vs. 2.1</p>	 <p>Global eXchange Services, Inc.</p> <p>http://www.gxs.com</p> <p>Product Name: Enterprise System AS2 Module v2.0</p>
 <p>Global eXchange Services, Inc.</p> <p>http://www.gxs.com</p> <p>Product Name: Application Integrator™ AS2 Comm Link v2.0</p>	 <p>Hewlett-Packard Company</p> <p>http://www.hp.com</p> <p>Product Name: Certified ASx Transport Software (CATS) v3.1</p>
 <p>IBM</p> <p>http://www.ibm.com</p> <p>Product Name: IBM WebSphere Business Integration Connect–Express v4.2</p>	 <p>IPNet Solutions, an Inovis business unit</p> <p>http://www.ipnetsolutions.com</p> <p>Product Name: IPNet BizManager™ 2.4</p>

 iSoft http://www.isoft.com Product Name: iSoft Commerce Suite 3.2	 iWay Software An Information Builders Company http://www.iwaysoftware.com Product Name: iWay EDIINT Adapter Release 5.2
 LANSA http://www.lansa.com Product Name: LANSA AS2 Direct v2.0	 SeeBeyond http://www.seebeyond.com Product Name: SeeBeyond Business Integration Suite 4.5.3
 SeeBeyond http://www.seebeyond.com Product Name: SeeBeyond ICAN 5.0 Suite	 SEEBURGER BUSINESS INTEGRATION http://www.seeburger.com Product Name: SEEBURGER AG, Business Integration Server (BIS) 5.3
 Sterling Commerce http://www.sterlingcommerce.com Product Name: Sterling Information Broker 3.5	 Sterling Commerce http://www.sterlingcommerce.com Product Name: Gentran Integration Suite/Sterling Integrator 2.2
 Sterling Commerce http://www.sterlingcommerce.com Product Name: Connect:Enterprise UNIX 2.1	 Sun Microsystems, Inc. http://www.sun.com Product Name: Sun ONE Integration Server, B2B Edition, v3.6.2
 SYBASE http://www.sybase.com Product Name: Web Services Integrator 2.6	 TIBCO The Power of Now® http://www.tibco.com Product Name: TIBCO BusinessConnect™ AS2 Transport v2.0.1

 <p>AS/400 Trailblazer Systems Limited</p> <p>http://www.trailblazersystems.com</p> <p>Product Name: ZMOD Exchange EDI-INT V3R2</p>	 <p>Transentric LLC</p> <p>http://www.transentric.com</p> <p>Product Name: Transentric Agilink Connector AS2, v3.0</p>
 <p>Viacore, Inc.</p> <p>http://www.viacore.com</p> <p>Product Name: QuickConnect 2.0</p>	

Participants were required to submit the official product-with-version names at the end of the test. However, during the testing process, DGI assigned the following generic product names solely for the purpose of identification during the test.

Boomi	Boomi AS2 Transport, vs. 3.0
bTrade	bTrade TDAccess/TDImage/TDPeer/TDNgine/Workflow Portal using EDIINT engine, vs. 6.0
CI	Templar Engine, vs. 5.3
Cleo	Versalex, vs. 2.1
Covast	Covast AS2 Adapter, vs. 2.2
Cyclone I	Cyclone Central, vs. 4.2
Cyclone II	Cyclone Interchange/Activator, vs. 4.2
Cyclone III	Cyclone 3, vs. 5.0
EDS	EDS*ELIT AS2 Connector, vs. 2.1
GXS I	Enterprise System AS2 Module, vs. 2.0
GXS II	Application Integrator AS2 Comm Link, vs. 2.0
HP	Certified ASx Transport Software (CATS), vs. 3.1
IBM	IBM WebSphere Business Integration Connect, vs. 4.2
IPNet	IPNet BizManager™, vs. 2.4
iSoft	iSoft Commerce Suite, vs. 3.2
iWay	iWay EDIINT Adapter, vs. 5.2
Lansa	LANSA AS2 Direct, vs. 2.0
SeeBeyond I	SeeBeyond Business Integration Suite, vs. 4.5.3
SeeBeyond II	SeeBeyond ICAN Suite, vs. 5.0
SEEBURGER	SEEBURGER AG Business Integration Server (BIS) 5.3
Sterling I	Sterling Information Broker, vs. 3.5
Sterling II	Gentran Integration Suite/Sterling Integrator, vs. 2.2
Sterling III	Connect:Enterprise UNIX, vs. 2.1
Sun	Sun ONE Integration Server, B2B Edition, vs. 3.6.2
Sybase	Web Services Integrator, vs. 2.6
TIBCO	TIBCO BusinessConnect™ AS2 Transport, vs. 2.0.1
Trailblazer	ZMOD Exchange EDI-INT, vs. 3.2
Transentric	Transentric Agilink Connector, vs. 3.0
Viacore	QuickConnect 2.0

