

## Overview and Benefits of SEEBURGER AS2 Spokes

### **Trading Partner Integration Using SEEBURGER'S BIS:AS2 Spoke**

## Contents

<b>1</b>	<b>CLASSIC EDI AND ITS COST PROBLEM</b>	<b>2</b>
1.1	VAN (VALUE ADDED NETWORK) .....	2
1.2	POINT-TO-POINT.....	3
1.3	SUMMARY.....	3
<b>2</b>	<b>EDIINT TO THE RESCUE</b>	<b>4</b>
2.1	HOW DOES AS2 WORK ? .....	5
2.1.1	AS2 Message Types .....	5
2.1.2	AS2 Message Exchange .....	5
<b>3</b>	<b>SEEBURGER BIS: AS2 STAND ALONE</b>	<b>7</b>
3.1	ADMINISTRATION.....	8
3.2	TRADING PARTNER MANAGEMENT .....	9
3.3	MONITORING .....	10
3.4	INTEGRATION SERVICES .....	10
3.5	TRANSFORMATION SERVICES .....	12
3.6	SECURITY AND RELIABILITY .....	13
<b>4</b>	<b>BIS:AS2 – FEATURE OVERVIEW</b>	<b>14</b>

## 1 Classic EDI and its cost problem

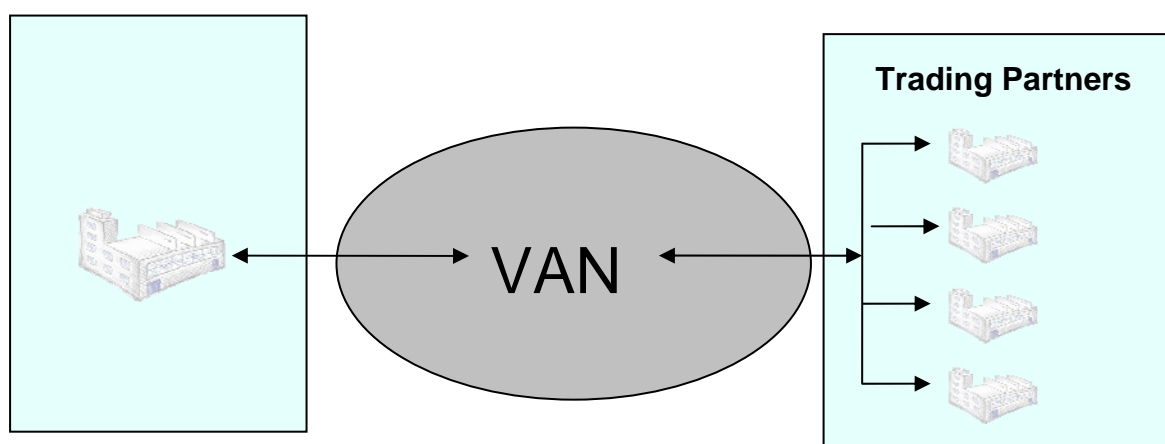
Most modern companies face the problem of effectively exchanging business data and documents with their trading partners. Often the volume of this business data is so high that dealing with it manually becomes very costly and therefore requires a more automated and cost efficient processing solution. A way to cope with this high volume of business data is to use an EDI (Electronic Data Interchange) system to automate the communication to all trading partners using classical EDI document standards like EDIFACT, ANSI X12, TRADACOM or others. Basically EDI utilizes two main methodologies to exchange those business documents: either by using a VAN (Value added Network) service or by a direct Point-to-Point connection.

### 1.1 VAN (Value added Network)

VAN networks do provide a simple connectivity model and provide the routing of data from the originator to the destination partners as part of their services. VAN systems at a high level are a mailbox system where you post messages; the VAN service splits those messages and delivers them to the mailbox of the different recipients (from which the recipients can download them).

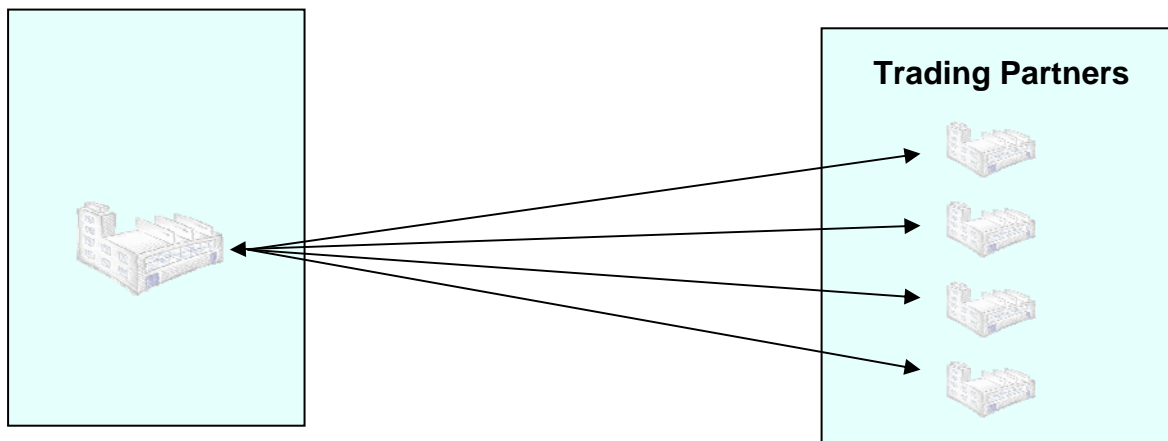
As of today, there are several VAN providers which offer their services either nationally and/or internationally and are quite often only utilized within a specific branch or business type. VAN providers charge for their services in various ways: some of them are based on data volume, some on the number of transmissions (documents), and some on the number of trading partners that exchange dedicated messages. Obviously the fee structures of VAN providers can cause significant expenses and can force users to avoid usage of features due to the resulting costs (such as message acknowledgments).

