

Technical description of solutions for sharing measurement data with external entities

Appendices list		
Appendix number	Appendix description	Appendix
1.	OASIS ebXML Messaging Services Version 3.0: Part 1, Core Features	http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/core/ebms_core-3.0-spec.pdf
2.	ENTSOG AS4 Profile	http://www.entsog.eu/public/uploads/files/publications/INT%20Network%20Code/2014/int0488%20131206%20as4%20usage%20profile%20v1r0.pdf

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1 Introduction

1.1 Purpose of the project

Sharing measurement data with external entities (customers of GAZ-SYSTEM S.A.), including:

- archived data,
- alarm data
- operative aggregates
- billing aggregates

Making GAZ-SYSTEM internal applications available through instances.

2 General assumptions

1. It is assumed that in the communication between GAZ-SYSTEM's internal applications and external entities, an ESB will be used as an intermediary tool.
2. WebServices (SOAP over HTTP) made available by GAZ-SYSTEM internal application instances shall be used for communication of the Enterprise Service Bus with those instances.
3. To enable communication between the Enterprise Service Bus and external systems, the AS4 standard will be used, what will provide for safe communication with the use of WebServices (SOAP over HTTP), independent of the exchanged data.
4. API made available to external entities will be independent of API made available by internal applications of GAZ-SYSTEM.
5. Inquiries about data, inquiry statuses and measurement metadata exchanged between external entities and GAZ-SYSTEM will be represented as XML documents. Measurement data will be represented as files in the CSV or similar format.
6. The <soap:Body> elements in SOAP messages is always empty. All data is transmitted in the form of MIME pieces with the use of SOAP-with-Attachments extension

3 Communication specification when using AS4

3.1 WebService AS4 for external entities

Addresses of access points that supports AS4 for use by external partners for the production and test environments will be made available by the GAZ-SYSTEM within the procedure of joining new partner.

WSDL definition for the above WebService:

```
<?xml version="1.0" encoding="UTF-8"?><wso:definitions xmlns:wso="http://schemas.xmlsoap.org/wso/"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wso/" xmlns:mime="http://schemas.xmlsoap.org/wso/mime/"
xmlns:tns="http://ws.apache.org/axis2" xmlns:http="http://schemas.xmlsoap.org/wso/http/" xmlns:soap12="http://schemas.xmlsoap.org/wso/soap12/"
xmlns:soap="http://schemas.xmlsoap.org/wso/soap/" targetNamespace="http://ws.apache.org/axis2">
  <wso:documentation>msh</wso:documentation>
  <wso:types/>
  <wso:message name="receiveRequest"/>
  <wso:message name="receiveResponse"/>
  <wso:portType name="mshPortType">
    <wso:operation name="receive">
      <wso:input message="tns:receiveRequest" wsaw:Action="urn:receive"/>
      <wso:output message="tns:receiveResponse" wsaw:Action="urn:receiveResponse"/>
    </wso:operation>
  </wso:portType>
  <wso:binding name="mshSoap11Binding" type="tns:mshPortType">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
    <wso:operation name="receive">
      <soap:operation soapAction="urn:receive" style="document"/>
      <wso:input>
        <soap:body use="literal"/>
      </wso:input>
      <wso:output>
        <soap:body use="literal"/>
      </wso:output>
    </wso:operation>
  </wso:binding>
  <wso:binding name="mshSoap12Binding" type="tns:mshPortType">
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
    <wso:operation name="receive">
      <soap12:operation soapAction="urn:receive" style="document"/>
      <wso:input>
        <soap12:body use="literal"/>
      </wso:input>
      <wso:output>
        <soap12:body use="literal"/>
      </wso:output>
    </wso:operation>
  </wso:binding>
  <wso:binding name="mshHttpBinding" type="tns:mshPortType">
    <http:binding verb="POST"/>
    <wso:operation name="receive">
      <http:operation location="receive"/>
      <wso:input>
        <mime:content type="application/xml" part="parameters"/>
      </wso:input>
      <wso:output>
        <mime:content type="application/xml" part="parameters"/>
      </wso:output>
    </wso:operation>
  </wso:binding>
  <wso:service name="msh">
    <wso:port name="mshJmsSoap11Endpoint" binding="tns:mshSoap11Binding">
      <soap:address location=""/>
    </wso:port>
    <wso:port name="mshHttpSoap11Endpoint" binding="tns:mshSoap11Binding">
      <soap:address location="AS4_GAZSYSTEM_ENDPOINT_LOCATION_URL"/>
    </wso:port>
    <wso:port name="mshHttpsSoap11Endpoint" binding="tns:mshSoap11Binding">
      <soap:address location=""/>
    </wso:port>
    <wso:port name="mshHttpsSoap12Endpoint" binding="tns:mshSoap12Binding">
      <soap12:address location=""/>
    </wso:port>
    <wso:port name="mshHttpSoap12Endpoint" binding="tns:mshSoap12Binding">
```

```

<soap12:address location=" AS4_GAZSYSTEM_ENDPOINT_LOCATION_URL "/>
</wsdl:port>
<wsdl:port name="mshJmsSoap12Endpoint" binding="tns:mshSoap12Binding">
  <soap12:address location=""/>
</wsdl:port>
<wsdl:port name="mshHttpEndpoint" binding="tns:mshHttpBinding">
  <http:address location=" AS4_GAZSYSTEM_ENDPOINT_LOCATION_URL "/>
</wsdl:port>
<wsdl:port name="mshHttpsEndpoint" binding="tns:mshHttpBinding">
  <http:address location=""/>
</wsdl:port>
</wsdl:service>
</wsdl:definitions>

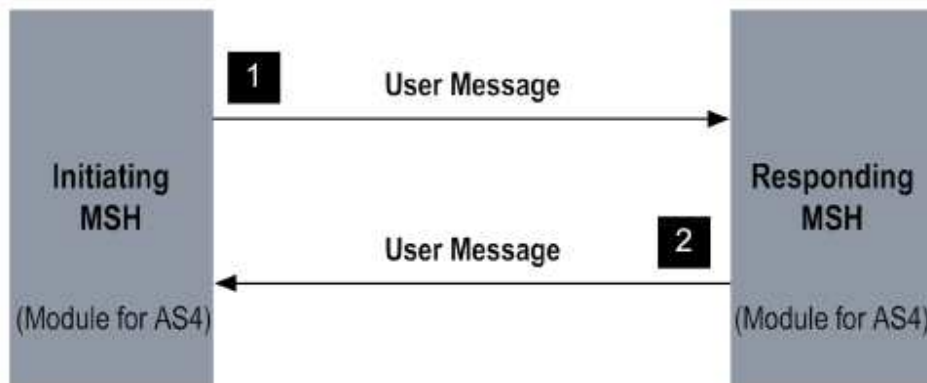
```

