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AS4-Gateway

Response messages via push

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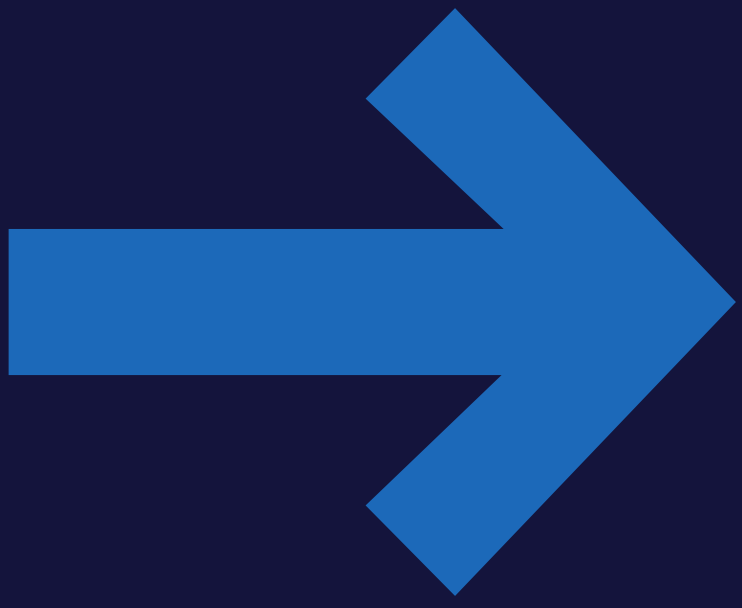

AS4-Gateway – Response messages via push

Document change history

Version	Description	Who	When
1.0	Initial version	Ulrik Andersen	09-12-2024
1.1	Changes after review	Ulrik Andersen	10-12-2024
1.2	Added more details on requirements and how to contact Told Servicedesk	Ulrik Andersen	13-03-2025

Contents

Terms and definitions

Term	Definition
EO	Economic Operator.
AS4	Conformance profile for the ebMS 3.0 specification – used for business-to-business exchange of documents using web services. Specification of the AS4 profile: http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/profiles/AS4-profile/v1.0/os/AS4-profile-v1.0-os.html
UFST AS4-Gateway	UFST's AS4 Gateway is located between the EO and the DMS Trader Portal.
EO AS4 Gateway	An AS4 Gateway operated by the EO.
DMS	Declaration Management System – the new system for Import, Export and Transit.
Push/pull	The AS4 profile defines multiple exchange patterns for sending and receiving messages; the exchange patterns use two types of requests: • Push message: The sender sends a message to the receiver. • Pull request: The receiver asks the sender if there are any messages ready for the receiver.

Introduction

Today EOs fetch response message from DMS using an AS4 pull request. A response message could be a

- notification document (a response to a notification request).
- error message if a submitted declaration could not be processed.
- EAD/TAD document requested via the GetEad or GetTad service.
- status response requested via the GetStatus service.

While the pull request model is simple to implement, it is not the most efficient communication method when there is a high number of messages to fetch.

Therefore, there is now the possibility of setting up a flow where the UFST AS4-Gateway push response messages to an AS4 Gateway operated by the EO. This means that the UFST AS4-Gateway will send a message to the EO as soon as the response is received from the DMS system.

Requirements

To receive responses from DMS via the UFST AS4-Gateway, the EO must setup an AS4 Gateway. The gateway must be conformant with the AS4 Profile of EBMS 3.0: http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/profiles/AS4-profile/v1.0/os/AS4-profile-v1.0-os.html

It is a requirement that the EO AS4 Gateway uses the HTTPS protocol for the listening endpoint. Both TLS 1.2 and 1.3 are supported with the following ciphers:

- TLS_AES_256_GCM_SHA384
- TLS_AES_128_GCM_SHA256
- TLS_CHACHA20_POLY1305_SHA256
- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
- TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
- TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
- TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256
- TLS_DHE_RSA_WITH_AES_128_GCM_SHA256

AS4 messages from the UFST AS4-Gateway will be signed. As the transport layer uses encryption, then the AS4 message itself will not be encrypted.

It is expected that the EO AS4 Gateway is available 24/7 with minimal downtime. If the UFST AS4-Gateway is not able to deliver a message, then in total 3 retries will be performed after 5, 10 and 15 minutes[1]. If all retries fail, then the message will be marked as failed in the UFST AS4-Gateway, and no further retries will be performed.

It is the responsibility of the EO to keep track of received response messages and map them to the previously sent request. If a message is lost in the EO AS4 Gateway due to an error, then UFST has no way of detecting this and the response message will not be resent. A response message can be resent manually from the AS4-Gateway by contacting Told Servicedesk, but in most cases it will probably be faster and easier to resend the original request.

Onboarding to receiving responses via push

See the section Requirements for the prerequisites that must be in place before responses can be received in as AS4 push message.

EOs using AS4-Gateway

EOs already using the AS4-Gateway must coordinate the switch from pull to push with Told Servicedesk, because as soon as the EO Partner in UFST AS4-Gateway is configured for receiving responses via push, then all responses will be pushed to the EO AS4 Server. Thus, this configuration change cannot take place before the EO AS4 Server is operational, and all firewall rules are in place.

The steps to switch from pull to push will be as follows. Note that these steps must be performed for both TFE and production. The application must be sent to Told Servicedesk using email servicedesk@toldst.dk. More details about contacting Told Servicedesk can be found here: https://toldst.dk/om-styrelsen/kontakt/abningstider-og-lokationer.

The application for switching from Pull to Push should be sent at least 1 month prior to the desired switch date, so there is time for setting up the required firewall rules and testing.

