

User Manual of Information System



CS OTE Web services External interfaces

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Date	Description of changes
19.10.2009	Modification and completion of the description of synchronous / asynchronous processing (Chapter 2)
19.10.2009	Addition of call-back service for communication of EDI messages (electricity) (chapter 3.5.2)
23.10.2009	Addition of call-back service for transmission of ETSO ConfirmationReport and AnomalyReport messages to the subscriber's system (chapter 4.4.3)
20.11.2009	Addition of commonGasService
20.11.2009	Clarification of the description of the method of communication
02.12.2009	Addition of gas services cdsEdigasService – it is possible to pass a new NOMRES to the input cdsEdigasCallbakservice - can be passed to APERAK as output
04.12.2009	StatusRequestService extension - 2 documents can be passed as output at the same time (e.g. ConfirmationReport and AnomalyReport)
20.04.2012	New service commonMarketService
04.06.2012	Description of the SOAP connection test
20.10.2015	Revision of the current state
20.01.2017	Addition of new formats
04.02.2020	Moving ETSO structures from commonService to commonMarketService
18.08.2020	Addition of (HTTP) connection test at TLS level
23.6.2022	Update of services according to the specification of the new DM
12.9.2022	Text update due to expansion of markets to include IDA intraday auctions.
20.11.2023	English version of the document

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1 Introduction

It is used for the automated exchange of information of external entities with CS OTE:

1. **communication using the SOAP protocol in 1.1, type SOAP-Document.**
The transmission is carried out at the level of the HTTPS connection, which ensures encryption of the communication, thus meeting the requirement for confidentiality during data transmission. This method is only used for exchanging XML structured data.
2. **communication by SOAP protocol v 1.1, simplified variant.**
Similar to the previous point, the data is wrapped into a single element. This method is used for sending data in EDI format in the field of electricity.
3. **SMTP communication using S/MIME messages.** For S/MIME, only text MIME messages secured by el. signing and encryption are used. It can be used for XML and other types of documents, e.g. EDI.

The use of the above-mentioned communication channels can be combined for one participant with respect for the following restrictions:

- The resolution of the output channel (OTE->participant) is performed for the RMP-msgcode combination (for messages according to the OTE specification) or RMP-type of message (for messages according to ETSO, CIM or EDIGAS specifications).
- The input channel can be combined as desired - i.e. data can be sent to the system via any channel (or entered via the web interface).
- At the same time, the mentioned setting allows you to set up OTE communication with multiple communication servers on the subscriber's side, always respecting the RMP-msgcode restrictions (for messages according to the OTE specification) or RMP-type of message (for messages according to ETSO, CIM or EDIGAS specification) for one server.

1.1 Web services

The primary interface of the CS OTE system is web services called via the HTTPS protocol. According to the scenarios, 2 types are distinguished:

- 1) client-server – always initiated by an external participant. The client system must support web services according to this specification.
- 2) server-server – also initiated from the OTE system. On the side of the external participant's system, there must be web services meeting this specification.

1.1.1 Autentization

CS OTE uses authentication with an X.509 client certificate, which can be used during transmission via the HTTP protocol with an SSL extension. This solution was chosen based on the requirement to transfer sensitive data. In terms of security, it is a better solution than direct authentication with a user (system) name and password. There are better methods to secure a private key than a password.

Within B2B, a client certificate is used for unique identification, which is then matched by the system user in CS OTE.

1.1.2 Protocol for WS

Communication via web services is based on the SOAP v1.1 protocol. This protocol defines two parts - the header and the actual content of the message. The requirements of individual parts depend on the specific type of web service. Web services can be divided into two types:

- Services for the exchange of XML structured data
- Services for the exchange of EDI data

1.1.2.1 Services for the exchange of XML structured data

1.1.2.1.1 Header WS (Element Header)

To increase the security and integrity of the data transmitted by the SOAP protocol, web services use the WS-Security standard. Other standards from the WS* category, e.g. WS-RM, WS-Trust... are not used.

WS-Security is defined by the OASIS consortium

(http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wss) and consists of several parts:

- **UsernameToken** – by default, it is used for authentication. CS OTE web services do not use authentication using a client certificate at the SSL/TLS level.
- **Timestamp** – implements the time validity and creation time of the request during the SOAP call and response. This is a mandatory part of CS OTE web services.
- **Signature** – thanks to the adoption of XML el. signature (XML Signature) ensures the integrity of the transmitted data. Used to verify the integrity of the entire SOAP envelope already at the level of the standard WS implementation. This is a mandatory part of CS OTE web services.
- **Encryption** – Not used in CS OTE web services. Web services are secured at the SSL-TLS level, message encryption is not used.

Summary of the proposal to use the WS-Security extension

The possibility of using WS-* standards and their parts is shown in the following table:

Standard	Section	Use in CS OTE
WS – Security 1.1	Timestamp	Used
WS – Security 1.1	Signature	Used for integrity checking at the level of the standard implementation of the SOAP protocol

The certificate used for the electronic signature must be defined as a so-called BinarySecurityToken within WS-Security, outside the element containing the electronic signature (Signature element). In the SecurityTokenReference section, it must then be referenced in the manner defined in the standard as Direct Reference. Other methods (e.g. SubjectKeyIdentifier,...) are not supported by CS OTE services.

The electronic signature must ensure the integrity of the following parts:

- **Timestamp** (namespace <http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd>)
- **Body** (namespace <http://schemas.xmlsoap.org/soap/envelope/>)

1.1.2.1.2 Message body (Element Body)

XML documents transmitted in the body of the message can be provided with an electronic mark in the XML Signature format. The possibility to insert an XML Signature is defined by the XSD template of the transferred document. It is recommended to always insert an XML Signature.

For selected XML documents (CDSINVOICE, CDSGASINVOICE), the XML Signature is mandatory, as these messages are transmitted between participants through the CS OTE system, and the end-to-end integrity of messages between participants must be ensured.

1. XML signature

W3C recommendations are used <http://www.w3.org/TR/xmlsig-core/>.

Transformace Enveloped Signature <http://www.w3.org/2000/09/xmlsig#enveloped-signature>.

That is the entire XML document is equipped with an electronic tag, the relevant namespace defined at <http://www.w3.org/2000/09/xmlsig#> is inserted before the closing root element of the document (e.g. CDSINVOICE, CDSDATA, MASTERDATA...). The public certificate in X.509 format must be inserted into the structure that is defined in the named pro-store (KeyInfo/X509Data/X509Certificate). Keys with the RSA algorithm and hash function SHA-1 or SHA-2 (SHA256, SHA384 or SHA512) must be used for the signature. An example of the structure of a signed XML document is given in the following example. XML documents transmitted in the ETSO and EDIGAS XML formats are not signed.

2. XML data structure

The XML data structure is specified in a separate XML Formats document, published on OTE's public website. Together with the individual XML document templates, the complete WSDL documents of the web services, through which the XML documents are exchanged, are also published on the public OTE website. Relevant XSD templates are directly embedded in published WSDL documents, and data is validated against these templates when received.

The returned response depends on the type of communication scenario supported by the service. Individual communication scenarios are described in the section Solving communication scenarios .