3.2 Supported AS4 communication patterns (MEPs):

The solution supports two communication patterns available in the AS4 standard:

3.2.1 Two-Way/Sync MEP

In this communication pattern, an initiating partner (initiating MSH - an external entity - 1) in a feedback message from the responding partner (responding MSH - GAZ-SYSTEM - 2), receives a synchronous result of the submitted inquiry (basic request-reply communication). This pattern is illustrated by the following diagram:



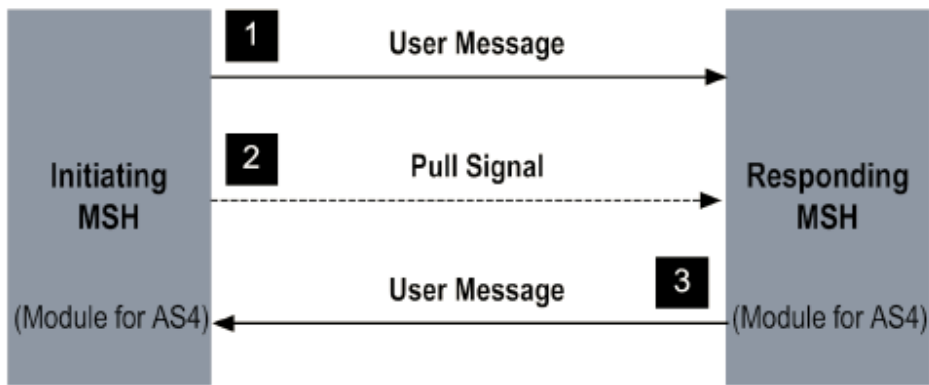
Roles: Sending, receiving

Roles: Receiving, sending

This communication pattern should be used in exceptional situations (when the external entity is unable to handle the second pattern) with the assumption that the customer will not ask about large sets of data.

3.2.2 Two-Way/Push-Pull MEP

In this communication pattern, an initiating partner (initiating MSH - an external entity - 1) sends an inquiry to the responding partner (responding MSH - GAZ-SYSTEM) and receives only information about the inquiry acceptance (response status HTTP). Then the initiating partner (initiating MSH – external entity - 1) asks the responding partner (responding MSH – GAZ- SYSTEM) about the availability of the inquiry result. If the inquiry result is available, it is returned (only once) by the responding partner (responding MSH – GAZ-SYSTEM - 3), synchronously in relation to the inquiry about result availability. This pattern is illustrated by the following diagram:



Roles: Sending, receiving

Roles: Receiving, sending

3.2.3 SOAP messages in the AS standard for the aforementioned communication patterns.

Note: We assume that in the specified messages only the name of the external partner (customer1) should change, partner's ID (11-11-11-11, 22-22-22-22). The business content of messages is not visible in the following messages, because it is attached as independent MIME pieces in HTTP inquiries and responses (only references to those messages are visible [cid:measurementDataRequest](#), [cid:measurementDataResponse](#), [cid:file1.csv](#)). Business data specification has been presented in Section 4.

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Sync	External entity	GAZ-SYSTEM	Measurement data inquiry (User Message)

SOAP message:

```

<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11" xmlns:eb="http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/MeasurementAPI/tpa/klient1/sync</eb:AgreementRef>
          <eb:Service>GsMeasurementAPI.services.getDataForPartner</eb:Service>
          <eb:Action>invoke</eb:Action>
          <eb:ConversationId>456</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:measurementDataRequest">
  
```



```

<eb:Schema location="http://gaz-system.pl/MeasurementAPI/schema/query-1.0.xsd" namespace="http://gaz-
system.pl/MeasurementAPI/query/1.0" version="1.0"/>
  <eb:PartProperties>
    <eb:Property name="MimeType">application/xml</eb:Property>
    <eb:Property name="CharacterSet">UTF-8</eb:Property>
    <eb:Property name="CompressionType">application/gzip</eb:Property>
  </eb:PartProperties>
</eb:PartInfo>
</eb:PayloadInfo>
</eb:UserMessage>
</eb:Messaging>
</soap:Header>
<soap:Body/>
</soap:Envelope>

```

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Sync	External entity	GAZ-SYSTEM	Measurement data inquiry result (AS4 User Message)

SOAP message:

```

<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope" xmlns:xsd="http://www.w3.org/1999/XMLSchema"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/" xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"/>
  <soapenv:Header>
    <eb:Messaging soapenv:mustUnderstand="true">
      <eb:UserMessage mpc="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/defaultMPC">
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-23T10:09:35</eb:Timestamp>
          <eb:MessageId>f86c56300d85025e782b9ce26bf151dcba231819e02cf8c7@apache.org</eb:MessageId>
          <eb:RefToMessageId>123</eb:RefToMessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/MeasurementAPI/tpa/klient1/sync</eb:AgreementRef>
          <eb:Service>GsMeasurementAPI.services:getDataForPartner</eb:Service>
          <eb:Action>invoke</eb:Action>
          <eb:ConversationId>456</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:measurementDataResponse">
            <eb:Schema location="http://gaz-system.pl/MeasurementAPI/schema/query-1.0.xsd" namespace="http://gaz-
system.pl/MeasurementAPI/query/1.0" version="1.0"/>
              <eb:PartProperties>
                <eb:Property name="MimeType">application/xml</eb:Property>
                <eb:Property name="CharacterSet">UTF-8</eb:Property>
                <eb:Property name="CompressionType">application/gzip</eb:Property>
              </eb:PartProperties>
            </eb:PartInfo>
            <eb:PartInfo href="cid:file1.csv">
              <eb:PartProperties>
                <eb:Property name="MimeType">text/csv</eb:Property>
                <eb:Property name="CharacterSet">UTF-8</eb:Property>
                <eb:Property name="CompressionType">application/gzip</eb:Property>
              </eb:PartProperties>
            </eb:PartInfo>
          </eb:PayloadInfo>
        </eb:UserMessage>
      </eb:Messaging>
    </soapenv:Header>
    <soapenv:Body/>
  </soapenv:Envelope>

```

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Push-Pull (Push)	External entity	GAZ-SYSTEM	Measurement data inquiry (AS4 User Message)

SOAP message:

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11" xmlns:eb="http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>12345</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/MeasurementAPI/tpa/klient1/pushPull</eb:AgreementRef>
          <eb:Service>GsMeasurementAPI.services.getDataForPartner</eb:Service>
          <eb:Action>invoke</eb:Action>
          <eb:ConversationId>6789</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:measurementDataRequest">
            <eb:Schema location="http://gaz-system.pl/MeasurementAPI/schema/query-1.0.xsd" namespace="http://gaz-
system.pl/MeasurementAPI/query/1.0" version="1.0"/>
              <eb:PartProperties>
                <eb:Property name="MimeType">text/csv</eb:Property>
                <eb:Property name="CharacterSet">UTF-8</eb:Property>
                <eb:Property name="CompressionType">application/gzip</eb:Property>
              </eb:PartProperties>
            </eb:PartInfo>
          </eb:PayloadInfo>
        </eb:UserMessage>
      </eb:Messaging>
    </soap:Header>
  <soap:Body/>
</soap:Envelope>
```

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Push-Pull (Push)	External entity	GAZ-SYSTEM	Inquiry acceptance status (HTTP response status)

SOAP message:

HTTP/1.1 202 Accepted
Content-Length:

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Push-Pull (Pull)	External entity	GAZ-SYSTEM	Available inquiry results polling (AS4 Pull Signal)

SOAP message:

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging soap:mustUnderstand="1">
```

```

    <eb:SignalMessage>
      <eb:MessageInfo>
        <eb:Timestamp>2015-10-22T10:01:00</eb:Timestamp>
        <eb:MessageId>3</eb:MessageId>
      </eb:MessageInfo>
      <eb:PullRequest mpc="http://gaz-system.pl/MeasurementAPI/mpc/klient1"/>
    </eb:SignalMessage>
  </eb:Messaging>
</soap:Header>
<soap:Body></soap:Body>
</soap:Envelope>

```

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Push-Pull (Pull)	External entity	GAZ-SYSTEM	No inquiry result available (AS4 Pull Signal)

SOAP message:

```

<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsd="http://www.w3.org/1999/XMLSchema" xmlns:eb="http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/" xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"/>
  <soapenv:Header>
    <eb:Messaging soapenv:mustUnderstand="true">
      <eb:SignalMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-22T10:22:17</eb:Timestamp>
          <eb:MessageId>ef6c56300d85025e49e4a6c26bf151dcac331819e02cf8c7@apache.org</eb:MessageId>
          <eb:RefToMessageId>3</eb:RefToMessageId>
        </eb:MessageInfo>
        <eb:Error errorCode="EBMS:0006" severity="warning" refToMessageInError="3" origin="ebMS"
category="Content" shortDescription="EmptyMessagePartitionChannel"/>
      </eb:SignalMessage>
    </eb:Messaging>
  </soapenv:Header>
  <soapenv:Body/>
</soapenv:Envelope>

```

Communication pattern (MEP)	Initiating partner (initiating MSH)	Responding partner (responding MSH)	Message description
Two-Way/Push-Pull (Pull)	External entity	GAZ-SYSTEM	Available inquiry result with measurement data (AS4 User Message)

SOAP message:

```

<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsd="http://www.w3.org/1999/XMLSchema" xmlns:eb="http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/" xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"/>
  <soapenv:Header>
    <eb:Messaging soapenv:mustUnderstand="true">
      <eb:UserMessage mpc="http://gaz-system.pl/MeasurementAPI/mpc/klient1">
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-23T10:23:19</eb:Timestamp>
          <eb:MessageId>a56c56300d85025e1cd8c3926bf151dc3a231819e02cf8c7@apache.org</eb:MessageId>
          <eb:RefToMessageId>12345</eb:RefToMessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/MeasurementAPI/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef pmode="PMode3">http://gaz-
system.pl/MeasurementAPI/tpa/klient1/pushPull</eb:AgreementRef>
          <eb:Service>GsMeasurementAPI.services:getDataForPartner</eb:Service>
          <eb:Action>invoke</eb:Action>
          <eb:ConversationId>6789</eb:ConversationId>
        </eb:CollaborationInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soapenv:Header>
  <soapenv:Body/>
</soapenv:Envelope>

```

```

        </eb:CollaborationInfo>
        <eb:PayloadInfo>
        <eb:PartInfo href="cid:measurementDataResponse">
        <eb:Schema location="http://gaz-system.pl/MeasurementAPI/schema/query-1.0.xsd"
namespace="http://gaz-system.pl/MeasurementAPI/query/1.0" version="1.0"/>
        <eb:PartProperties>
        <eb:Property name="MimeType">application/xml</eb:Property>
        <eb:Property name="ContentType">UTF-8</eb:Property>
        <eb:Property name="CompressionType">application/gzip</eb:Property>
        </eb:PartProperties>
        </eb:PartInfo>
        <eb:PartInfo href="cid:file1.csv">
        <eb:PartProperties>
        <eb:Property name="MimeType">text/csv</eb:Property>
        <eb:Property name="ContentType">UTF-8</eb:Property>
        <eb:Property name="CompressionType">application/gzip</eb:Property>
        </eb:PartProperties>
        </eb:PartInfo>
        </eb:PayloadInfo>
        </eb:UserMessage>
        </eb:Messaging>
    </soapenv:Header>
    <soapenv:Body/>
</soapenv:Envelope>

```

3.3 Security of transmitted data

3.3.1 Communication security at the transport level

Communication between an external entity and GAZ-SYSTEM, within the transport layer, shall be secured with a TLS protocol with server authentication (GAZ-SYSTEM) under the following assumptions:

- Communication with external entity GAZ-SYSTEM in the transport layer will be protected with a protocol at least TLS 1.1 with server authentication (GAZ-SYSTEM) using certificate X.509 with key length at least 2048 bit and SHA256 signature.
- As part of the communication security will be used Cipher Suites with at least 128 bit key, implement the mechanism Forward Secrecy, without the use of RC4 and Diffie-Hellman. In addition, it is not allowed renegotiation initiated by the customer.

A customer (external entity) does not have to be authenticated in this layer (which would be excessive in relation to the use of WS-Security) and does not have to present his certificate.

3.3.2 Communication security at the SOAP messaging level

SOAP messages will be secured with the use of the following Web Services Security version 1.1.1 OASIS standards:

- Web Services Security SOAP Message Security
- Web Services Security X.509 Certificate Token Profile
- Web Services Security SOAP Message with Attachments (SwA) Profile

3.4 Other communication requirements:

- All attachments are compressed with GZIP (application/gzip).