Test History

This is the fifth AS2 Interoperability Test administered by DGI.

AS2 3Q03 Interoperability Test – July-September 2003.
GSRN # (8018) 086228300000000085.

Previous tests included the following:

AS2 1Q03 Interoperability Test – January-February 2003.
GSRN # (8018) 862283000000000015.

AS2 2Q02 Interoperability Test – March-August 2002.
GSRN # (8018) 862283000000000043.

AS2 2Q01 Interoperability Test – May-August 2000

AS2 4Q00 Interoperability Test – October-December 2000

Note: The first two AS2 interoperability tests were done prior to the creation of the eBusinessReady™ seal.

Definitions

Interoperability -- A product is deemed interoperable with all other products in the Interoperability Test Round if and only if it demonstrates in a full-matrix manner the pair wise exchange of data covering the *Test Criteria* between all products in the Interoperability Test Round. A product is either totally interoperable or it is not interoperable. Waivers or exceptions are not given in demonstrating interoperability for the *Test Criteria* unless the entire *Product Test Group* and DGI agree.

Interoperable products –is that group of products, from the *Product Test Group*, which successfully completed the *Test Criteria*, in a full duplex manner with every other *Product Test Group* participant in an Interoperability Test Round without any errors in the final test Phase.

Product Test Group – A group of products involved in an interoperability or conformant Test Round.

Product, product-with-version, or product-with-version-with-release – are interchangeable and are defined for the purpose of a Test Round as a product name, followed by a product version, followed by a single digit release. The assumption is that version and release syntax is as: “VV.Rx...x,” where VV is the version numeral designator, R is the single digit release numeral designator and x is the sub-release multiple digit numeral designator. DGI assumes that any digits of less significance than the R place do not indicate code changes on the product-with-version-with-release tested in the Test Round. A vendor must list a product as product name, followed by version digits followed by a decimal point followed by a single release designator digit before the Test Round is complete.

Sealed – a product is sealed when it is issued the eBusinessReady™ (www.ebusinessready.org) seal of interoperability for successfully completing an Interoperability test round.

Test case – The test criteria is a set of individual test cases, often 20 to 50 which the product test group exchange among themselves to verify conformance and interoperability.

Test Criteria – A set of individual tests, based on one or more standard specifications, that are used to verify that a product is conformant to the specification(s) or that a set of Product-with-version’s are interoperable under the *Test Criteria*.

Interoperability Test Summary

This is the fifth round of interoperability testing for IETF AS2. AS2 (Applicability Statement 2) is the draft specification standard (RFC Standards Track) by which vendor applications communicate EDI (EDIFACT or X12), binary, or XML data securely over the Internet. AS2 is an expansion of the AS1 specification (which specifies EDI data transmission over SMTP) to provide for EDI data transmission over HTTP.

The purpose of the test is to provide a venue for vendors to test and correct their software systems in a non-competitive environment. To accomplish this, each product-with-version both sends and receives specific messages with the Product Test Group. In both sending and receiving, products-with-versions verify the message structure and security requirements are correct, the intended payload was transferred intact, and the receipt for the message was correctly delivered verifying the transaction was successful.

The test cases cover the full scope of AS2 in terms of security and receipts. Digital signatures, encryption, SSL transports, unsigned and signed receipts, synchronous and asynchronous receipts, and compression are all tested. Different payloads were used, including X12, EDIFACT, and XML. The payload data were traditional PO and actual HIPPA conformance data.

The Interoperability Test Round was completed in eight weeks. During the first seven weeks, the testing was focused on finding errors and correcting them. For the final week of August 26 through September 2, 2003, code changes and debug settings were not allowed. During this final week, the products-with-version tested with each other without error demonstrating interoperability. It is this final version of code that will be in each product-with-version.