Example query

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<SOAP-ENV:Envelope xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/03/addressing"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
wssecurity-utility-1.0.xsd" xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
```

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```

<SOAP-ENV:Header>
  <wsse:Security SOAP-ENV:mustUnderstand="1">
    <wsu:Timestamp wsu:Id="Timestamp-445df5c5-e7cc-4fac-89bd-
e2ba0a40161b">
      <wsu:Created>2013-10-20T12:04:01Z</wsu:Created>
      <wsu:Expires>2013-10-20T14:04:01Z</wsu:Expires>
    </wsu:Timestamp>
    <wsse:BinarySecurityToken EncodingType="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-soap-message-security-
1.0#Base64Binary" ValueType="http://docs.oasis-open.org/wss/2004/01/oasis-
200401-wss-x509-token-profile-1.0#X509v3" wsu:Id="Id-73eaed6c-6df0-4208-
b3f4-3e77ffa4f2d7">MIIEXDCCA0SgAwIBAgIDH1NEMA0GCSqGSIB3DQEBCwUAMIG...</wsse:BinarySecurityToken>
    <Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
      <SignedInfo>
        <CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-
exc-c14n#" />
        <SignatureMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
        <Reference URI="#Timestamp-445df5c5-e7cc-4fac-89bd-e2ba0a40161b">
          <Transforms>
            <Transform Algorithm="http://www.w3.org/2001/10/xml-exc-
c14n#" />
          </Transforms>
          <DigestMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
          <DigestValue>J3wRVLnWfYXvBhqm/pDDTtp5iiw=</DigestValue>
        </Reference>
        <Reference URI="#Id-acf95827-208c-42eb-afad-87fd72dd116d">
          <Transforms>
            <Transform Algorithm="http://www.w3.org/2001/10/xml-exc-
c14n#" />
          </Transforms>
          <DigestMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
          <DigestValue>/yAjHPVhvyX3DrfiD6/esAiha5s=</DigestValue>
        </Reference>
      </SignedInfo>
      <SignatureValue>QLGzH5SeVsmIdVfs1P...</SignatureValue>
      <KeyInfo>

```

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```

    <wsse:SecurityTokenReference>
      <wsse:Reference URI="#Id-73eaed6c-6df0-4208-b3f4-3e77ffa4f2d7"
ValueTypes="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-x509-
token-profile-1.0#X509v3"/>
    </wsse:SecurityTokenReference>
  </KeyInfo>
</Signature>
</wsse:Security>
</SOAP-ENV:Header>
<SOAP-ENV:Body wsu:Id="Id-acf95827-208c-42eb-afad-87fd72dd116d">
  <SendRequest xmlns="http://www.ote-cr.cz/schema/service/common/market">
    <COMMONMARKETREQ xmlns="http://www.ote-
.cz/schema/common/market/request" date-time="2013-10-20T12:04:02" dtd-
release="1" dtd-version="1" id="000001" message-code="923">
      <SenderIdentification coding-scheme="14" id="XXXXXXXXXXXX"/>
      <ReceiverIdentification coding-scheme="14" id="8591824000007"/>
    </COMMONMARKETREQ>
  </SendRequest>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Example answer

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soap
env="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header>
    <wsse:Security xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-
200401-wss-wssecurity-utility-1.0.xsd" xmlns:wss="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
soapenv:mustUnderstand="1">
      <wsse:BinarySecurityToken EncodingType="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-soap-message-security-
1.0#Base64Binary" ValueType="http://docs.oasis-open.org/wss/2004/01/oasis-
200401-wss-x509-token-profile-1.0#X509v3" wsu:Id="X509-
ADC8F997FD2241EA361445342641986626059">MIIFijCCA...</wsse:BinarySecurityTok
en>
      <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-
509913">
        <ds:SignedInfo>
          <ds:CanonicalizationMethod
Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">

```

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```

        <ec:InclusiveNamespaces
xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soapenv"/>
        </ds:CanonicalizationMethod>
        <ds:SignatureMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
        <ds:Reference URI="#TS-509909">
        <ds:Transforms>
            <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-
c14n#">
                <ec:InclusiveNamespaces
xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="wsse
soapenv"/>
                </ds:Transform>
            </ds:Transforms>
            <ds:DigestMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
            <ds:DigestValue>9wgiEUCZQbzIFGWhLsa9Z3nrJAs=</ds:DigestValue>
        </ds:Reference>
        <ds:Reference URI="#id-509911">
        <ds:Transforms>
            <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-
c14n#">
                <ec:InclusiveNamespaces
xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
                </ds:Transform>
            </ds:Transforms>
            <ds:DigestMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
            <ds:DigestValue>Hg3ezC7zFvEzgki2fHH55lefRm8=</ds:DigestValue>
        </ds:Reference>
        </ds:SignedInfo>
        <ds:SignatureValue>mr35bjHjBL...</ds:SignatureValue>
        <ds:KeyInfo Id="KI-ADC8F997FD2241EA361445342641986626061">
            <wsse:SecurityTokenReference wsu:Id="STR-
ADC8F997FD2241EA361445342641986626062">
                <wsse:Reference URI="#X509-
ADC8F997FD2241EA361445342641986626059" ValueType="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-x509-token-profile-1.0#X509v3"/>
            </wsse:SecurityTokenReference>
        </ds:KeyInfo>

```

```

</ds:Signature>
  <wsu:Timestamp wsu:Id="TS-509909">
    <wsu:Created>2013-10-20T12:04:01Z</wsu:Created>
    <wsu:Expires>2013-10-20T12:09:01Z</wsu:Expires>
  </wsu:Timestamp>
</wsse:Security>
</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-509911">
    <SendResponse xmlns="http://www.ote-cr.cz/schema/service/common/market">
      <RETURN_CODE xmlns="http://www.ote-cr.cz/schema/service/globals">0</RETURN_CODE>
      <RESPONSE xmlns="http://www.ote-cr.cz/schema/response" date-time="2013-10-20T14:03:44" dtd-release="1" dtd-version="1" id="000001" message-code="932">
        <SenderIdentification coding-scheme="14" id="8591824000007"/>
        <ReceiverIdentification coding-scheme="14" id="XXXXXXXXXXXXX"/>
        <Reason code="5521" result-code="M25521" type="A03">(MSG5521)</Reason>
      </RESPONSE>
      <ISOTEDATA xmlns="http://www.ote-cr.cz/schema/market/data">...</ISOTEDATA>
      <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
        <ds:SignedInfo>
          <ds:CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"/>
          <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
          <ds:Reference URI="">
            <ds:Transforms>
              <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
            </ds:Transforms>
            <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
            <ds:DigestValue>5pvIiVTKB92EqK6JrdVy84PBJlo=</ds:DigestValue>
          </ds:Reference>
        </ds:SignedInfo>

```

```

<ds:SignatureValue>E6091zJkmNqiYPTcYefolHNIvySz...</ds:SignatureValue>
  <ds:KeyInfo>
    <ds:X509Data>
      <ds:X509Certificate>MIIFijCC...</ds:X509Certificate>
    </ds:X509Data>
    <ds:KeyValue>
      <ds:RSAKeyValue>
        <ds:Modulus>sYSbEDLfhnR...</ds:Modulus>
        <ds:Exponent>AQAB</ds:Exponent>
      </ds:RSAKeyValue>
    </ds:KeyValue>
  </ds:KeyInfo>
</ds:Signature>
</ISOTEDATA>
</SendResponse>
</soapenv:Body>
</soapenv:Envelope>

```

1.1.2.2 EDI data exchange services

To support clients who generate data in EDI format (electricity area) and send it to the CS OTE system, the service interface is simplified.

1.1.2.2.1 WS header (Element Header)

This part is not used when sending EDI messages.

1.1.2.2.2 Message body (Element Body)

The EDI document is inserted into the DATA element. The EDI message itself must be electronically signed in binary (i.e. in PKCS#7 format) and encoded with the Base64 algorithm.

As a response, the RETURN_CODE element with the following meaning is returned:

- 0 – data received in order and an internal document created
- 1 – signature verification error – the message is not signed correctly
- 2 - transformation error - the message is not in the expected structure for processing
- 3 – error when creating an internal document - general error

Otherwise, the request is rejected and a standard SOAP:Fault structure containing the reason for the rejection is returned.