4 Specification of MeasurementAPI public interface

Definitions of all the messages described below can be found in the following XML Schema file:

```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://gaz-system.pl/MeasurementAPI/query/1.0"
  elementFormDefault="qualified" xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:mapi="http://gaz-system.pl/MeasurementAPI/query/1.0">
  <element name="measurementDataRequest" type="mapi:MeasurementDataRequest">
  </element>
  <element name="measurementDataResponse" type="mapi:MeasurementDataResponse">
  </element>
  <complexType name="MeasurementDataRequest">
    <sequence>
      <element name="dataType" type="mapi:MeasurementDataType"
        minOccurs="1" maxOccurs="1">
      </element>
      <element name="deviceIds" minOccurs="0" maxOccurs="1">
        <complexType>
          <sequence>
            <element name="deviceId" type="string" minOccurs="0"
              maxOccurs="unbounded"></element>
          </sequence>
        </complexType>
      </element>
      <element name="deviceSetIds" minOccurs="0" maxOccurs="1">
        <complexType>
          <sequence>
            <element name="deviceSetId" type="string" minOccurs="0"
              maxOccurs="unbounded"></element>
          </sequence>
        </complexType>
      </element>
      <element name="dateFrom" type="dateTime" minOccurs="1"
        maxOccurs="1">
      </element>
      <element name="dateTo" type="dateTime" minOccurs="1"
        maxOccurs="1">
      </element>
      <element name="dataFields" minOccurs="0" maxOccurs="1">
        <complexType>
          <sequence>
            <element name="dataField" type="mapi:MeasurementDataField"
              minOccurs="0" maxOccurs="unbounded"></element>
          </sequence>
        </complexType>
      </element>
    </sequence>
  </complexType>
  <complexType name="MeasurementDataResponse">
    <sequence>
      <element name="dataFiles" minOccurs="0" maxOccurs="1">
        <complexType>
          <sequence>
            <element name="dataFile" type="mapi:MeasurementDataFile"
              minOccurs="0" maxOccurs="unbounded"></element>
          </sequence>
        </complexType>
      </element>
      <element name="result" type="mapi:RequestResult" minOccurs="1"
        maxOccurs="1"></element>
    </sequence>
  </complexType>
  <simpleType name="MeasurementDataType">
    <restriction base="string">
      <enumeration value="ARCH_SRC"></enumeration>
      <enumeration value="ARCH_COR"></enumeration>
      <enumeration value="ALRM_SRC"></enumeration>
      <enumeration value="AKDG_COR_HOUR"></enumeration>
    </restriction>
  </simpleType>
</schema>
```

```

        <enumeration value="AKDG_COR_ORP"></enumeration>
    </restriction>
</simpleType>

<complexType name="MeasurementDataField">
    <sequence>
        <element name="name" type="string" minOccurs="0"
            maxOccurs="1">
        </element>
        <element name="type" type="mapi:MeasurementDataFieldType" minOccurs="0"
            maxOccurs="1">
        </element>
        <element name="sort" type="mapi:MeasurementDataFieldSort" minOccurs="0"
            maxOccurs="1">
        </element>
    </sequence>
    <attribute name="href" type="string" use="optional"></attribute>
</complexType>

<simpleType name="MeasurementDataFieldType">
    <restriction base="string">
        <enumeration value="INT"></enumeration>
        <enumeration value="STRING"></enumeration>
        <enumeration value="NUM"></enumeration>
        <enumeration value="DATE"></enumeration>
    </restriction>
</simpleType>

<simpleType name="MeasurementDataFieldSort">
    <restriction base="string">
        <enumeration value="ASC"></enumeration>
        <enumeration value="DESC"></enumeration>
    </restriction>
</simpleType>

<complexType name="MeasurementDataFile">
    <sequence>
        <element name="dataType" type="mapi:MeasurementDataType"
            minOccurs="0" maxOccurs="1">
        </element>
        <element name="deviceIds" minOccurs="0" maxOccurs="1">
            <complexType>
                <sequence>
                    <element name="deviceId" type="string" minOccurs="0"
maxOccurs="unbounded"></element>
                </sequence>
            </complexType>
        </element>
        <element name="deviceSetIds" minOccurs="0" maxOccurs="1">
            <complexType>
                <sequence>
                    <element name="deviceSetId" type="string" minOccurs="0"
maxOccurs="unbounded"></element>
                </sequence>
            </complexType>
        </element>
        <element name="dateFrom" type="dateTime" minOccurs="0"
            maxOccurs="1">
        </element>
        <element name="dateTo" type="dateTime" minOccurs="0"
            maxOccurs="1">
        </element>
        <element name="dataFields" minOccurs="0" maxOccurs="1">
            <complexType>
                <sequence>
                    <element name="dataField" type="mapi:MeasurementDataField"
minOccurs="0" maxOccurs="unbounded"></element>
                </sequence>
            </complexType>
        </element>
    </sequence>
    <attribute name="href" type="string" use="optional"></attribute>
    <attribute name="fileNo" type="int" use="optional"></attribute>
    <attribute name="noOfFiles" type="int" use="optional"></attribute>
    <attribute name="noOfEntries" type="int" use="optional"></attribute>
    <attribute name="firstEntryLine" type="int" use="optional"></attribute>
    <attribute name="fileSize" type="int" use="optional"></attribute>
</complexType>

<complexType name="RequestResult">
    <sequence>

```

```

        <element name="resultCode" minOccurs="1" maxOccurs="1">
          <simpleType>
            <restriction base="string">
              <pattern value="OK"></pattern>
              <pattern
                value="ERR((\d{3}[1-9])|(\d{2}[1-9]\d{1})|(\d{1}[1-
9]\d{2})|([1-9]\d{3}))">
                </pattern>
              </restriction>
            </simpleType>
          </element>
          <element name="errorDescription" type="string" minOccurs="0"
            maxOccurs="1">
          </element>
          <element name="errorDetails" minOccurs="0" maxOccurs="1">
            <complexType>
              <sequence>
                <element name="errorDetail" type="string" minOccurs="0"
maxOccurs="unbounded"></element>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </complexType>
    </schema>

```

4.1 GsMeasurementAPI.services:getDataForPartner

The service enables downloading measurement data, aggregated data and alarms for a selected partner. The service shall perform the following operations for each inquiry (customer authentication is done earlier as a part of the AS4 standard):

1. Customer configuration downloading
2. Verification of customer's rights contained in his configuration
 - a. If the customer does not have rights to any data he asks for, then the entire request shall be rejected and an appropriate message shall be returned.
3. Inquiry verification for SLA filters contained in the customer configuration:
 - a. If an inquiry exceeds any SLA expressed in the filters, the whole request is rejected and an appropriate message is returned
4. Customer inquiries statistics update for the purposes of subsequent SLA calculations.
5. Transferring the inquiry for execution (downloading data from the cache or from GAZ-SYSTEM internal applications)
6. Synchronous return of the result to the customer (MEP Two-Way/Sync) or placing the result in the queue to be received by the Pull message (MEP Two-Way/Push-Pull).