Also it is not unusual for more horizontal oriented businesses to support a multitude of different VAN networks in order to reach all of their trading partners. Additionally, companies may also be required to deal with trading partners which are not able (or willing) to use a VAN network.



## 1.2 Point-to-Point

By using Point-to-Point connections, you have to provide and configure a direct dial-in connection to establish a link to every single trading partner. Although you can get rid of the VAN costs utilizing this methodology, you will have to deal with dial-in configuration and provisioning as well as (long distance) call costs. Furthermore there may be availability and reliability issues associated with the Point-to-Point dial-ins.



## 1.3 Summary

As we have seen, the classic EDI transport of data via VAN or Point-to-Point is not very cost-efficient due to either VAN provider fees or long-distance call fees. Add to this important issues like availability, reliability and the security of the data were often handled, if they were handled at all, in a very non-standard way, and you have to conclude that there must be a better way to exchange your business data with your trading partners.

## 2 EDIINT to the rescue

To address the issues described above, the Internet Engineering Task Force (IETF) established a work group called EDIINT to develop recommendations for the secure transfer of EDI data over the Internet. This work group has produced 2 draft standards for this purpose, called AS1 and AS2.

Applicability Statement 1 (AS1) is a draft specification developed by the Internet Engineering Task Force (IETF) for the secure exchange of EDI/B2B data using the Simple Mail Transfer protocol (SMTP) over the Internet.

Applicability Statement 2 (AS2) is a draft specification developed by the Internet Engineering Task Force (IETF) for the secure exchange of EDI/B2B data using Secure Multipurpose Internet Mail Extensions (SMIME) to encapsulate the EDI/B2B data and the Hypertext Transfer Protocol (HTTP) to transmit the data over the Internet.

The basic design goal was to define standard procedures for EDI data including confidentiality, authentication and non-repudiation of receipt as well as non-repudiation of origin. AS2, which builds on existing and established Internet technologies, can be used to transport all types of data including but not limited to: XML, EDI, text, binary and so on.

By using AS2 to exchange data with your trading partners and suppliers you get the following benefits compared to VAN or Point-to-Point connections:

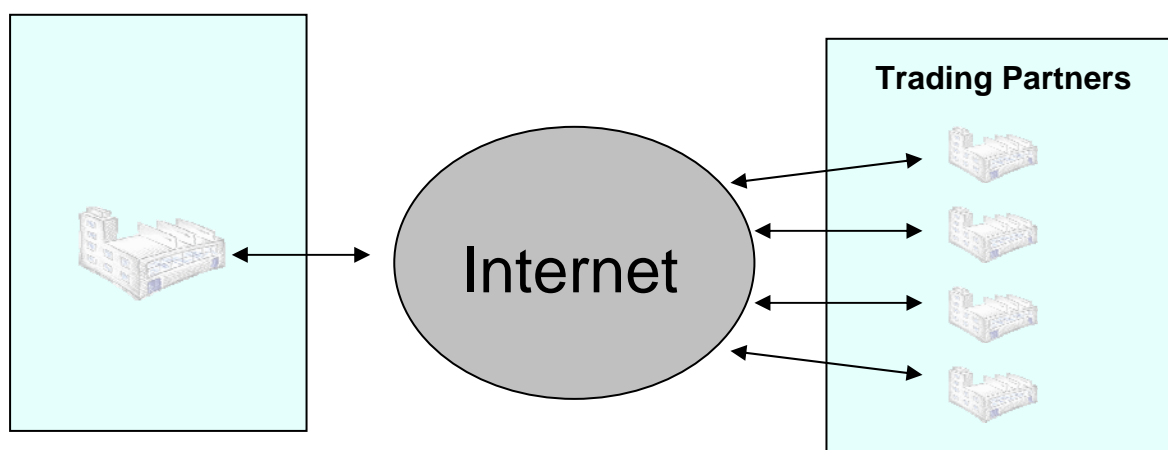
- No charges for VAN services
- No charge for long distance calls
- 24/7 availability (Internet)
- Designed for secure and reliable data transmission over the Internet
- Digital Signatures provide authentication and prevents data manipulation.
- Encryption ensures the security of your data at all time.
- Supports the handling of acknowledgments to ensure your data was safely transferred and received and accepted by the recipient

Utilizing the internet-based AS2 solution for your EDI exchange, can offer a very fast ROI, if you currently have to support many partners with high transaction volumes and are currently using dial ups or VAN services. Using AS2 can help you to greatly reduce or even eliminate all costs related to dial ups and VAN services.

The only requirements for you to start using AS2 to exchange data with your trading partner are a persistent Internet Connection and a Software package, like SEEBURGER's AS2 Solutions, offering EDIINT AS2 capabilities.