Example query:

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```
<?xml version="1.0" encoding="UTF-8" ?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:edi="http://www.ote-cr.cz/schema/service/edi">
  <soapenv:Body>
    <edi:SendDataRequest>

<edi:DATA>MIAGCSqGSIB3DQEHAqCAMIACAQExCzAJBgUrDgMCGGUAMIAGCSqGSIB3DQEHAaCAJ
IAEggIppD94
bWwgdMvyc2lvcj0iMS4wIiBlbnNvZGluZz0iaXNvLTg4NTktMiI/PjxSRVNQT05TRSB4bWxucz0
i
aHR0cDovL2Nkcy5vdGUtY3IuY3oiIHhtbG5zOnhzaT0iaHR0cDovL3d3dy53My5vcmcvMjAwMS9
Y
TUxTY2h1bWEtaW5zdGFuY2UiIHhzaTpzY2h1bWFMb2NhdGlvbj0iaHR0cDovL2Nkcy5vdGUtY3I
u
Y3ogLi9SRVNQT05TRS54c2QiIGlkPSI4MTAwMDAwMDM5NzQzMyIgbWVzc2FnZS1jb2RlPSI5NzI
i
IGRhZGUtdGltZT0iMjAwOS0wNi0xNFQyMT0zMzoxNyIgaHR0cDovL2Nkcy5vdGUtY3IuY3oi
YXN1PSIxIj48U2VuZGVySWRlbnRpZmljYXRpb24gaWQ9IjI3WE9URS1DWkVDSFJFUEIiIGNvZGlu
Zy1zY2h1bWU9IjE0Ii8+PFJlY2VpdmVyc2lvcj0iMS4wIiBlbnNvZGluZz0iaXNvLTg4NTktMiI/PjxSRVNQT05TRSB4bWxucz0i
IGNvZGluZy1zY2h1bWU9IjE0Ii8+PFJlY2VpdmVyc2lvcj0iMS4wIiBlbnNvZGluZz0iaXNvLTg4NTktMiI/PjxSRVNQT05TRSB4bWxucz0i
PSJBMDMiPiBCeWxhIHBye3ZlZGVuYSBhZ3JlZ2FjZSAyNCB0b2RpbkgVkrUIHBybyBvYmNob2R
u
7SBkZW4gMTQuMDYuMjAwOS48L1JlYXNvbj48L1JFU1BPT1NFPgAAAAAAKCCA2kwggN1MIICTaA
D
AgECAgokjBJ+AAUAABJrMA0GCSqGSIB3DQEBAQUAA4GNADCBiQKBgQDlNKn6kornVKntg/12q4dlcCg/XETa6ezwIqy
f
b2dpY2ExEjAQBGNVBAStCVBLSSBHcm91cDEOMAwGA1UEAxMFT1RFQ0EwHhcNMDgwODE4MTMxNTA
w
WhcNMTAwODE4MTMyNTAwWjBgMRwwGgYJKoZIhvcNAQkBFg1jZHNAb3RlZGV2LmN6MjAwOS48L1JFU1BPT1NFPgAAAAAAKCCA2kwggN1MIICTaA
G
EwJDWjEMMAoGA1UEChMDT1RFMRwEQYDVQQLEwpQS0kgU2VydMvYmRAwDgYDVQQDEwdDRFMgRGV
2
MIGfMA0GCSqGSIB3DQEBAQUAA4GNADCBiQKBgQDlNKn6kornVKntg/12q4dlcCg/XETa6ezwIqy
f
Iw6Uht8878C2DvcqOAcNIRF71591vcLJ14t1wiY0P087PGd4VbRbpq8NjZCGGXhZ1N9i7uXTRW
s
1
h2/11SWFZ+WpRG5w3wtQCi4DdCgxM+WINKWo/TlEiWDPk8Jf8r0vLceQIDAQABo4HCMIG/MA4
G
A1UdDwEB/wQEAwIE8DATBgNVHSUEDDAKBggrBgEFBQcDBDAdBgNVHQ4EFgQUf7iMNRGec9iFS42
P
```

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```

DERQYqJvodIweQYDVR0jBHIwcIAU9PFX94g6H15Uduw768RPh+XYj9GhRqREMEIxCzAJBgNVBAYT
AkNaMQ8wDQYDVQQKEwZMb2dpY2ExEjAQBgNVBAstCVBLSSBHcm91cDEOMAwwGA1UEAxMFT1RFQ0G
EHmDQ14+i3+jTXsUxM7X7XwwDQYJKoZIhvcNAQEFBQADggEBAGC11RY8JNxobemu00wkhJZiJnj
GGWm39fjQbiyQnW5DdXpzbHVqOQ1f0qcmbU0C7SiAFgHf+D2Ob7rcODMBm+9j06z2MSyXhID8h8
h8icRwZH6tPYHNZSdQY+EfI6CsfAGgE7bi9fQGQY9j8gPTz2W+7PcW64ZBkpoHGZHEcnjkyR0G
kui3SiSSxJ9mhgDtYoGx1pzhWnDNMefB89iF4gDRTLdRSeRZcy8e0r0naRU+cWiwg5s14M/Qvo/
nbwAUcAQViMyasJVqhDl31LChz0mlToO5vEmCKt7+z058cD2r11tWOBwJyyL4HsVm86Yze+2hGg
V4eCYzPydwMxggFVMIIBUQIBATBQMEIxCzAJBgNVBAYTAkNaMQ8wDQYDVQQKEwZMb2dpY2ExEjA
BgNVBAstCVBLSSBHcm91cDEOMAwwGA1UEAxMFT1RFQ0ECCiSMEn4ABQAAEmswCQYFKw4DAhoFAKB
MBGCSqGSIb3DQEJAzELBgkqhkiG9w0BBwEwHAYJKoZIhvcNAQkFMQ8XDTA5MDYxNDE5MzYxNlo
IwYJKoZIhvcNAQkEMRYEFIKXKbZ9J3otwY320sSBNPTES5OrMA0GCSqGSIb3DQEBAQUABIGAuWm
f+I59S7LtoCJG2//O31V2F1dvRa+WY2jyuHjofUWI7sPSKBzwrFHRlepUozci3SonifjqCcxnwd
Q+1rdhfCtnWurGvcCS9hAK1LtHNPdXpC4Mgwf7gO1cKXN/BHcagR2wy80+kw8vXvy9aqtDjzUD/
h
1mZtYjeGDkrQG9IAAAAAAAAA=
</edi:DATA>
    </edi:SendDataRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

Example answer:

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:edi="http://www.ote-cr.cz/schema/service/edi"
xmlns:globals="http://www.ote-cr.cz/schema/service/globals">
  <soapenv:Header/>
  <soapenv:Body>
    <edi:SendDataRequest>
      <globals:RETURN_CODE>2</globals:RETURN_CODE>
    </edi:SendDataRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

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```
</soapenv:Body>
</soapenv:Envelope>
```

1.2 S/MIME

The SMTP protocol can be used as a backup variant for communication with the CS OTE system. The data must be attached as an attachment to an e-mail message that is secured according to the S/MIME standard (<http://www.ietf.org/rfc/rfc2633.txt> or <http://www.ietf.org/rfc/rfc3851.txt>), which defines the MIME extension for electronic signature and encryption according to the RSA standard PKCS#7.

Procedure for creating an S/MIME message for CS OTE:

- 1) The data message (XML, EDI) must be inserted into the MIME message as an attachment (Content-Disposition: attachment).
- 2) The entire content of the MIME message is electronically signed according to the PKCS#7 standard (format - signed data, Base64 encoding). The SHA1 hash function with RSA encryption is used for the signature. This content is introduced by a corresponding header.
- 3) The message created in this way is encrypted with the recipient's public key. For symmetric message encryption, the 3DES block cipher in CBC mode is used due to the compatibility of e-mail clients. The encrypted message must be Base64 coded again. It is then provided again with the appropriate S/MIME header and other standard MIME message attributes.