All products-with-versions listed in the previous section, Test Participants, were successful in the testing and were interoperable over all the Test Criteria. The only exception is SeeBeyond I, which did not participate in test cases involving compression, but successfully completed all other test cases with the other participants.

Overview of Interoperability Testing

Interoperability of B2B products for the Internet is essential for the long-term acceptance and growth of electronic commerce. To foster interoperability, Drummond Group Inc. (DGI) facilitates interoperability and conformance tests.

DGI In the Queue Test Round

In the Queue Test Rounds are designed to allow participants—with products new to DGI interoperability testing, or previously certified products that have made significant product changes or undergone version changes, or missed the most recent test round—to both test and debug their products with the DGI Test Server.

The DGI Test Server is a collection of products-with-version from the previous Interoperability Test Round. These products were provided by the vendors on a voluntary basis. The DGI Test Server allows products new to the interoperability process to be debugged in a quicker manner by testing with proven products-with-version.

Through the In the Queue Test Rounds, participants will see their products-with-version become conformant to the AS2 standard and interoperable with the DGI Test Server products. Products which successfully complete In the Queue Test Rounds are considered compliant to the respective standard and will be listed on the www.drummondgroup.com website as "In the Queue," but they will not be given product Interoperability Status on either the www.drummondgroup.com or www.ebusinessready.org websites.

Successful test completion also qualifies that particular product to participate in the next DGI Interoperability Test round, but does NOT guarantee successful completion of the full Interoperability Test Round. DGI makes no warrants or guarantees that products passing In the Queue Test Rounds will pass the Interoperability Tests.

DGI Interoperability Test Round

Products-with-version from the previous AS2 Interoperability Test Round and products-with-version from the In the Queue tests come together in a vendor-neutral and non-competitive environment to test with each other in order to become interoperable with each other. In an Interoperability Test Round, each product-with-version must successfully test with each other in order to be certified as interoperable.

The DGI Interoperability Test Round verifies conformance to a standard and then verifies that members of the Product Test Group are interoperable among themselves. Interoperability is an all or nothing within the Product Test Group over the Test Criteria. A product is either interoperable with all other products in the Test Group or not.

Products-with-version which demonstrate complete interoperability among the passing members of the Product Test Group are given a Seal from the eBusinessReady™ program and listed on the www.eBusinessReady.org website. The seal contains a specific GSRN number that ties each of those products together. Those products that receive that same GSRN number are interoperable forever. However, interoperability Test Rounds must be periodically repeated to verify that as product names, versions or releases change, the product remains interoperable.

Test Requirements

In order to complete the test, each participant was required to meet the trading partner requirements and technical requirements of the test.

Trading Partner Requirements

All participants were required to establish trading partner relationships with each other. Each participant provided their security certificates (including SSL server certs) to the other participants for storage in their trusted store.

Each certificate conformed to the X.509 standards but varied with respect to the fields used in the certificates. Some participants generated their own certificates (those whose systems had this capability – not required) and other acquired them from well-known third party Certificate Authorities. Some participants chose to use separate certs for S/MIME and SSL while others used one certificate for all forms of security.

Participants were responsible for distributing their network information and configuring their firewalls to allow all participants access to their product-with-version.

DGI provided the AS2 identifiers and EDI identifiers used in the test. The AS2 identifiers used covered a wide range of possible values.

Technical Requirements

In order to be part of the certified interoperable products-with-versions, each participant must both successfully send and receive all tests cases with the other participants. These tests cases, which can be found in the Appendix, cover the basis of the AS2 standard. The test cases demonstrate the products-with-versions can cover the technical requirements listed in the sections below. For additional technical information concerning these sections, refer to the IETF draft, "HTTP Transport for Secure Peer-to-Peer Business Data Interchange over the Internet," by D. Moberg and R. Drummond ([AS2 Draft](#)).

S/MIME encryption and digital signatures

S/MIME encryption and digital signatures provide confidentiality and content-integrity of the data being transported. Key length in the security certificates was 1024

bit. Triple DES was the encryption algorithm used. SHA-1 hashing was used in creating the digital signatures.

Compression

Due to repeated requests from supply chains, compression is now part of AS2 interoperability testing. Compression is highly useful in transporting large EDI/EC payloads. During this interoperability test, payloads for test cases with compression demonstrated significant reduction in file sizes.