## 2.1 How does AS2 work ?

The purpose of the EDIINT AS2 (EDI over INternet) protocol is to allow the secure exchange of EDI data over the public Internet utilizing HTTP as the transport protocol. AS2 is designed to allow the secure transmission of any type of files (but usually EDI). As AS2 utilizes the internet to exchange data with your trading partners, all you and your partners need is a persistent connection to the Internet.



### 2.1.1 AS2 Message Types

AS2 uses two different message types: the actual payload message and the Message Disposition Notification (MDN).

The payload message encapsulates an EDI file so that it can be transmitted via HTTP. Additionally, the payload message may be compressed, encrypted or digitally signed by the sender.

The purpose of the MDN is to acknowledge the receipt of a payload message. An MDN contains machine-readable information about the delivery status of the payload message. For example, it contains the message digest (MIC) of the payload message as calculated by the recipient.

An MDN may optionally be signed, in which case the recipient can authenticate the sender of the MDN and check its integrity. A valid, signed MDN together with a valid MIC reported by the MDN can be used by the sender of the payload message to claim “non-repudiation of receipt” (NRR) of the payload message.

### 2.1.2 AS2 Message Exchange

In the simplest case of an AS2 message exchange, a sender packages the EDI payload file he wishes to send into an AS2 message structure and sends this message via HTTP to the receiving trading partner. Optionally the sender may compress, sign, or encrypt the AS2 message. In this simple case, the sender has no guarantee about the status of the message on the recipient’s side.

If the sender wants to be sure that the message has been transferred, unmodified, and that the recipient has been able to decompress or decrypt the message, he has to request an MDN from the recipient. In this case, the sender indicates the request for an MDN together

Whitepaper

with the transmission of the payload message. Basically there are two different modes in which an MDN may be delivered:

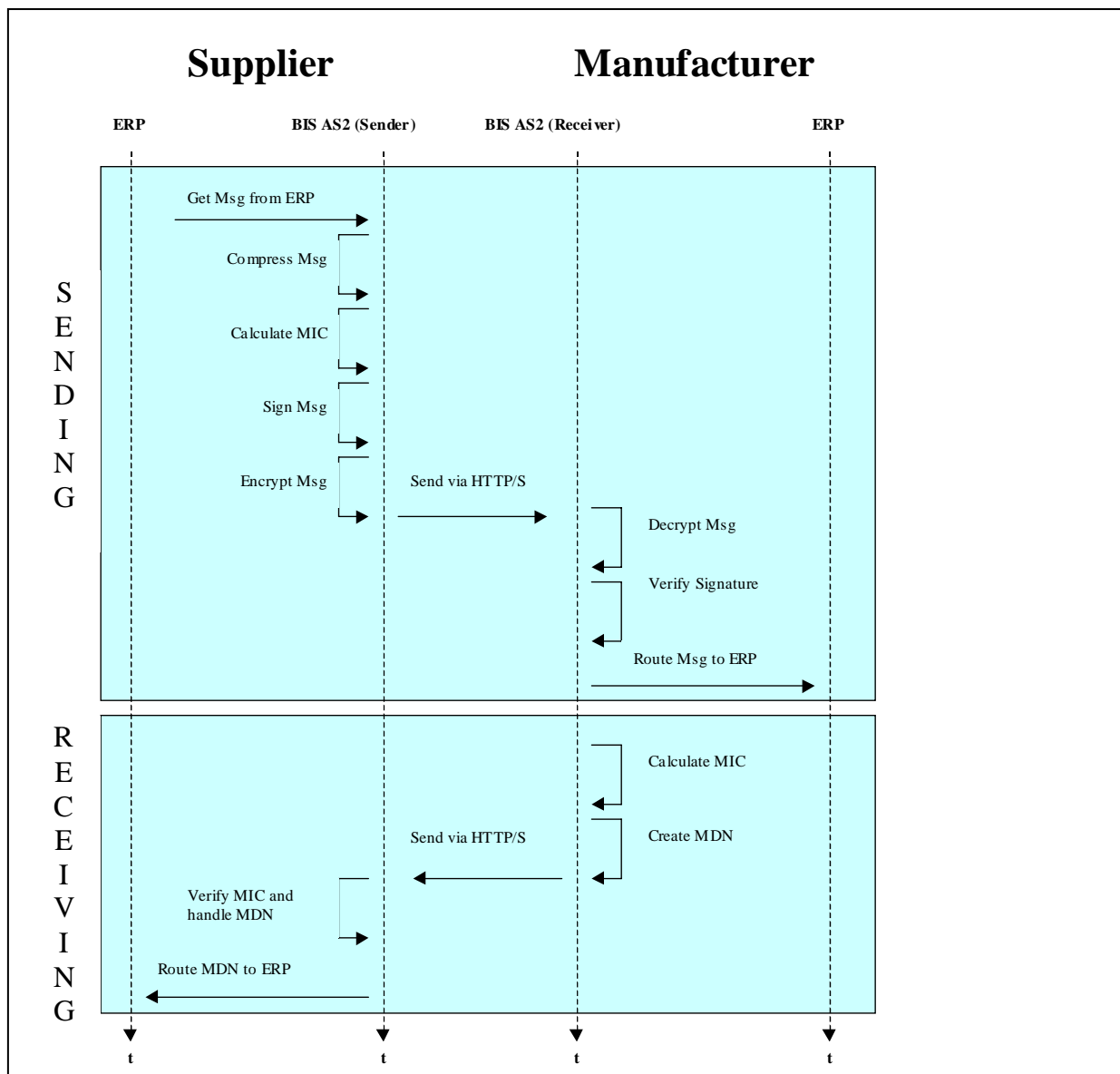
**Synchronous:** The MDN will be delivered together with the HTTP response to the HTTP request which carried the payload message.