4.1.1 Input

4.1.1.1 Document measurementDataRequest

Type name: **MeasurementDataRequest**

Type namespace: <http://GAZ-SYSTEM.pl/MeasurementAPI/query/1.0>

Version: **1.0**

Document root element name: **measurementDataRequest**

MIME Content-ID: **measurementDataRequest** (the document is represented as a MIME piece in the input SOAP message)

XML path	Required?	Data type	Description
measurementDataRequest/dataType	Yes	xs:string, enum: [ARCH_COR, ARCH_SRC, ALRM_COR, ALRM_SRC, AKDG_COR_HOUR, AKDG_COR_ORP]	Returned data type: ARCH_COR – processes archived data ARCH_SRC – source archived data ALRM_COR – processed alarm data ALRM_SRC – source alarm data AKDG_COR_HOUR – billing aggregates data AKDG_COR_ORP – operative aggregates data
measurementDataRequest/deviceIds	No	Id list	Devices id list (CentID) Required when dataType = ARCH_COR or ARCH_SRC or ALRM_COR or ALRM_SRC
measurementDataRequest/deviceIds/deviceId[n]	Yes	xs:string	Device id (CentID)
measurementDataRequest/deviceSetIds	No	deviceSetId list	Systems id list (CentID) Required when dataType = AKDG_COR_HOUR or AKDG_COR_ORP
measurementDataRequest/deviceSetIds/deviceSetId[n]	Yes	xs:string	Device id (CentID)
measurementDataRequest/dateFrom	Yes	xs:dateTime	Date and time “from” the scope of data download
measurementDataRequest/dateTo	Yes	xs:dateTime	Date and time “to” the scope of data download
measurementDataRequest/dataFields	No	dataField list	The list of data fields names to be returned in the inquiry result
measurementDataRequest/dataFields/dataField[n]/name	Yes	xs:string	Data field name to be returned Names of available field will be transferred to GAZ-SYSTEM.

4.1.2 Output

4.1.2.1 MeasurementDataResponse document

Type name: **MeasurementDataResponse**

Type namespace: <http://GAZ-SYSTEM.pl/MeasurementAPI/query/1.0>

Version: **1.0**

Document root element name: **measurementDataResponse**

MIME Content-ID: **measurementDataResponse** (the document is represented as a MIME piece in the input SOAP message)

XML path	Required?	Data type	Description
measurementDataResponse/result/resultCode	Yes	xs:string, enum: [OK, ERR0000]	Result code "OK" or error code starting with "ERR"
measurementDataResponse/result/errorDescription	No	xs:string	Error description
measurementDataResponse/result/errorDetails	No	errorDetail list	A list of error details
measurementDataResponse/result/errorDetails/errorDetail[n]	Yes	xs:string	Error details
measurementDataResponse/dataFiles	No	dataFile list	Returned when resultCode = „OK”. A list of data files In the current implementation it always contains exactly one item.
measurementDataResponse/dataFiles/dataFile[0]/@href	Yes	xs:string (attribute)	Attribute that contains a reference to a MIME piece that contains data file.
measurementDataResponse/dataFiles/dataFile[0]/@fileNo	Yes	xs:integer (attribute)	A file number in files sequence representing a response to the inquiry. Always 0 in the current implementation.
measurementDataResponse/dataFiles/dataFile[0]/@noOfFiles	Yes	xs:integer (attribute)	A number of all files in a file sequence representing a response to the inquiry. Always 1 in the current implementation.
measurementDataResponse/dataFiles/dataFile[0]/@noOfEntries	Yes	xs:integer	The number of data items in the file
measurementDataResponse/dataFiles/dataFile[0]/@firstEntryLine	Yes	xs:integer	The number of a line in which the data begin. In the current implementation these can be 0 or 1 (when

			a file contains header data)
measurementDataResponse/dataFiles/dataFile[0]/@fileSize	Yes	xs:integer	File size in bytes.
measurementDataResponse/dataFiles/dataFile[0]/dataType	Yes	ARCH_COR, ARCH_SRC, ALRM_COR, ALRM_SRC, AKDG_COR_HOUR, AKDG_COR_ORP]	Type of data contained in a given file.
measurementDataResponse/dataFiles/dataFile[0]/deviceIds	No	deviceId list	Id list (CentID) of devices contained in a given file. Present when dataType = ARCH_COR or ARCH_SRC or ALRM_COR or ALRM_SRC
measurementDataResponse/dataFiles/dataFile[0]/deviceIds/deviceId[n]	Yes	xs:string	Device id (CentID)
measurementDataResponse/dataFiles/dataFile[0]/deviceSetIds	No	deviceSetId list	Id list (CentID) of systems in a given file. Present when dataType = AKDG_COR_HOUR or AKDG_COR_ORP
measurementDataResponse/dataFiles/dataFile[0]/deviceSetIds/deviceSetId[n]	Yes	xs:string	Device id (CentID)
measurementDataResponse/dataFiles/dataFile[0]/dateFrom	Yes	xs:dateTime	Date and time “from” the scope of data for a given file.
measurementDataResponse/dataFiles/dataFile[0]/dateTo	Yes	xs:dateTime	Date and time “to” the scope of data for a given file.
measurementDataResponse/dataFiles/dataFile[0]/dataFields	Yes	dataField list	A list containing the field names for a given file.
measurementDataResponse/dataFiles/dataFile[0]/dataFields/dataField[n]/@href	Yes	xs:string	File reference. The value contains a number of column containing the given field (counting from 0).
measurementDataResponse/dataFiles/dataFile[0]/dataFields/dataField[n]/name	Yes	xs:string	Data field name in a given file. Names of available field will be transferred to GAZ-SYSTEM. Record key returned with a 0 index (name: _KEY)
measurementDataRe	Yes	xs:string, enum: [INT, STRING,	Data field name in a given

<pre>sponse/dataFiles/dataFile[0]/dataFields/dataField[n]/type</pre>		NUM, DATE]	file. Record key returned with a 0 index (type: STRING)
--	--	------------	---

4.1.2.2 Data files specification

Each file in SOAP output message is represented as a MIME piece with an ID (Content-ID): **<file_name>** (name generated by WebMethods).