Synchronous and Asynchronous Receipts

Along with digital signatures, receipts provide authentication of transaction. Synchronous receipts provide information on the reception and handling of the message over the same transport. Asynchronous receipts are sent to the originator of the transaction over a new transport. Synchronous and asynchronous receipts on both HTTP and HTTP/S transports were tested.

Transports

Both HTTP and HTTP/S transports were used for this test. Both HTTP version 1.0 and version 1.1 servers were involved in this test. For HTTP/S, only server side authentication was tested. Asynchronous receipts were returned over both HTTP and HTTP/S transports.

For this test, asynchronous MDNs over SMTP were not tested.

Payloads

X12, EDIFACT, and XML payloads were used in the test cases. Two test cases used X12 payloads of 4MB and 50MB, respectively. The payload data were traditional POs and actual HIPPA conformance data.

Final Test Results

Interoperability is determined by each product-with-version successfully sending and receiving each test case with the others. A test case is successful when the expected result is achieved according to the message specifications.

Between the days of August 26, 2003 and September 2, 2003, all products-with-version listed in this test report successfully sent and received each test case with each other. Results of the test cases were reported by the participants themselves and demonstrated by supplying the messages transmitted and product logs. The test cases used in this test round are found in the Appendix.

No warranty of product interoperability is implied over and above the publishing of the results of the Test Round as completed by all vendors during the specified time period of testing.

The only exception in testing results is with regards to SeeBeyond I. Since SeeBeyond I was part of an earlier Interoperability Test before compression was introduced, and thus does not support compression, SeeBeyond I did not send or receive Test Cases D, G or J because they require compression.

Interoperability Caveats

While all the products-with-version successfully tested with each other, there are some caveats to consider in interpreting these results and using the products from this test.

Certificates and Security Toolkits

In several instances, the certificates used in the testing were not interoperable with the security toolkits. If the certificate in question was found to be outside the X.509 standards, the certificate was replaced with a new, correct certificate. If the toolkit was in error and not supporting a proper certificate, an upgrade or workaround was made to the toolkit.

Because of the limited nature of the test, not all possible certificate fields or extensions were tested against every toolkit. Potential issues could still exist due to certain certificate fields and extensions. For this reason, certificates should be kept as simple as possible. Creativity is not encouraged when building certificates.

Appendix

Test Case Overview

Test Case	Msg Payload	Msg Transport	Msg Security	Compression	MDN Transport	MDN Security
A	Data #1	HTTP	Signed/Encrypted	No	Sync	Unsigned
B	Data #2	HTTP	Signed/Encrypted	No	Sync	Signed
C	Data #3	HTTP	Signed/Encrypted	No	Async/HTTPs	Signed
D	Data #3	HTTP	Encrypted	Yes	Sync	Signed
E	Data #2	HTTP	Encrypted	No	Sync	Signed
F	Data #2	HTTP	Signed	No	Sync	Signed
G	Data #3	HTTPs	Signed	Yes	Sync	Signed
H	Data #1	HTTPs	Signed	No	Async/HTTP	Signed
I	Data #4	HTTPs	Signed	No	Async/HTTPs	Signed
J	Data #5	HTTP	Signed/Encrypted	Yes	Async/HTTP	Signed

Test Data

- Test Data #1 - X12 HIPPA conformant data file. Size: 12kB
- Test Data #2 - EDIFACT Purchase Order (PO). Size: 1.1kB
- Test Data #3 – an XML PO. Size: 36kB
- Test Data #4 – a large X12 HIPPA conformant data file. Size: 4MB
- Test Data #5 – a very large X12 data file. Size: 50MB

Test Case: A

Test Description	The initiator creates a signed, encrypted exchange over HTTP with a request for a synchronous, unsigned MDN.
Message Payload	Test Data # 1 (X12)
Message Transport	HTTP
Message Security	Signature, Encryption
Message Compression	No
MDN Transport	Synchronous
MDN Security	No Signature
Expected Results	The payload is successfully transferred. The MDN with a disposition value of "processed" is returned.

Test Case: B

Test Description	The initiator creates a signed, encrypted exchange over HTTP with a request for a synchronous, signed MDN.
Message Payload	Test Data # 2 (EDIFACT)
Message Transport	HTTP
Message Security	Signature, Encryption
Message Compression	No
MDN Transport	Synchronous
MDN Security	Signature
Expected Results	The payload is successfully transferred. The MDN with a disposition value of "processed" is returned.