Definition of S/MIME headers:

- A signed S/MIME message

```
Content-Type: application/x-pkcs7-mime; name=smime.p7m; smime-type=signed-
data
Content-Transfer-Encoding: base64
Content-Disposition: attachment; filename="smime.p7m"
Content-Description: S/MIME Cryptographic Signed Data
```

- Encrypted S/MIME message

```
Content-Type: application/pkcs7-mime; name="smime.p7m"; smime-
type=enveloped-data
Content-Transfer-Encoding: base64
Content-Disposition: attachment; filename="smime.p7m"
Content-Description: S/MIME Encrypted Message
To: cdsadmin@otedev.cz
```

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From: cds@otedev.cz

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2 Solving communication scenarios using web services

Each communication scenario has a defined message type, which is given either by a code or by a message type.

2.1 Synchronous communication scenarios

In these scenarios, the response / output message is provided as output from the SOAP service call.

The following groups of scenarios are solved in a synchronous manner:

- **Scenarios from the field of "electricity" solved using the ENTSO-E ScheduleService, StatusRequestService message services.**
- **Scenarios from the "gas" area for sending nominations using CDSEdigasService and using the Nomination.xsd structure.**

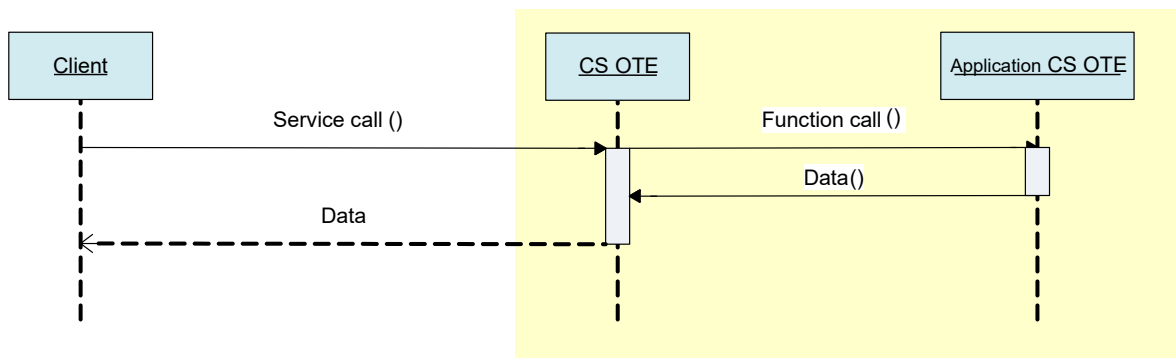


Image 1 Synchronous communication scenario

2.2 Asynchronous communication scenarios

Within these scenarios, the response / output message is forwarded in one of the following ways according to the subscriber's preference settings in the CS OTE system:

- By forwarding the CS OTE system to the call-back service implemented according to the OTE standard on the subscriber's system (the so-called push method). Definitions of callback services are published on the OTE public website together with data reception services.
- Sent to the participant's queue in the CS OTE system and ready for collection by the client (so-called Poll method).
- Transmitted by the CS OTE system via the SMTP channel to the subscriber's e-mail box.

The following groups of scenarios are solved using asynchronous communication

- **All scenarios handled by CDSService.** CS OTE's response is provided to the call-back service CDSCallBackService, or by one of the methods mentioned above (client-server, SMTP channel).
- **Scenarios related to queries and/or own data submission using the MarketService service,** i.e. if this service is used to pass ISOTEREQ.xsd and ISOTEDATA.xsd structures.

CS OTE's response is provided via the call-back service MarketCallBackService, or by one of the methods mentioned above (client-server, SMTP channel).

- **Scenarios from the field of "electricity" handled by the services for CIM messages StatusRequestMarketService.**
- **All scenarios handled using ReportService.** CS OTE's response is provided to the call-back service ReportCallBackService, or by one of the methods mentioned above (client-server, SMTP channel).
- **Scenarios handled by CDSEdigasService excluding nominations (Nomination.xsd).** CS OTE's response is provided to the call-back service CDSEdigasCallbackService, or by one of the methods mentioned above (client-server, SMTP channel).
- **All scenarios handled by CDSGasService.** CS OTE's response is provided via the call-back service CDSGasCallbackService, or by one of the methods mentioned above (client-server, SMTP channel).
- **All scenarios handled by GasReportService.** CS OTE's response is provided to the GasReportCallbackService call-back service, or by one of the methods mentioned above (client-server, SMTP channel).
- **All scenarios handled using RESService.** CS OTE's response is provided to the call-back service RESCallbackService, or by one of the methods mentioned above (client-server, SMTP channel).

The participant is also forwarded information that arises from the initiative of the CS OTE system (announcements, automatic forwarding of data, etc.).

A RETURN_CODE element with the following meaning is returned as a response within the asynchronous communication scenario:

- 0 – data received in order and an internal document created
- 1 – signature verification error – the message is not signed correctly
- 2 - transformation error - the message is not in the expected structure for processing
- 3 – error when creating an internal document - general error

Otherwise, the message is rejected and a standard SOAP:Fault structure containing the reason for the rejection is returned.

Data from the CS OTE system are provided to the participant either automatically, as a result of the process (transfer of data for invoicing after they have been sent by the distributor, transfer of electronic invoice, trading results, etc.) or at the participant's explicit request.

A typical scenario of asynchronous automatic communication is as follows:

1. Sending a message (data/query) to the CS OTE system
2. Asynchronous message processing in the CS OTE system
3. Generating the answer and passing it on to the participant in the preferred way

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2.2.1 Communication procedure in server-server mode

To support this type of communication scenario, the participant must implement the service according to the WSDL prescription of the respective callback service.

A typical communication scenario for data acquisition is as follows:

1. The subscriber sends an XML structure (CDSREQ, ISOTEREQ, CDSGASREQ ...) to the corresponding service.
2. Asynchronous message processing in the CS OTE system
3. The processing response is forwarded to the call-back service on the subscriber's side.

In case of unsuccessful sending of a message to the callback service, an attempt is made to resend the message to the subscriber's callback service (2x). In case of unsuccessful delivery, the message is sent to the subscriber via an alternative channel.