Each file is a CSV file with coding and formatting defined in the customer/data type configuration.

Metadata are described in the output document and may be described in the header row of the file (Section4): **measurementDataResponse/dataFiles** and contain only those fields that were transferred by the customer in the inquiry in the **measurementDataRequest/dataFields** file.

5 New entity connection procedure

5.1 At GAZ-SYSTEM side

1. Transfer of the EIC code of GAZ-SYSTEM to the entity and arrangement of the data exchange pattern (MEP).
2. Establishing a profile for the partner along with a definition of certificates used to code and verify the messages (administration task).
 - a. Setting the entity EIC code as partner's ExternalID (ID type: EIC).
 - b. Importing the certificate (issued for GAZ-SYSTEM) and a private key used for signing SOAP messages sent by GAZ-SYSTEM
 - c. Importing the certificate (issued for GAZ-SYSTEM) and a private key used for decrypting SOAP messages received by GAZ-SYSTEM
 - d. Importing the certificate (issued for entity) used for verifying signature of SOAP messages received by GAZ-SYSTEM
 - e. Importing the certificate (issued for entity) used for encrypting SOAP messages sent by GAZ-SYSTEM
3. Creation of TPA (Trading Partner Agreement) for the entity. Sample configuration (without Security) for different MEP:



pushPullTPAData.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<IDataXMLCoder version="1.0">
  <record javaclass="com.wm.data.ISMemDataImpl">
    <value name="agreement">http://gaz-system.pl/KolektorAPI/tpa/klient1/pushPull</value>
    <value name="mepBinding">Two-Way/PushPull</value>
    <record name="initiator" javaclass="com.wm.data.ISMemDataImpl">
      <value name="id">22-22-22-22</value>
      <value name="type">EIC</value>
      <value name="role">http://gaz-system.pl/KolektorAPI/role/from</value>
    </record>
    <record name="responder" javaclass="com.wm.data.ISMemDataImpl">
      <value name="id">11-11-11-11</value>
      <value name="type">EIC</value>
      <value name="role">http://gaz-system.pl/KolektorAPI/role/to</value>
    </record>
    <array name="legs" type="record" depth="1">
      <record javaclass="com.wm.data.ISMemDataImpl">
        <value name="label">requestSM</value>
        <record name="protocol" javaclass="com.wm.data.ISMemDataImpl">
          <value name="address">http://localhost:5555</value>
          <value name="addActorOrRoleAttribute">false</value>
        </record>
        <record name="businessInfo" javaclass="com.wm.data.ISMemDataImpl">
          <value name="mpc">http://gaz-system.pl/KolektorAPI/mpc/klient1</value>
        </record>
      </record>
      <record javaclass="com.wm.data.ISMemDataImpl">
        <value name="label">requestUM</value>
        <record name="protocol" javaclass="com.wm.data.ISMemDataImpl">
          <value name="address">http://localhost:5555</value>
          <value name="addActorOrRoleAttribute">false</value>
        </record>
        <record name="businessInfo" javaclass="com.wm.data.ISMemDataImpl">
          <value name="service">GsKolektorAPI.services:getDataForPartner</value>
          <value name="action">invoke</value>
          <value name="mpc">http://gaz-system.pl/KolektorAPI/mpc/klient1</value>
        </record>
        <record name="receptionAwareness" javaclass="com.wm.data.ISMemDataImpl">
          <value name="enabled">false</value>
        </record>
      </array>
  </record>
</IDataXMLCoder>
```

```

</record>
</array>
<record name="payloadService" javaclass="com.wm.data.ISMemDataImpl">
  <value name="compressionType">application/gzip</value>
</record>
<record name="splitting" javaclass="com.wm.data.ISMemDataImpl">
  <value name="enabled">>false</value>
</record>
</record>
</IDataXMLCoder>

```



syncTPADData.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<IDataXMLCoder version="1.0">
  <record javaclass="com.wm.data.ISMemDataImpl">
    <value name="agreement">http://gaz-system.pl/KolektorAPI/tpa/klient1/sync</value>
    <value name="mepBinding">Two-Way/Sync</value>
    <record name="initiator" javaclass="com.wm.data.ISMemDataImpl">
      <value name="id">22-22-22-22</value>
      <value name="type">EIC</value>
      <value name="role">http://gaz-system.pl/KolektorAPI/role/from</value>
    </record>
    <record name="responder" javaclass="com.wm.data.ISMemDataImpl">
      <value name="id">11-11-11-11</value>
      <value name="type">EIC</value>
      <value name="role">http://gaz-system.pl/KolektorAPI/role/to</value>
    </record>
    <array name="legs" type="record" depth="1">
      <record javaclass="com.wm.data.ISMemDataImpl">
        <value name="label">requestUM</value>
        <record name="protocol" javaclass="com.wm.data.ISMemDataImpl">
          <value name="address">http://localhost:6666/wm/msh/receive</value>
          <value name="addActorOrRoleAttribute">>false</value>
        </record>
        <record name="businessInfo" javaclass="com.wm.data.ISMemDataImpl">
          <value name="service">GsKolektorAPI.services:getDataForPartner</value>
          <value name="action">invoke</value>
        </record>
        <record name="errorHandling" javaclass="com.wm.data.ISMemDataImpl">
          <record name="report" javaclass="com.wm.data.ISMemDataImpl">
            <value name="asResponse">>true</value>
          </record>
        </record>
        <record name="security" javaclass="com.wm.data.ISMemDataImpl">
          <value name="enableSecurity">>false</value>
          <value name="includeTimeStamp">>false</value>
          <value name="pmodeAuthorize">>false</value>
          <record name="receipt" javaclass="com.wm.data.ISMemDataImpl">
            <value name="sendReceipt">>false</value>
            <value name="replyPattern">response</value>
            <value name="nonRepudiation">>false</value>
          </record>
        </record>
        <record name="receptionAwareness" javaclass="com.wm.data.ISMemDataImpl">
          <value name="enabled">>false</value>
          <record name="retry" javaclass="com.wm.data.ISMemDataImpl">
            <value name="enabled">>false</value>
          </record>
          <record name="duplicateDetection" javaclass="com.wm.data.ISMemDataImpl">
            <value name="enabled">>false</value>
          </record>
        </record>
      </array>
    <record javaclass="com.wm.data.ISMemDataImpl">
      <value name="label">replyUM</value>
      <record name="protocol" javaclass="com.wm.data.ISMemDataImpl">
        <value name="address">http://localhost:5555/wm/msh/receive</value>
        <value name="addActorOrRoleAttribute">>false</value>
      </record>
      <record name="businessInfo" javaclass="com.wm.data.ISMemDataImpl">