**Asynchronous MDN:** The MDN will be delivered at a later time after the transmission of the payload message.

In the asynchronous mode, the sender has to indicate to which address the MDN shall be delivered. The asynchronous MDN may be delivered by a separate HTTP request to the sender's web server or via E-Mail to a mailbox.

In order to identify the sender of an AS2 message, the trading partners have to agree upon unique identifiers, the so-called AS2-IDs. These AS2-IDs are for the most part arbitrary.

The following sequence diagram shows the steps involved in data exchange via AS2.



### 3 Seeburger BIS: AS2 stand alone

SEEBURGER offers two fully compliant AS2 solutions.

- A purely java based AS2 solution for stand alone use or for integration in already existing B2B/EDI infrastructure as described in this whitepaper.
- An AS2 module for use with the SEEBURGER Business Integration Server. See [BIS: AS2 Module Whitepaper](#) for details.

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SEEBURGER's AS2 solutions passed the AS2 interoperability test hosted by the Drummond group (<http://www.drummondgroup.com/>).

SEEBURGER's BIS: AS2 "stand alone" solution is a state of the art, purely java based application which implements the full AS2 specification including, but not limited to, the following topics:

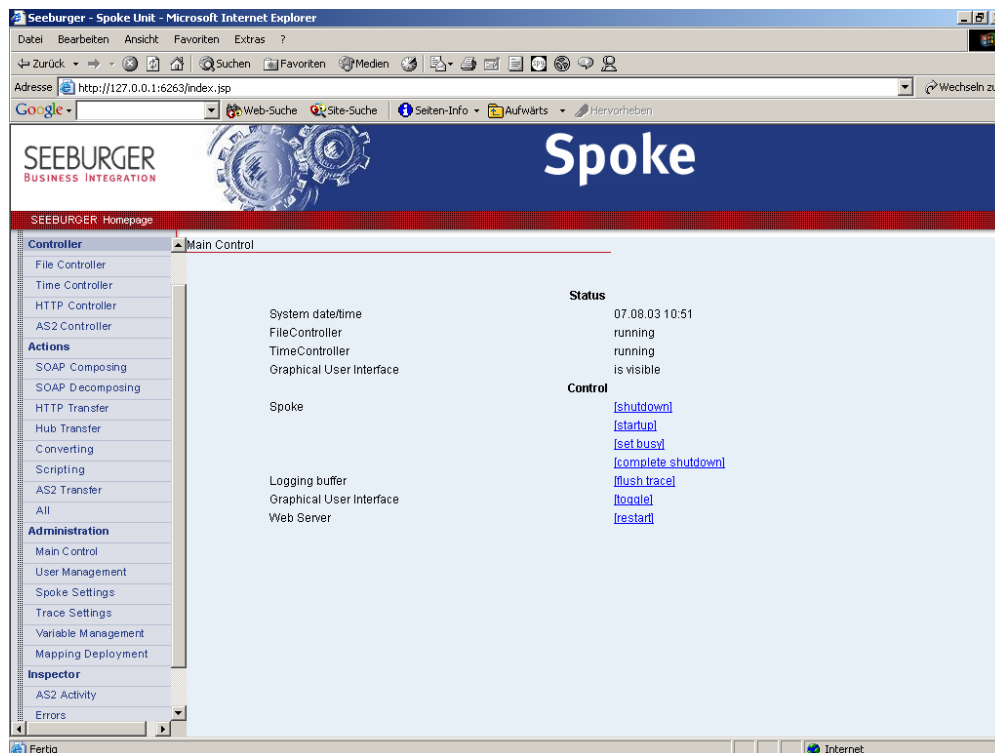
- Message security
- Signatures
- Encryption
- Non-repudiation of origin
- Non-repudiation of receipt
- Message compression
- Synchronous and asynchronous delivery notifications (MDN)

Beside the AS2 protocol specific features, SEEBURGER's BIS: AS2 "stand alone" solution offers a broad set of functionality to deliver a complete and sophisticated solution. To enable you to connect and manage your data exchange with your trading partners, SEEBURGER's AS2 "stand alone" solution provides the following features:

- Trading Partner management.
- Sending/receiving messages using AS2
- Monitoring of message exchanges and trading partners.
- Backend integration Services (DB, File, Batch, Script, API)
- Transformation Services. Possibility to transform messages from in-house formats to a partner specific format and vice versa. Almost all relevant formats are supported (EDIFACT, ANSI X12, CVS, INHOUSE (Flat files), XML)
- Remote administration.