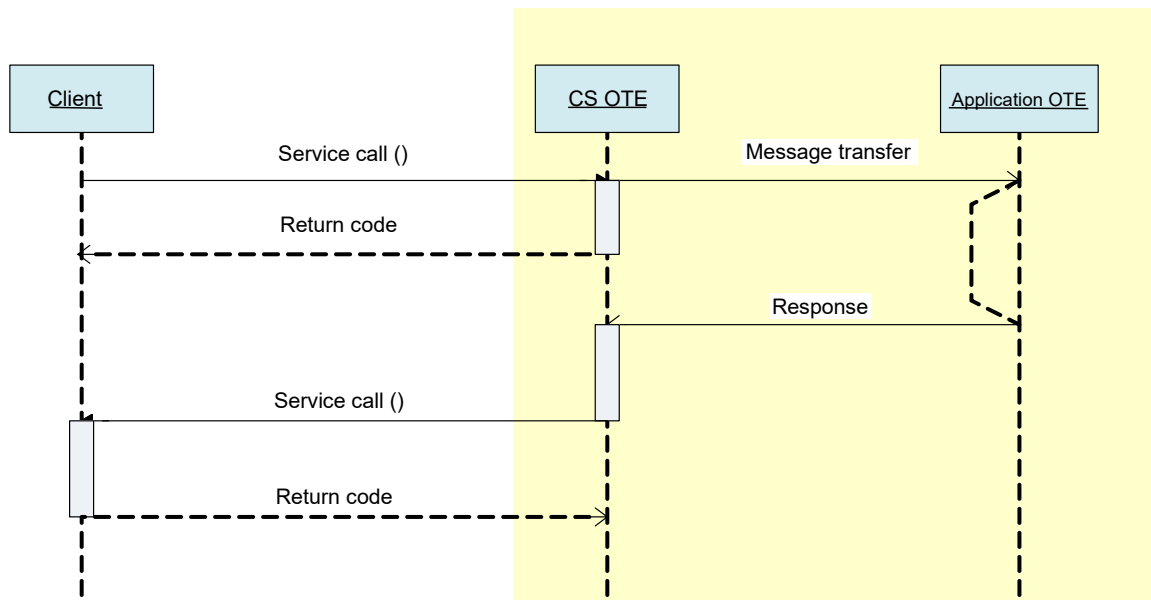


Image 2 Server-server mode

Note

The participant can perform request-response message matching based on the XML elements of the "message id" ("id" attribute of the query root element - e.g. <CDSGASREQ id="XXXX">) and "reference message id" ("id" attribute of the Reference element - eg CDSGASMASTERDATA / Reference@id).

The stated principle is currently applicable to all XML structures according to the OTE specification. XML structures according to the specification of the EDIGAS standard currently do not contain an attribute for indicating the reference data exchange (with the exception of the APERAK message, where the <OriginalMessageIdentification v="xxx"/> element is used), therefore this principle is not applicable - i.e. it is not possible to match CDSGASREQ and the message in EDIGAS format (with the exception of APERAK, where possible).

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2.2.2 Communication procedure in client-server mode

To support this type of communication scenario, the participant does not need to implement a callback service on his side, he only queries the CS OTE system periodically.

A typical communication scenario for data acquisition is as follows:

1. The subscriber sends an XML structure (CDSREQ, ISOTEREQ, CDSGASREQ) to the corresponding service.
2. Asynchronous message processing in the CS OTE system
3. The answer is ready for collection in the CS OTE system
4. The subscriber calls the web service to retrieve the message from the CS OTE system

The CS OTE system offers 3 services by area:

- **CommonService** (for messages from the field of electricity/RES outside KT), COMMOREQ structure - msg code 921
- **CommonMarketService** (KT area messages), structure COMMONMARKETREQ - msg code 923
- **CommonGasService** (messages from the gas field), structure COMMONGASREQ - msg code GX1

The output of the call is the first data message prepared in the subscriber's message queue on the OTE communication server.

If there is no other message ready in the queue, a RESPONSE/GASRESPONSE message is sent at the output of the service with information that the queue is empty - msg-code 922 (messages outside KT) and 924 (messages from the KT area) or GAS RESPONSE msg-code GX2.

In this way, the participant retrieves all prepared messages from the queue, regardless of whether they were provided automatically as a result of the process or as a response to a query.

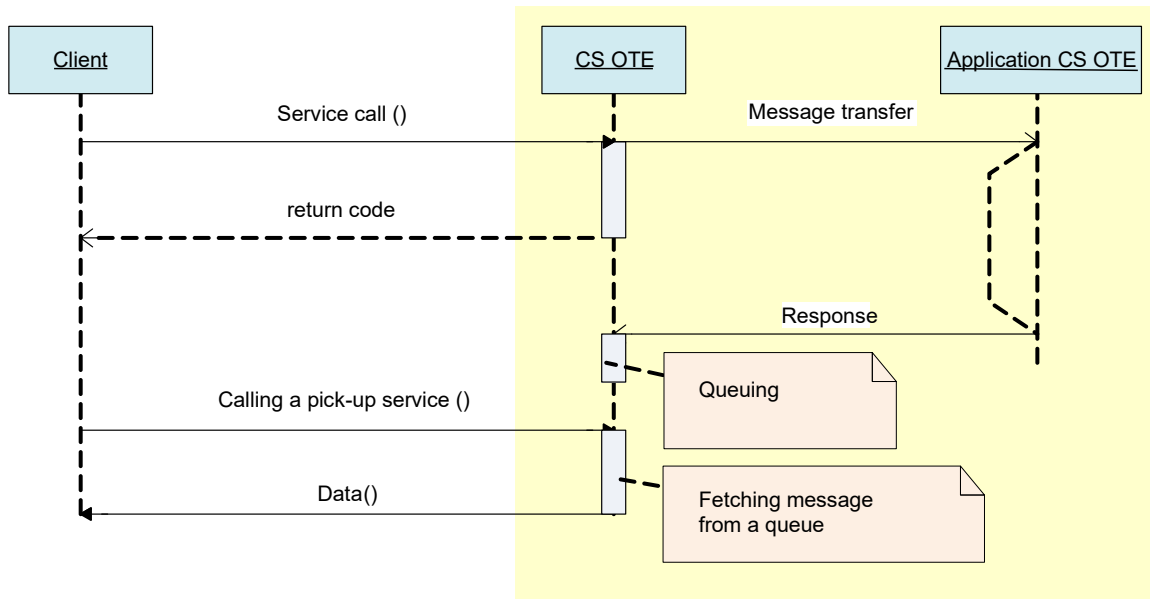


Image 3 Client-server mode

Note.

The participant can perform request-response message matching based on the XML elements of the "message id" ("id" attribute of the query root element - e.g. <CDSGASREQ id="XXXX">) and "reference message id" ("id" attribute of the Reference element - e.g. CDSGASMASTERDATA/Reference@id).

The stated principle is currently applicable to all XML structures according to the OTE specification. XML structures according to the specification of the EDIGAS standard currently do not contain an attribute for indicating the reference data exchange (with the exception of the APERAK message, where the <OriginalMessageIdentification v="xxx"/> element is used), therefore this principle is not applicable - i.e. it is not possible to match CDSGASREQ and the message in EDIGAS format (with the exception of APERAK, where possible).

2.2.3 SOAP connection test

To test the SOAP connection in the OTE → subscriber direction, it is possible to use COMMONREQ messages with code 991 and COMMONMARKETREQ with code 994, sent to the CommonService service.

When receiving these messages, CS OTE keeps the connection, will try to send the subscriber a RESPONSE message with the code 995 or 996. If the sending is successful, the message 995 or 996 with Reason/code 997 (“Sending test message succeeded.”), otherwise with Reason/code 998 (“Sending test message failed.”).

At the same time, in the case of a successfully performed test, the sending of all messages younger than 3 days for the given RMP that have not yet been sent is started. Message 994 starts sending MARKET messages, message 991 other messages.

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2.2.4 Connection test at TLS level (HTTP)

In exceptional cases, the OTE operator performs a test of the connection to the market participant's service at the TLS level using a SOAP test message, which is not defined at the WSDL level and to which the participant's system does not need to react in any specific way. This is just a test of establishing communication with the target server at the level of transmission protocols. The OTE system expects any HTTP response to this message, including a SOAP Fault message.