```

```

    <value name="service">GsKolektorAPI.services:getDataForPartner</value>
    <value name="action">invoke</value>
  </record>
  <record name="errorHandling" javaclass="com.wm.data.ISMemDataImpl">
    <record name="report" javaclass="com.wm.data.ISMemDataImpl">
      <value name="receiverErrorsTo">http://klient1.com</value>
      <value name="asResponse">>false</value>
    </record>
  </record>
  <record name="security" javaclass="com.wm.data.ISMemDataImpl">
    <value name="enableSecurity">>false</value>
    <value name="includeTimeStamp">>false</value>
    <value name="pmodeAuthorize">>false</value>
    <record name="receipt" javaclass="com.wm.data.ISMemDataImpl">
      <value name="sendReceipt">>false</value>
      <value name="replyPattern">response</value>
      <value name="nonRepudiation">>false</value>
    </record>
  </record>
  <record name="receptionAwareness" javaclass="com.wm.data.ISMemDataImpl">
    <value name="enabled">>false</value>
    <record name="retry" javaclass="com.wm.data.ISMemDataImpl">
      <value name="enabled">>false</value>
    </record>
    <record name="duplicateDetection" javaclass="com.wm.data.ISMemDataImpl">
      <value name="enabled">>false</value>
    </record>
  </record>
</array>
<record name="payloadService" javaclass="com.wm.data.ISMemDataImpl">
  <value name="compressionType">application/gzip</value>
</record>
<record name="splitting" javaclass="com.wm.data.ISMemDataImpl">
  <value name="enabled">>false</value>
</record>
</record>
</IDataXMLCoder>

```

4. Creating a queue/queues (trigger) supporting a given partner (developer task)
5. Establishment of the customer's configuration specifying the customer's rights to the data and SLA (administrative task).
6. Transferring a certificate providing confidentiality of information and authenticity of the server on which API is posted on the part of GAZ-SYSTEM to the entity, eg. it can be a certificate for *.GAZ-SYSTEM.pl (security of the transport level).
7. Provision of an external partner with the certificates used to sign and code SOAP messages (SOAP message security).

5.2 At the connected entity side

1. Transfer of the EIC code of the entity to GAZ-SYSTEM and arrangement of the data exchange pattern (MEP).
2. Ensuring that the certificate of the GAZ-SYSTEM server or its CA is a trusted certificate
3. Provision of GAZ-SYSTEM with the certificates used to sign and code SOAP messages (SOAP message security).
4. Implementation of WebService customer for msh.wsdl WSDL and WSDL supporting measurementDataRequest and measurementDataResponse messages.

5.3 Connection verification

The test service as described in ENTSOG AS4 User Profile shall be made available in order to verify the correctness of configuration of the connected external entity. Test service messages have to have the following fields set in the SOAP header:

- UserMessage/CollaborationInfo/Service of a value of: **http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service**

- UserMessage/CollaborationInfo/Action of a value of: **http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test**

The test messages shall always include one document constituting the business content of the message in the form of a separate MIME piece. This document shall have the following definition:

```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://gaz-system.pl/TestService/message/1.0"
  elementFormDefault="qualified" xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:tsrv="http://gaz-system.pl/TestService/message/1.0">
  <include schemaLocation=""></include>
  <include schemaLocation=""></include>
  <include schemaLocation=""></include>
  <element name="testMessage" type="tsrv:TestMessage">
  </element>
  <complexType name="TestMessage">
    <sequence>
      <sequence>
        <element name="pingText" type="string" minOccurs="1" maxOccurs="1"></element>
        <element name="pongText" type="string" minOccurs="0" maxOccurs="1"></element>
      </sequence>
    </complexType>
  </schema>
```

Type name: **TestMessage**

Type namespace: **http://GAZ-SYSTEM.pl/TestService/message/1.0**

Version: **1.0**

Document root element name: **testMessage**

MIME Content-ID: **testMessage** (the document is represented as a MIME piece in the input SOAP message)

XML path	Required?	Data type	Description
testMessage/pingText	Yes	xs:string	Any text generated by a partner who initiates communication
testMessage/pongText	No	xs:string	Any text generated by a partner who receives the text message in case when the partner is configured to respond to this message (see below).

Other parameters such as message ID or timestamps shall be included in the SOAP header (UserMessage).

In accordance with the OASIS ebXML Messaging Services Version 3.0 specification: Part 1, Core Features (Appendix 1), a test message is a one way message - without the feedback answer (Ping message without corresponding Pong message). Therefore, such message is supported by One-Way/Push MEP.

As for the needs of the implemented solutions of measurement data sharing and nominations submission, a communication using other communication patterns will be implemented, the test service shall also support these patterns. This will facilitate testing and detecting irregularities of the configuration. All in all, the test service shall support the following MEP:

- One-Way/Push

- When MEP is configured for one direction (from partner to GAZ-SYSTEM), the partner sends a test message (testMessage/pingText filled) and does not get any response apart from the HTTP 202 status.



push_test_request_
soap.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/push</eb:AgreementRef>
          <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
          <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
          <eb:ConversationId>1</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:testMessage">
            <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
              <eb:PartProperties>
                <eb:Property name="MimeType">application/xml</eb:Property>
                <eb:Property name="CharacterSet">UTF-8</eb:Property>
                <eb:Property name="CompressionType">application/gzip</eb:Property>
              </eb:PartProperties>
            </eb:PartInfo>
          </eb:PayloadInfo>
        </eb:UserMessage>
      </eb:Messaging>
    </soap:Header>
    <soap:Body/>
  </soap:Envelope>
```


- When MEPs are configured for both directions (from partner to GAZ-SYSTEM and from GAZ-SYSTEM to partner), the partner sends a test message (testMessage/pingText filled) and asynchronously receives a corresponding return test message (testMessage/pingText and testMessage/pongText filled).



push_test_request_soap.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/push</eb:AgreementRef>
          <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
          <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
          <eb:ConversationId>1</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:testMessage">
            <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
            <eb:PartProperties>
              <eb:Property name="MimeType">application/xml</eb:Property>
              <eb:Property name="CharacterSet">UTF-8</eb:Property>
              <eb:Property name="CompressionType">application/gzip</eb:Property>
            </eb:PartProperties>
          </eb:PartInfo>
        </eb:PayloadInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>
```



push_back_test_request_soap.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
          </eb:To>
        </eb:PartyInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>
```