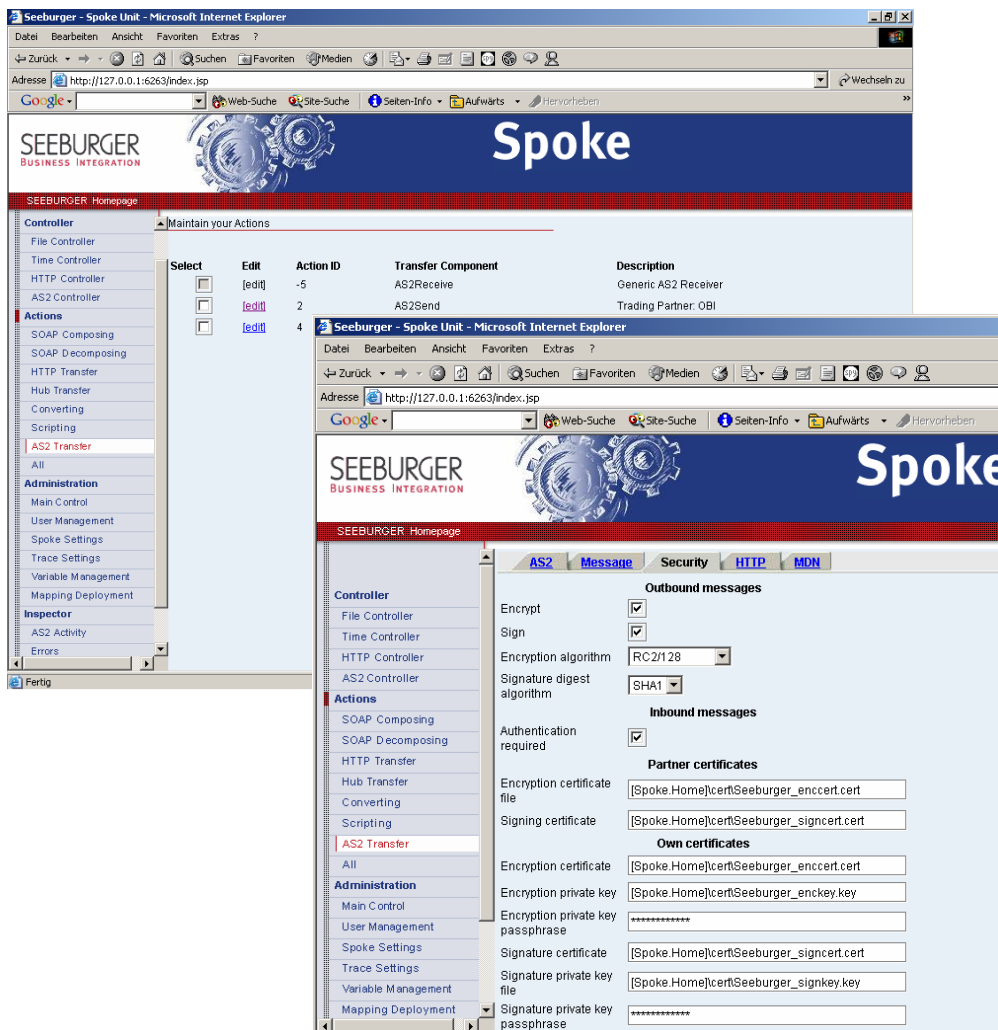
### 3.1 Administration

SEEBURGER's BIS: AS2 "stand alone" solution exposes its whole administration and monitoring interface through a modern browser-based GUI. This provides the opportunity to remotely administer and monitor your AS2 processes from any place with a Web Browser (e.g. your desktop without the need to go to the data center where the AS2 software is physically located). The administration and monitoring always uses a secure link by utilizing the HTTP/S protocol. SEEBURGER's BIS: AS2 "stand alone" also offers an integrated, role based user management to assign specific access roles and levels.



## 3.2 Trading Partner Management

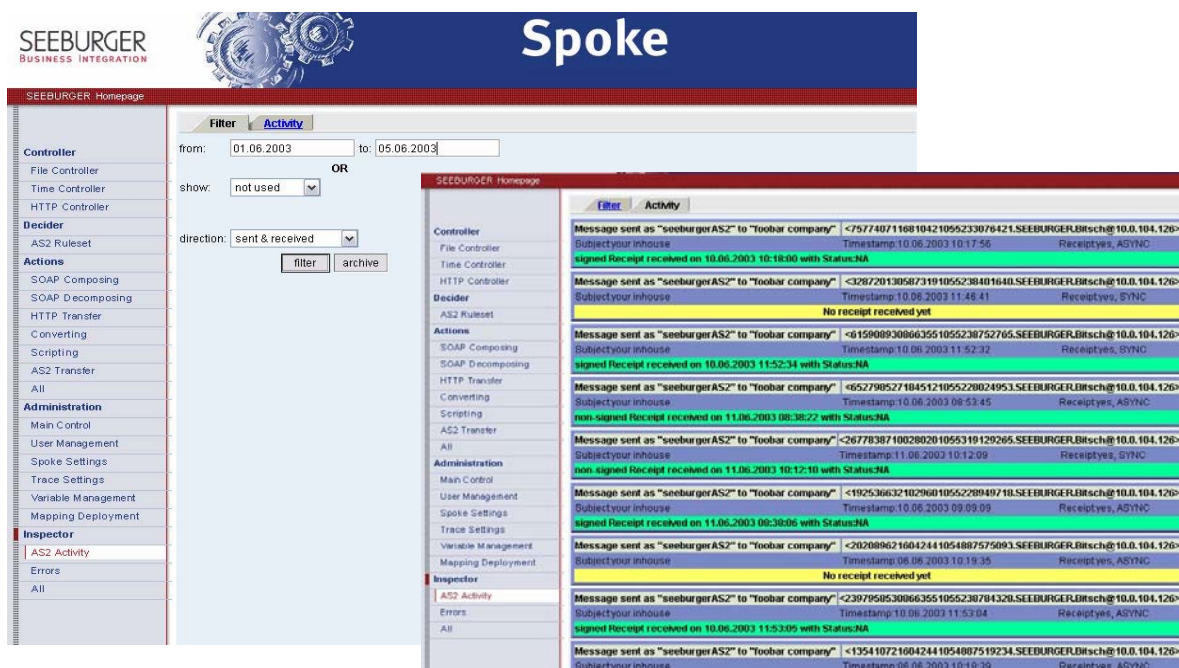
The management of your AS2 communication relationships with your suppliers involving master data and trading partner data is fully supported by the SEEBURGER BIS: AS2 solution.