In the event that such a message should be identified on the part of the participant, we attach a simple XSD template that this message fulfills.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="">
<xsd:element name="TESTCONNECTION"/>
</xsd:schema>
```

2.3 Receipt timestamp identification

In some cases, it is necessary to establish the time stamp of the reception of the message. These are instructions that manipulate business data:

- Entry/modification of DM menu (MSG_CODE 811)
- Cancellation of DM offer (MSG_CODE 821)
- Entry/modification of IDA menu (MSG_CODE 814)
- IDA offer cancellation (MSG_CODE 824)
- Introduction/modification/cancellation of RD

A time stamp is assigned to incoming messages at the moment of reception according to the system time of the communication server synchronized using NTP.

- In the case of a web service, the time stamp is determined at the moment of input processing before decryption and signature verification.
- In the case of S/MIME, the time of sending is not relevant from the point of view of possible complaints from external entities, because it is an asynchronous communication, where the time from the sending of an e-mail message by an external participant to the reception of the message by the central system cannot be guaranteed.

3 Service description - Electricity

The service design is based on the structures defined in document D1.4.2 XML formats, published on OTE public web reports.

Full service definitions are published on OTE's public website.

3.1 Services for communication in the direction of subscriber -> OTE

3.1.1 CDSService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/cds>
It contains the following structures:

- CDSREQ.xsd
- CDSCLAIM.xsd
- CDSDATA.xsd
- CDSIDIS.xsd
- TDD.xsd
- MASTERDATA.xsd
- TEMPERATURE.xsd
- CDSINVOICE.xsd
- CDSLDSREPORT.xsd

One **Send** operation with the following structure is defined on this service

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="request:CDSREQ" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="claim:CDSCLAIM" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="invoice:CDSINVOICE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="data:CDSDATA" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="idis:CDSIDIS" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="masterdata:MASTERDATA" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="tdd:TDD" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="temperature:TEMPERATURE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="lds:CDSLDSREPORT" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>
```

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```

    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

3.1.2 MarketService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/market>. It contains the following structures:

- ISOTEREQ.xsd
- ISOTEDATA.xsd
- RESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="request:ISOTEREQ" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="otedata:ISOTEDATA" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>

```

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```

    <xsd:sequence>
      <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>

```

3.1.3 ReportService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/report>
It contains the following structures:

- SFVOTREQ.xsd
- SFVOTSETTINGS.xsd
- RESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element          ref="request:SFVOTREQ"          minOccurs="1"
maxOccurs="1"/>
      <xsd:element          ref="settings:SFVOTSETTINGS"      minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
      <xsd:element          ref="response:RESPONSE"          minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>

```

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```
</xsd:element>
```

3.1.4 CommonService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/common> This service is used to pick up one message prepared in the subscriber's queue (message-code 921) or a communication test (message-code 991).

One **Send** operation with the following structure is defined on this service

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="request:COMMONREQ" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="response:RESPONSE" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="1">
        <xsd:element ref="claim:CDSCLAIM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="invoice:CDSINVOICE" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="data:CDSDATA" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="idis:CDSIDIS" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="masterdata:MASTERDATA" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="tdd:TDD" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="tddnettt:SFVOTDDNETT" minOccurs="1"
maxOccurs="1"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

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```

        <xsd:element          ref="limits:SFVOTLIMITS"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="tddsum:SFVOTTDDSUM"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="temperature:TEMPERATURE"    minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="billing:SFVOTBILLING"        minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="reportclaim:SFVOTCLAIM"      minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="claimsum:SFVOTCLAIMSUM"      minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="reportconf:SFVOTCONFDATA"    minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="expimp:SFVOTDTEXPIMP"        minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="emobilling:SFVOTBILLINGEMO"  minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="billingsum:SFVOTBILLINGSUM"  minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="reporttdd:SFVOTTDD"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="exchrates:SFVOTEXCHRATE"     minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="psk:SFVOTPSK"                minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="limitchange:SFVOTLIMITCHANGE" minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="resresponse:RESRESPONSE"     minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="resclaim:RESCLAIM"           minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="resdata:RESDATA"             minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="resource:RESSOURCE"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="settlldoc:RESSETTLDOC"       minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="fuel:RESFUEL"                 minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="heat:RESHEAT"                 minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="delegate:RESDELEGATE"        minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
</xsd:sequence>

```

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```

    </xsd:complexType>
  </xsd:element>

```

3.1.5 CommonMarketService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/common/market>. This service includes operations with message-code 923 and 994.

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="request:COMMONMARKETREQ" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="response:RESPONSE" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="1">
        <xsd:element ref="otedata:ISOTEDATA" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="ack:AcknowledgementDocument" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="confirm:ConfirmationReport" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="anomaly:AnomalyReport" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="capacity:CapacityDocument" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="cimack:Acknowledgement_MarketDocument"
minOccurs="1" maxOccurs="1"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

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```

        <xsd:element          ref="cimconfirm:Confirmation_MarketDocument"
minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="cimanomaly:AnomalyReport_MarketDocument"
minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="cimcapacity:Capacity_OTEMarketDocument"
minOccurs="1" maxOccurs="1"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

3.2 OTE communication services -> participant (call-back services)

To support asynchronous operation, the following callback services are designed, which must be implemented in the target system with which the communication server will communicate. These are the counterparts of the functions already introduced. Each generated service has a dual Send operation. The return structure contains a single RETURN_CODE element indicating the success of the operation call.

3.2.1 CDSCallbackService

This service includes asynchronous reception of XML structures from the namespace <http://www.ote-cr.cz/schema/service/callback/cds> Contains the following structures:

- CDSCLAIM.xsd
- CDSDATA.xsd
- CDSIDIS.xsd
- TDD.xsd
- MASTERDATA.xsd
- TEMPERATURE.xsd
- CDSINVOICE.xsd
- CDSSYSTSERVREPORT.xsd
- CDSLDSREPORT.xsd
- RESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

  <xsd:element name="SendRequest">
    <xsd:complexType>
      <xsd:choice>
        <xsd:element          ref="response:RESPONSE"          minOccurs="1"
maxOccurs="1"/>

```

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```

        <xsd:element          ref="invoice:CDSINVOICE"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="claim:CDSCLAIM" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="data:CDSDATA" minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="idis:CDSIDIS" minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="masterdata:MASTERDATA"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="tdd:TDD" minOccurs="1" maxOccurs="1"/>
        <xsd:element          ref="temperature:TEMPERATURE"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="sysbserv:CDSSYSBSERVREPORT"          minOccurs="1"
maxOccurs="1"/>
        <xsd:element          ref="lds:CDSLDSREPORT"          minOccurs="1"
maxOccurs="1"/>
        </xsd:choice>
    </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

3.2.2 MarketCallbackService

This service includes asynchronous reception of XML structures from the namespace <http://www.ote-cr.cz/schema/service/callback/market>. Contains the following structures:

- ISOTEDATA.xsd
- RESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">

```

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```

        <xsd:complexType>
            <xsd:sequence>
                <xsd:element ref="response:RESPONSE" minOccurs="1"
maxOccurs="1"/>
                <xsd:choice minOccurs="0" maxOccurs="1">
                    <xsd:element ref="otedata:ISOTEDATA"
minOccurs="1" maxOccurs="1"/>
                    <xsd:element
ref="otemasterdata:ISOTEMASTERDATA" minOccurs="1" maxOccurs="1"/>
                </xsd:choice>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>

```

Output:

```

    <xsd:element name="SendResponse">
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>

```

3.2.3 ReportCallbackService

This service includes asynchronous reception of XML structures from the namespace <http://www.ote-cr.cz/schema/service/callback/report> Contains the following structures:

- SFVOTBILLING.xsd
- SFVOTCLAIM.xsd
- SFVOTCLAIMSUM.xsd
- SFVOTBILLINGEMO.xsd
- SFVOTBILLINGSUM.xsd
- SFVOTDTEXPIMP.xsd
- SFVOTCONFDATA.xsd
- SFVOTTDD.xsd
- SFVOTEXCHRATE.xsd
- SFVOTTDDSUM.xsd
- SFVOTTDDNETT.xsd
- SFVOTLIMITS.xsd
- RESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="response:RESPONSE" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="1">
        <xsd:element ref="billing:SFVOTBILLING" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="reportclaim:SFVOTCLAIM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="claimsum:SFVOTCLAIMSUM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="reportconf:SFVOTCONFDATA" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="expimp:SFVOTDTEXPIMP" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="emobilling:SFVOTBILLINGEMO" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="billingsum:SFVOTBILLINGSUM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="reporttdd:SFVOTTDD" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="tddnett:SFVOTTDDNETT" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="tddsum:SFVOTTDDSUM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="exchrates:SFVOTEXCHRATES" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="limits:SFVOTLIMITS" minOccurs="1"
maxOccurs="1"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>