EO sends an application for switch to Pull

Once the EO has setup an AS4 Server they can apply for a switch from Pull to Push. An EO must provide the following information:

- The username for the UFST AS4-Gateway
- The URL the UFST AS4-Gateway must use to push responses to the EO AS4 Gateway.
- A date/time where the switch must take place.

Firewall EO

After applying for a switch to receive Push responses, the EO will receive a confirmation of the switch date. If the proposed switch date cannot be fulfilled by UFST, then EO and UFST must together agree on a new date.

EO will also receive the source IP address of the UFST AS4-Gateway and EO must ensure that their firewall allow requests from this IP address to the EO AS4 Gateway.

Test connection

[1] This is subject to change; could be that the number of retries and/or the retry window will be increased.

Once the EO confirms that the firewall rules are in place, then UFST will test the connection from the UFST AS4-Gateway to the EO AS4 Gateway.

Perform switch

On the agreed switch date UFST will configure the URL for the EO AS4 Server in the UFST AS4-Gateway. This will ensure that the UFST AS4-Gateway will start pushing responses to the EO AS4 Gateway.

It is important that the EO keeps pulling for responses until they start receiving responses on their AS4 Server.

New EOs on AS4-Gateway

It is recommended that new EOs onboarding on the AS4-Gateway for system-to-system communication should use the push model for receiving responses.

In this case there is no need to agree on a switch date and a simpler onboarding procedure can be used:

1. EO send an application for onboarding
   Same as above, except that there is no need to agree on a switch date.
2. Firewall EO
   Same as above.
3. EO starts to use the UFST AS4-Gateway
   Now all is setup for EO to use the UFST AS4-Gateway. They can test by sending a notification request, and if a response is received on their AS4 Server, then they are ready to go.
   If no response is received, or if any other error happens, a ticket must be submitted to Told Servicedesk.

Received messages

The pushed AS4 message will be signed and contains a UserMessage element and a message payload.

AS4 User Message

Refer to the following table for the value of the fields in the AS4 UserMessage element.

Element	Description	Example
UserMessage	The attribute mpc will contain the message partition channel. This is the same message partition channel used when pulling messages.	urn:fdc:dk.skat.mft.DMS/response/CVR_30808460
MessageInfo		
Timestamp	Timestamp when AS4 message was created.	2024-12-08T20:17:55.597Z
MessageId	Unique ID of the AS4 message.	237f70e3-cc5a-447b-9750-4ef21d655815@DMS.Import2.Notification
PartyInfo		
From		
PartyId	ID of the service that sent the message. The attribute ‘type’ will contain the value ‘string’.	DMS.Import2.Notification
Role	Will always contain the same value.	http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/responder
To		

			PartyId	ID of the EO that is the receiver of the message. The attribute 'type' will contain the value 'string'.	CVR_30808460_UI_e7057bbd-5e7d-4200-ad81-623333d5c657_AS4
			Role	Will always contain the same value.	http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/initiator
	CollaborationInfo				
		Service		Will always contain the same value. The attribute 'type' will contain the value 'string'.	http://docs.oasis-open.org/ebxml-msg/as4/200902/service
		Action		Will always contain the same value.	Response
		ConversationId		Will contain the value of the ConversationId used in the original request.	test:notification
	MessageProperties				
		Property		The property 'RefToOriginalMessageId' will contain a reference to the message ID of the original request.	9cef815a-4a23-471e-9575-667f519cb99e@h-3fecf3596ac98cda.3fe452e0ce14a47a
	PayloadInfo			Cotains a reference to the message payload located in an attachment to the SOAP Envelope.	

Example:

```
<?xml version='1.0' encoding='UTF-8'?>
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-
200401-wss-wssecurity-secext-1.0.xsd" soapenv:mustUnderstand="true">
...
    </wsse:Security>
    <eb:Messaging xmlns:eb="http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
soapenv:mustUnderstand="true" wsu:Id="id-26">
      <eb:UserMessage mpc="urn:fdc:dk.skat.mft.DMS/response/CVR_30808460">
        <eb:MessageInfo>
          <eb:Timestamp>2024-12-08T20:17:55.597Z</eb:Timestamp>
          <eb:MessageId>237f70e3-cc5a-447b-9750-
4ef21d655815@DMS.Import2.Notification</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="string">DMS.Import2.Notification</eb:PartyId>
            <eb:Role>http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/responder</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="string">CVR_30808460_UI_e7057bbd-5e7d-4200-ad81-
623333d5c657_AS4</eb:PartyId>
```

```
            <eb:Role>http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/initiator</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:Service type="string">http://docs.oasis-open.org/ebxml-
msg/as4/200902/service</eb:Service>
          <eb:Action>Response</eb:Action>
          <eb:ConversationId> test:notification</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:MessageProperties>
          <eb:Property name="RefToOriginalMessageId">9cef815a-4a23-471e-9575-
667f519cb99e@h-3fecf3596ac98cda.3fe452e0ce14a47a</eb:Property>
        </eb:MessageProperties>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:A1733689075589.7413996@j1UUyd5nKT-CYsIL4kbq">
            <eb:PartProperties/>
          </eb:PartInfo>
        </eb:PayloadInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soapenv:Header>
  <soapenv:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-
wss-wssecurity-utility-1.0.xsd" wsu:Id="Id-1498125716"/>
</soapenv:Envelope>
```

AS4 Message Payload

The message payload will be delivered as an attachment to the SOAP Envelope. The message payload will be the same as the message payload that is currently fetched via a pull request. E.g:

- A notification document
- An error message generated by DMS
- An error message generated by the UFST AS4-Gateway
- EAD/TAD document requested via the GetEad or GetTad service.
- status response requested via the GetStatus service