### 3.3 Monitoring

SEEBURGER's BIS: AS2 "stand alone" solution provides you with the ability to monitor your ongoing AS2 exchanges anyplace, anytime, anywhere. You can monitor the ongoing exchanges and see the already completed transactions. You will also be alerted of failed transactions or any communication problem with your trading partner.

The ability to utilize user defined filters for your own reporting/monitoring views is also present.



### 3.4 Integration Services

The ability to integrate your AS2 exchanges into your backend/ERP system is critical to achieve a fully automated and therefore cost effective data exchange with your trading partners. SEEBURGER's BIS: AS2 "stand alone" solution offers the flexibility to integrate AS2 communication into already existing EDI/B2B infrastructures or to your backend or ERP applications by offering the following integration services:

- **DB Integration**  
Enables you to directly integrate the received messages into any JDBC supporting database.
- **Script Integration**  
Allows you to include your own shell scripts into the AS2 process.
- **Batch Integration**  
Provides the functionality to interact with SEEBURGER's BIS: AS2 "stand alone" solution out of your batch processes

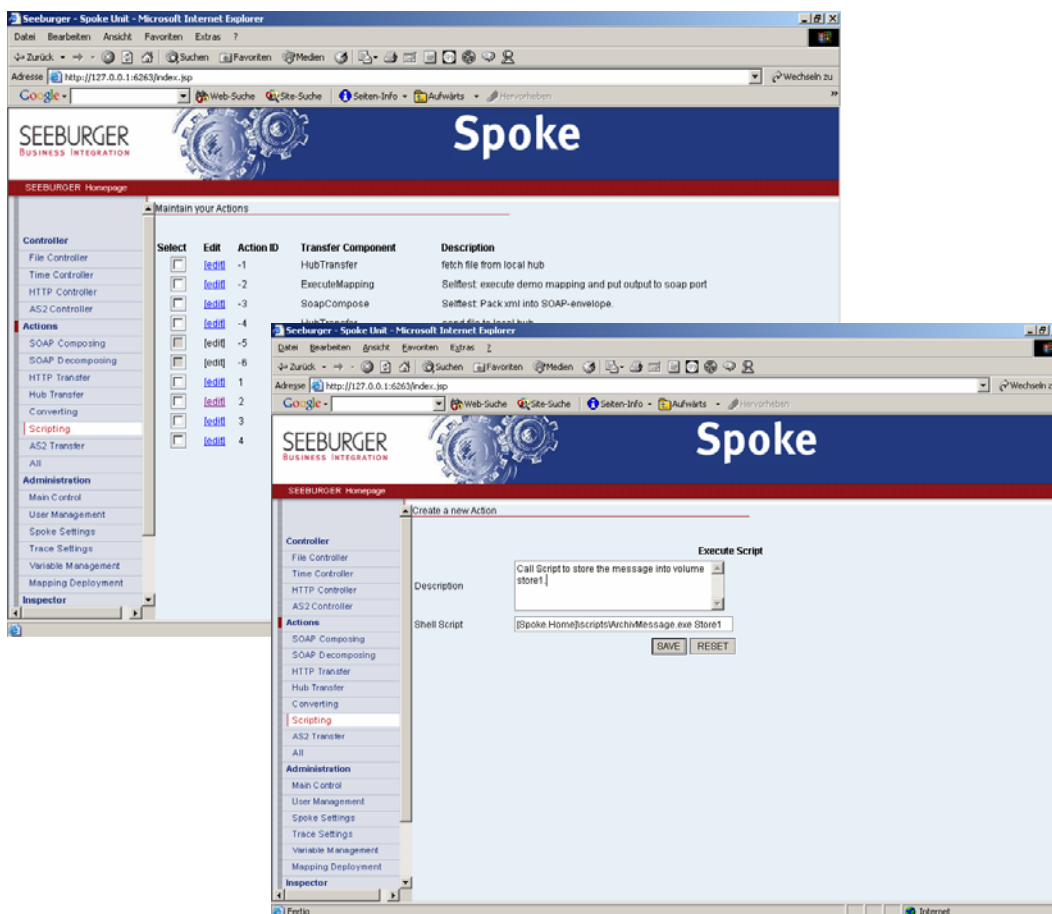
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- **File Integration**