Test Case: C

Test Description	The initiator creates a signed, encrypted exchange over HTTP with a request for an asynchronous, signed MDN.
Message Payload	Test Data # 3 (XML)
Message Transport	HTTP
Message Security	Signed, Encryption
Message Compression	No
MDN Transport	Asynchronous/HTTPs
MDN Security	Signature
Expected Results	The payload is successfully transferred, the initial HTTP connection is closed with a 200 OK, and then an MDN with a disposition value of "processed" is returned over a new HTTPs connection.

Test Case: D

Test Description	The initiator creates an encrypted, compressed exchange over HTTP with a request for a synchronous, signed MDN.
Message Payload	Test Data # 3 (XML)
Message Transport	HTTP
Message Security	Encryption
Message Compression	Yes
MDN Transport	Synchronous
MDN Security	Signature
Expected Results	The payload is successfully transferred. The MDN with a disposition value of "processed" is returned.

Test Case: E

Test Description	The initiator creates an encrypted exchange over HTTP with a request for a synchronous, signed MDN.
Message Payload	Test Data # 2 (EDIFACT)
Message Transport	HTTP
Message Security	Encryption
Message Compression	No
MDN Transport	Synchronous
MDN Security	Signature
Expected Results	The payload is successfully transferred. The MDN with a disposition value of "processed" is returned.

Test Case: F

Test Description	The initiator creates a signed exchange over HTTP with a request for a synchronous, signed MDN.
Message Payload	Test Data # 2 (EDIFACT)
Message Transport	HTTP
Message Security	Signature
Message Compression	No
MDN Transport	Synchronous
MDN Security	Signature
Expected Results	The payload is successfully transferred. The MDN with a disposition value of "processed" is returned.

Test Case: G

Test Description	The initiator creates a signed, compressed exchange over HTTPs with a request for a synchronous, signed MDN.
Message Payload	Test Data # 3 (XML)
Message Transport	HTTPs
Message Security	Signature
Message Compression	Yes
MDN Transport	Synchronous
MDN Security	Signature
Expected Results	The payload is successfully transferred. The MDN with a disposition value of "processed" is returned.

Test Case: H

Test Description	The initiator creates a signed exchange over HTTPs with a request for an asynchronous, signed MDN over HTTP.
Message Payload	Test Data # 1 (X12)
Message Transport	HTTPs
Message Security	Signature
Message Compression	No
MDN Transport	Asynchronous/HTTP
MDN Security	Signature
Expected Results	The payload is successfully transferred, the initial HTTPs connection is closed with a 200 OK, and then an MDN with a disposition value of "processed" is returned over a new HTTP connection.

Test Case: I

Test Description	The initiator creates a signed exchange over HTTPs with a request for an asynchronous, signed MDN.
Message Payload	Test Data # 4 (X12)
Message Transport	HTTPs
Message Security	Signature
Message Compression	No
MDN Transport	Asynchronous/HTTPs
MDN Security	Signature
Expected Results	The payload is successfully transferred, the initial HTTPs connection is closed with a 200 OK, and then an MDN with a disposition value of "processed" is returned over a new HTTPs connection.

Test Case: J

Test Description	The initiator creates a signed, encrypted, compressed exchange over HTTP with a request for an asynchronous, signed MDN.
Message Payload	Test Data # 5 (X12)
Message Transport	HTTP
Message Security	Signed, Encryption
Message Compression	Yes
MDN Transport	Asynchronous/HTTP
MDN Security	Signature
Expected Results	The payload is successfully transferred, the initial HTTP connection is closed with a 200 OK, and then an MDN with a disposition value of "processed" is returned over a new HTTP connection.

About Drummond Group Inc.

Drummond Group Inc. (DGI) works with software vendors, vertical industries and the standards community to drive adoption for standards by conducting interoperability and conformance testing, publishing related strategic research and developing vertical industry strategies. Founded in 1999, DGI represents best-of-breed in the industry on linking horizontal infrastructure technologies, standards and interoperability issues with the needs of vertical industries such as retail, grocery, health care, transportation, government and automotive. For more information, please visit www.drummondgroup.com, or email: info@drummondgroup.com