```

        <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
      </eb:To>
    </eb:PartyInfo>
  <eb:CollaborationInfo>
    <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/pushBack</eb:AgreementRef>
    <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
    <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
    <eb:ConversationId>1</eb:ConversationId>
  </eb:CollaborationInfo>
  <eb:PayloadInfo>
    <eb:PartInfo href="cid:testMessage">
      <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
      <eb:PartProperties>
        <eb:Property name="MimeType">application/xml</eb:Property>
        <eb:Property name="CharacterSet">UTF-8</eb:Property>
        <eb:Property name="CompressionType">application/gzip</eb:Property>
      </eb:PartProperties>
    </eb:PartInfo>
  </eb:PayloadInfo>
</eb:UserMessage>
</eb:Messaging>
</soap:Header>
<soap:Body/>
</soap:Envelope>

```

- Two-Way/Sync: the partner sends a test message (testMessage/pingText filled) and synchronously receives a corresponding return test message (testMessage/pingText and testMessage/pongText filled).



sync_test_request_s
oap.xml

```

<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/sync</eb:AgreementRef>
          <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
          <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
          <eb:ConversationId>1</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:testMessage">
            <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
            <eb:PartProperties>
              <eb:Property name="MimeType">application/xml</eb:Property>
              <eb:Property name="CharacterSet">UTF-8</eb:Property>
              <eb:Property name="CompressionType">application/gzip</eb:Property>
            </eb:PartProperties>
          </eb:PartInfo>
        </eb:PayloadInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>

```



sync_test_response
_soap.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/sync</eb:AgreementRef>
          <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
          <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
          <eb:ConversationId>1</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:testMessage">
            <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
            <eb:PartProperties>
              <eb:Property name="MimeType">application/xml</eb:Property>
              <eb:Property name="CharacterSet">UTF-8</eb:Property>
              <eb:Property name="CompressionType">application/gzip</eb:Property>
            </eb:PartProperties>
          </eb:PartInfo>
        </eb:PayloadInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>
```

- Two-Way/Push-Pull: the partner sends a test message (testMessage/pingText filled) and using the next request containing a Pull message is able to receive a corresponding return test message (testMessage/pingText and testMessage/pongText filled).



pushPull_push_test
_request_soap.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
        </eb:PartyInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>
```

```

    </eb:From>
    <eb:To>
      <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
      <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
    </eb:To>
  </eb:PartyInfo>
  <eb:CollaborationInfo>
    <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/pushPull</eb:AgreementRef>
    <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
    <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
    <eb:ConversationId>1</eb:ConversationId>
  </eb:CollaborationInfo>
  <eb:PayloadInfo>
    <eb:PartInfo href="cid:testMessage">
      <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
      <eb:PartProperties>
        <eb:Property name="MimeType">application/xml</eb:Property>
        <eb:Property name="CharacterSet">UTF-8</eb:Property>
        <eb:Property name="CompressionType">application/gzip</eb:Property>
      </eb:PartProperties>
    </eb:PartInfo>
  </eb:PayloadInfo>
</eb:UserMessage>
</eb:Messaging>
</soap:Header>
<soap:Body/>
</soap:Envelope>

```



pushPull_push_test
_request_soap.xml

```

<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/pushPull</eb:AgreementRef>
          <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
          <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
          <eb:ConversationId>1</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:testMessage">
            <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
            <eb:PartProperties>
              <eb:Property name="MimeType">application/xml</eb:Property>
              <eb:Property name="CharacterSet">UTF-8</eb:Property>
              <eb:Property name="CompressionType">application/gzip</eb:Property>
            </eb:PartProperties>
          </eb:PartInfo>
        </eb:PayloadInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>

```



pushPull_pull_test_
response_nodata_sc

```

22-22-22-22<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsd="http://www.w3.org/1999/XMLSchema" xmlns:eb="http://docs.oasis-open.org/ebxml-
msg/ebms/v3.0/ns/core/200704/" xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance/">
  <soapenv:Header>
    <eb:Messaging soapenv:mustUnderstand="true">
      <eb:SignalMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-22T10:22:17</eb:Timestamp>
          <eb:MessageId>ef6c56300d85025e49e4a6c26bf151dcac331819e02cf8c7@apache.org</eb:MessageId>
          <eb:RefToMessageId>3</eb:RefToMessageId>
        </eb:MessageInfo>
        <eb:Error errorCode="EBMS:0006" severity="warning" refToMessageInError="3" origin="ebMS"
category="Content" shortDescription="EmptyMessagePartitionChannel"/>
      </eb:SignalMessage>
    </eb:Messaging>
  </soapenv:Header>
  <soapenv:Body/>
</soapenv:Envelope>

```



pushPull_pull_test_
response_withdata

```

<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:S11="S11"
xmlns:eb="http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/ns/core/200704/">
  <soap:Header>
    <eb:Messaging S11:mustUnderstand="1">
      <eb:UserMessage>
        <eb:MessageInfo>
          <eb:Timestamp>2015-10-21T14:09:05</eb:Timestamp>
          <eb:MessageId>123</eb:MessageId>
        </eb:MessageInfo>
        <eb:PartyInfo>
          <eb:From>
            <eb:PartyId type="EIC">11-11-11-11</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/from</eb:Role>
          </eb:From>
          <eb:To>
            <eb:PartyId type="EIC">22-22-22-22</eb:PartyId>
            <eb:Role>http://gaz-system.pl/TestService/role/to</eb:Role>
          </eb:To>
        </eb:PartyInfo>
        <eb:CollaborationInfo>
          <eb:AgreementRef>http://gaz-system.pl/TestService/tpa/klient1/pushPull</eb:AgreementRef>
          <eb:Service>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/service</eb:Service>
          <eb:Action>http://docs.oasis-open.org/ebxmlmsg/ebms/v3.0/ns/core/200704/test</eb:Action>
          <eb:ConversationId>1</eb:ConversationId>
        </eb:CollaborationInfo>
        <eb:PayloadInfo>
          <eb:PartInfo href="cid:testMessage">
            <eb:Schema location="http://gaz-system.pl/TestService/message-1.0.xsd" namespace="http://gaz-
system.pl/TestService/message/1.0" version="1.0"/>
            <eb:PartProperties>
              <eb:Property name="MimeType">application/xml</eb:Property>
              <eb:Property name="CharacterSet">UTF-8</eb:Property>
              <eb:Property name="CompressionType">application/gzip</eb:Property>
            </eb:PartProperties>
          </eb:PartInfo>
        </eb:PayloadInfo>
      </eb:UserMessage>
    </eb:Messaging>
  </soap:Header>
  <soap:Body/>
</soap:Envelope>

```