Makes it possible to integrate with SEEBURGER BIS:AS2 “stand alone” solution by merely dropping messages (files) in defined folders for sending and looking in other defined folders for received messages (files)

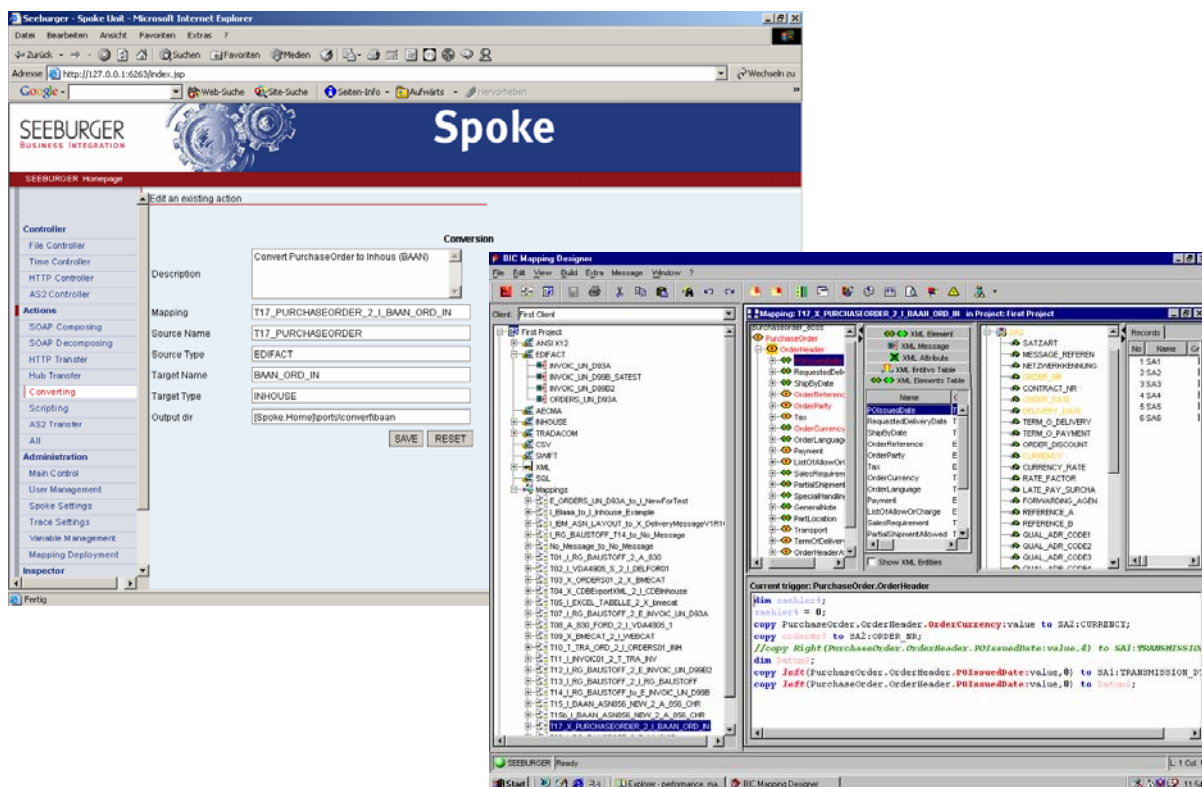
- **API**

As the most advanced of the integration options, the API allows you to control and drive every aspect of SEEBURGER’s BIS: AS2 solution from your own application by using a Java based API provided by SEEBURGER. It is also possible by using this API to integrate the whole functionality of SEEBURGER’S BIS: AS2 “stand alone” or parts of it into your own applications.