```

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```
        <xsd:sequence>
            <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
```

3.2.4 CommonCallbackService

This service includes asynchronous reception of XML structures from the namespace <http://www.ote-cr.cz/schema/service/callback/common>. This service is designed for the implementation of messages with message-code 995 (electricity outside KT) and 996 (KT messages). It contains the following structures:

- RESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="response:RESPONSE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

3.3 ETSO Standard Support Services

The following services are designed to support the ETSO standard according to the ETSO message type.

3.3.1 ScheduleService

This service is used to send a ScheduleMessage. It implements the "Introduction of RD" functionality. It will only be active until RDs use the CIM format.

Contains a **SendScheduleMessage** operation with the following parameter structure:

Input:

```
<xsd:element name="SendScheduleMessageRequest">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="schedule:ScheduleMessage" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendScheduleMessageResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="ack:AcknowledgementDocument" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

where the ScheduleMessage and AcknowledgmentDocument structures are standard ETSO structures.

3.3.2 ScheduleCallbackService

This service belongs to the group of "Callback services" - services to support the asynchronous reception of a response initiated from the ISOTE system. It is defined in the namespace <http://www.ote-cr.cz/schema/service/callback/etso/schedule-v1>. It implements the functionality of sending a response to "Introduction of RD". It will only be active until RDs use the CIM format. Defines a Send operation with the following parameter structure:

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="ack:Acknowledgement_MarketDocument"
minOccurs="1" maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>
```

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```

        <xsd:element                ref="confirm:Confirmation_MarketDocument"
minOccurs="1" maxOccurs="1"/>
        <xsd:element                ref="anomaly:AnomalyReport_MarketDocument"
minOccurs="1" maxOccurs="1"/>
    </xsd:choice>
</xsd:complexType>
</xsd:element>
</xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element                ref="globals:RETURN_CODE"                minOccurs="1"
maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

where the ConfirmationReport and AnomalyReport structures are standard ETSO structures adopted into the new namespace defined in the ISOTE system.

3.3.3 StatusRequestService

This service is used to receive the Status Request message. It implements the "Query on RD" functionality. It will only be active until RDs use the CIM format.

The response can contain any combination of output documents. Contains a **GetStatus** operation with the following parameter structure:

Input:

```

<xsd:element name="GetStatusReq">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element                ref="esr:StatusRequest"                minOccurs="1"
maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

Output:

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```

    <xsd:element name="GetStatusResponse">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element
            ref="ack:AcknowledgementDocument" minOccurs="1" maxOccurs="1"/>
          <xsd:element ref="confirm:ConfirmationReport" minOccurs="1"
            maxOccurs="1"/>
          <xsd:element ref="anomaly:AnomalyReport" minOccurs="1"
            maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  
```

where the StatusRequest, AnomalyReport, ConfirmationReport and AcknowledgmentDocument structures are standard ETSO structures.

3.3.4 StatusRequestMarketService

This service belongs to the group of "Callback services" - services to support the asynchronous reception of a response initiated from the ISOTE system. It implements the functionality of sending a response to "Inquiry on DM capacity data", "Inquiry on IDA capacity data" and also "Inquiry on RD data". Defines a Send operation with the following parameter structure:

Input:

```

    <xsd:element name="SendRequest">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element minOccurs="0" maxOccurs="1"/>
            ref="ack:Acknowledgement_MarketDocument"
          <xsd:element minOccurs="0" maxOccurs="1"/>
            ref="confirm:Confirmation_MarketDocument"
          <xsd:element minOccurs="0" maxOccurs="1"/>
            ref="anomaly:AnomalyReport_MarketDocument"
          <xsd:element minOccurs="0" maxOccurs="1"/>
            ref="capacity:Capacity_OTEMarketDocument"
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  
```

Output:

```

    <xsd:element name="SendResponse">
      <xsd:complexType>
        <xsd:sequence>
  
```

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```

        <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

```

3.4 Services for supporting standard ENTSO-E

Services for the support of the ENTSO-E standard will be available only until the transition of the implementation diagram registration agenda to a 15-minute settlement period. Services related to the agenda of registration of realization diagrams with a quarter-hour resolution are defined in the chapter 3.3 ENTSO Standard Support Services.

The following services are designed to support the ENTSO-E standard according to the ENTSO-E message type.

3.4.1 ScheduleService

This service is used to send a ScheduleMessage. It implements the "Creation of RD" functionality. It will only be active until RDs use the CIM format.

Contains a **SendScheduleMessage** operation with the following parameter structure:

Input:

```

  <xsd:element name="SendScheduleMessageRequest">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element          ref="schedule:ScheduleMessage"          minOccurs="1"
maxOccurs="1"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

```

Output:

```

  <xsd:element name="SendScheduleMessageResponse">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element          ref="ack:AcknowledgementDocument"          minOccurs="1"
maxOccurs="1"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

```

,where the ScheduleMessage and AcknowledgmentDocument structures are standard ENTSO-E structures

3.4.2 ScheduleCallbackService

This service belongs to the group of "Callback services" - services to support the asynchronous reception of a response initiated from the ISOTE system. It is defined in the namespace <http://www.ote-cr.cz/schema/service/callback/etso/schedule-v1>. It implements the functionality of sending a response to "Creation of RD". It will only be active until RDs use the CIM format. Defines a Send operation with the following parameter structure:

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="confirm:ConfirmationReport" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="anomaly:AnomalyReport" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

kde struktury ConfirmationReport a AnomalyReport jsou standardní ETSO struktury převzaté do nového namespace definovaném v systému ISOTE.

3.4.3 StatusRequestService

This service is used to receive the Status Request message. It implements the "Query on RD" functionality. It will only be active until RDs use the CIM format.

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The response can contain any combination of output documents. Contains a **GetStatus** operation with the following parameter structure:

Input:

```
<xsd:element name="GetStatusReq">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="esr:StatusRequest" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="GetStatusResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="ack:AcknowledgementDocument" minOccurs="0"
maxOccurs="1"/>
      <xsd:element ref="confirm:ConfirmationReport" minOccurs="0"
maxOccurs="1"/>
      <xsd:element ref="anomaly:AnomalyReport" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

,where the StatusRequest, AnomalyReport, ConfirmationReport and AcknowledgmentDocument structures are standard ETSO structures.

4 Service description - Gas

The service design is based on the structures defined in document D1.4.2 XML formats, published on OTE public web reports.

Full service definitions are published on OTE's public website.

4.1 Services for communication subscriber -> OTE

4.1.1 CDSGasService

This service implements the functionality of sending data, or querying OTE data (with the exception of the EDIGAS format query). It is registered in the namespace <http://www.ote-cr.cz/schema/service/cdsgas> and contains the following structures:

- CDSGASMASTERDATA.xsd
- CDSGASPOF.xsd
- CDSGASCLAIM.xsd
- CDSGASREQ.xsd
- CDSGASINVOICE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="gasmasterdata:CDSGASMASTERDATA" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gaspof:CDSGASPOF" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasclaim:CDSGASCLAIM" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasrequest:CDSGASREQ" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasinvoice:CDSGASINVOICE" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

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```

    </xsd:complexType>
  </xsd:element>

```

It enables asynchronous sending of the request/data to OTE, while as a response an error code and additional data are sent asynchronously via the registered channel (to the Callback service, or by email).