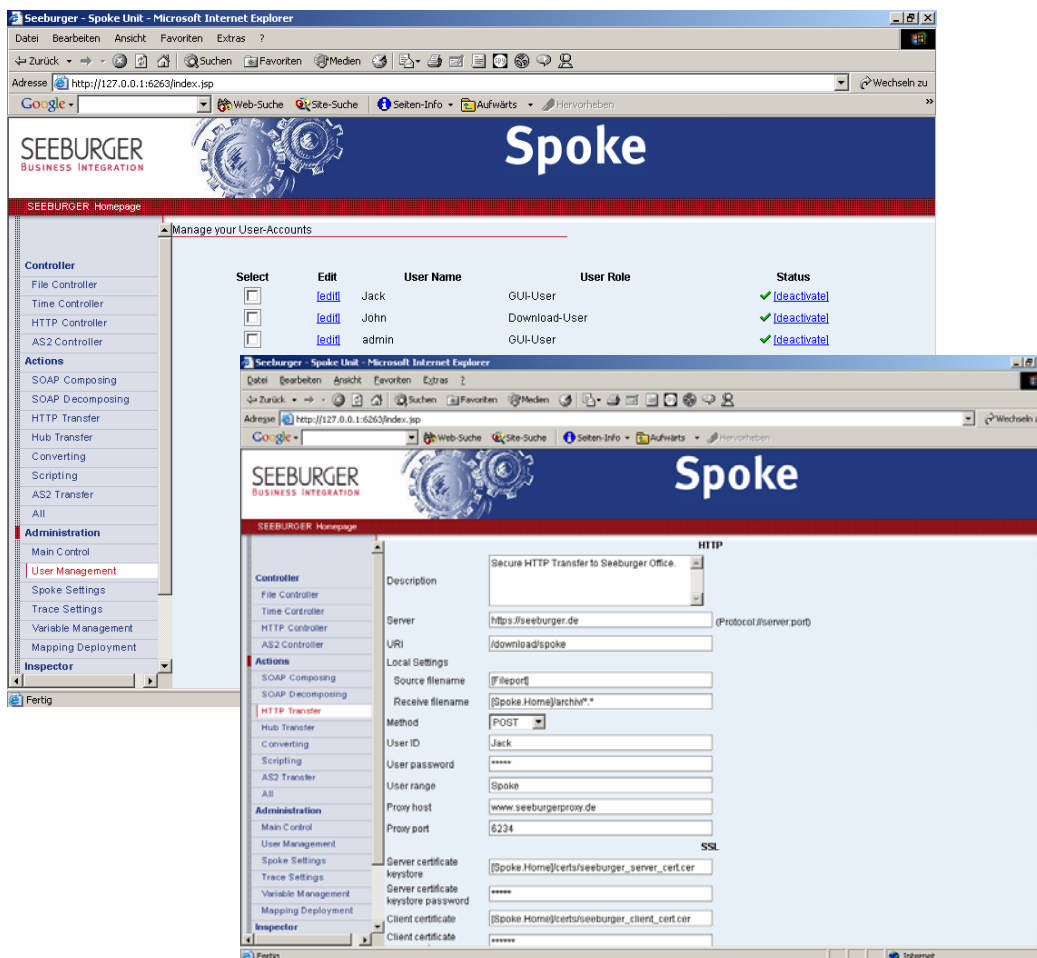
### 3.5 Transformation Services

Unlike most other AS2 solutions, SEEBURGER's solution is able to handle almost all document conversions by providing a fully functional EDI/B2B converter. If you have to send a specific document format (e.g. an ANSI X12) to your trading partner, but your backend systems can only provide another specific format (e.g. Fixed record file); SEEBURGER's BIS: AS2 "stand alone" can handle this conversion. SEEBURGER's BIS: AS2 "stand alone" solution supports the conversion for, but not limited to, formats like: EDIFACT, ANSIX12, XML (all Schema or DTD based messages), CVS, and INHOUSE (flat files like SAP IDOCS...)



### 3.6 Security and Reliability

As EDI/B2B data typically contains sensitive information (e.g. inventory reports, prices, etc...), integrity and security of data is crucial. This is especially true if this data is to be transferred using the Internet. AS2 was designed from the ground up to provide this level of safety by supporting digital signature and data encryption technologies. SEEBURGER's BIS: AS2 "stand alone" fully supports this requirement and adds additional role based user management including role based application permissions.



## 4 BIS: AS2 – Feature Overview

<b>Technology</b>	
✓ Java	Pure java based solution
✓ OO-Design	Modern OO-based design
<b>Platforms</b>	
✓ Windows	WIN NT/ WIN 2000/ WIN XP
✓ LINUX	
✓ SOLARIS	
✓ Java	All platforms with JDK >1.4 are supported.
<b>Networks</b>	
✓ TCP/IP	All TCP/IP based networks.
<b>Installation</b>	
✓ Automated installation	Using Java WebStart technology.
✓ Automated update	Using Java WebStart Technology. No need to do update manually.
✓ Automated/Preset configuration	Automated distribution of a preset configuration from a central point of administration.
<b>Administration</b>	
✓ Browser based	Complete access to the application by using your local Browser.
✓ No installation needed	No need to install a local GUI client.
✓ Integrated User management	Restrict access rights by using the integrated user management
✓ „remote“ Administration	Remote administration and access
✓ Customizable	Is easy to change the look of the GUI to your Corporate design.
✓ Centralized error handling	Customizable error-reports and actions
✓ “Application firewall”	Easy restriction of application access rights.
<b>Security</b>	
✓ Transport Security	SSL.
✓ Data-encryption	RSA, DSA, IDEA.
✓ Digital Signatures	RSA, ElGamal,.
✓ Authentication	Authentication of users and roles.
<b>Data-Transport</b>	
✓ Acknowledgements	Acknowledgements for sending/receiving messages
✓ Deliver Exactly Once	Recognition of duplicates.
✓ Retry	Configurable retry in case of connection failure.
✓ Archiving	Optional archiving of send/received data in file system.
✓ Dial-In support	Support for „dial-In“ (RAS).

Whitepaper

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<b>Conversion capabilities</b>	
✓ XML	All Schema/DTD based messages.
✓ INHOUSE	All „fixed record“ based messages (e.g. SAP IDOC)
✓ CSV	All „delimiter separated values“ messages (e.g.. Excel CSV)
✓ EDIFACT	All messages based on EDIFACT.
✓ ANSI X12	All messages based on ANSI X12.
<b>Integration capabilities</b>	
✓ Databases	All JDBC capable databases
✓ Script/Batch-Interface	Possibility to execute external scripts
✓ File	Observes directories for incoming data and sends them according to the configuration.
✓ WebServices/SOAP	Possibility to handle SOAP messages.
✓ API	A SDK is delivered to allow application integration
✓ Connection to SEEBURGER BIS	Connection to Seeburger BIS for EDI/EAI.