4.1.2 CDSEdigasService

This service implements the functionality of sending data, or requesting data in EDIGAS format. It is registered in the namespace <http://www.ote-cr.cz/schema/service/cdsgas/edigas> and contains the following structures:

- Allocation.xsd
- GasdatDocument.xsd
- Aperak.xsd
- Nomination.xsd
- NominationResponse.xsd
- + speciální strukturu CDSEDIGASREQ.xsd pro dotazy
- + speciální strukturu SHPCDS pro zavedení shipper codů

An operation for sending a message asynchronously - **SendAsync** with the following structure - is defined on this service

Input:

```

<xsd:element name="SendAsyncRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="alloc:Allocation" minOccurs="1" maxOccurs="1" />
    />
      <xsd:element ref="gas:GasdatDocument" minOccurs="1" maxOccurs="1" />
    />
      <xsd:element ref="req:CDSEDIGASREQ" minOccurs="1" maxOccurs="1" />
    />
      <xsd:element ref="shpcds:SHPCDS" minOccurs="1" maxOccurs="1" />
    />
  </xsd:choice>
</xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendAsyncResponse">
  <xsd:complexType>

```

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```

        <xsd:sequence>
            <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1" />
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

It enables asynchronous sending of the request/data to OTE, while as a response an error code and additional data are sent asynchronously via the registered channel (to the Callback service, or by email).

Furthermore, an operation for synchronously sending a message - **SendSync** - is defined with the following structure

Input:

```

<xsd:element name="SendSyncRequest">
    <xsd:complexType>
        <xsd:choice>
            <xsd:element ref="nom:Nomination" minOccurs="1" maxOccurs="1"
/>
            <xsd:element ref="nomres:NominationResponse" minOccurs="1"
maxOccurs="1"/>
        </xsd:choice>
    </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendSyncResponse">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1" />
            <xsd:element ref="aper:Aperak" minOccurs="0" maxOccurs="1" />
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

It enables the synchronous sending of data to OTE, while an error code is sent synchronously as a response, and if there is no error (RETURN_CODE != 0) also Aperak.

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4.1.3 CommonGasService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/cdsgas/common> This service includes operations with message-code GX1 and GX2.

One **Send** operation with the following structure is defined on this service

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="request:COMMONGASREQ" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendResp">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasresponse:GASRESPONSE" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="1">
        <xsd:element ref="gasmasterdata:CDSGASMASTERDATA"
minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="gaspof:CDSGASPOF" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="gasclaim:CDSGASCLAIM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="alloc:Allocation" minOccurs="1"
maxOccurs="1" />
        <xsd:element ref="nom:Nomination" minOccurs="1"
maxOccurs="1" />
        <xsd:element ref="gas:GasdatDocument" minOccurs="1"
maxOccurs="1" />
        <xsd:element ref="not:ImbalanceNotice" minOccurs="1"
maxOccurs="1"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

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```

        <xsd:element ref="nomres:NominationResponse" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="aper:Aperak" minOccurs="1" maxOccurs="1" />
        <xsd:element ref="balact:BalanceAction" minOccurs="1"
maxOccurs="1" />
    />
    <xsd:element ref="shpcds:SHPCDS" minOccurs="1" maxOccurs="1"
/>
    <xsd:element ref="billing:SFVOTGASBILLING" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="reportclaim:SFVOTGASCLAIM" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="claimsum:SFVOTGASCLAIMSUM" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="billingsum:SFVOTGASBILLINGSUM"
minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="reporttdd:SFVOTGASTDD" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="gastddnett:SFVOTGASTDDNETT" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="gastddsum:SFVOTGASTDDSUM" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="gasinvoice:CDSGASINVOICE" minOccurs="1"
maxOccurs="1"/>
    <xsd:element ref="gasexchrates:SFVOTGASEXCHRATE" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
</xsd:sequence>
</xsd:complexType>
</xsd:element>

```

4.1.4 ReportGasService

This service includes XML structures from the namespace <http://www.ote-cr.cz/schema/service/reportgas> Contains the following structures:

- SFVOTGASREQ.xsd
- GASRESPONSE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```
<xsd:element name="SendRequest">
```

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```

    <xsd:complexType>
      <xsd:sequence>
        <xsd:element          ref="request:SFVOTGASREQ"          minOccurs="1"
maxOccurs="1"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
      <xsd:element          ref="response:GASRESPONSE"          minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

4.2 Services for OTE -> subscriber communication (callback services)

To support asynchronous operation, the following callback services are designed, which must be implemented in the target system with which the communication server will communicate. These are the counterparts of the functions already introduced. Each generated service has a dual Send operation. The return structure contains a single RETURN_CODE element indicating the success of the operation call.

4.2.1 CDSGasCallbackService

This service includes asynchronous reception of XML structures other than EDIGAS format. It is registered in the namespace <http://www.ote-cr.cz/schema/service/callback/cdsgas> and contains the following structures:

- GASRESPONSE.xsd
- CDSGASMASTERDATA.xsd
- CDSGASPOF.xsd
- CDSGASCLAIM.xsd
- CDSGASINVOICE.xsd

One **Send** operation with the following structure is defined on this service

Input:

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```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="gasmasterdata:CDSGASMASTERDATA" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gaspof:CDSGASPOF" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasclaim:CDSGASCLAIM" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasresponse:GASRESPONSE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="gasinvoice:CDSGASINVOICE" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

4.2.2 CDSEdigasCallbackService

This service includes asynchronous reception of XML structures in EDIGAS format. It is registered in the namespace <http://www.ote-cr.cz/schema/service/callback/cdsgas/edigas> and contains the following structures:

- Aperak.xsd
- NominationResponse.xsd
- ImbalanceNotice.xsd
- Nomination.xsd
- Allocation.xsd
- GasdatDocument.xsd
- BalanceAction.xsd
- SHPCDS.xsd
- GASRESPONSE.xsd

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One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="aper:Aperak" minOccurs="1" maxOccurs="1" />
      <xsd:element ref="not:ImbalanceNotice" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="nom:Nomination" minOccurs="1" maxOccurs="1"
/>
      <xsd:element ref="nomres:NominationResponse" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="alloc:Allocation" minOccurs="1" maxOccurs="1"
/>
      <xsd:element ref="gas:GasdatDocument" minOccurs="1"
maxOccurs="1" />
      <xsd:element ref="balact:BalanceAction" minOccurs="1"
maxOccurs="1" />
      <xsd:element ref="shpcds:SHPCDS" minOccurs="1" maxOccurs="1" />
      <xsd:element ref="gasresponse:GASRESPONSE" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResp">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1" />
      <xsd:element ref="aper:Aperak" minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

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4.2.3 ReportGasCallbackService

This service includes asynchronous reception of XML structures from the namespace <http://www.ote-cr.cz/schema/service/callback/reportgas> Contains the following structures:

- SFVOTGASBILLING.xsd
- SFVOTGASCLAIM.xsd
- SFVOTGASCLAIMSUM.xsd
- SFVOTGASBILLINGSUM.xsd
- SFVOTGASTDD.xsd
- SFVOTGASTDDNETT.xsd
- SFVOTGASTDDSUM.xsd
- GASRESPONSE.xsd
- SFVOTGASIMGNETT.xsd
- SFVOTGASEXCHRATE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="response:GASRESPONSE" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="1">
        <xsd:element ref="billing:SFVOTGASBILLING" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="reportclaim:SFVOTGASCLAIM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="claimsum:SFVOTGASCLAIMSUM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="billingsum:SFVOTGASBILLINGSUM"
minOccurs="1" maxOccurs="1"/>
        <xsd:element ref="reporttdd:SFVOTGASTDD" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="gastddnett:SFVOTGASTDDNETT" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="gastddsum:SFVOTGASTDDSUM" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="gasimgnett:SFVOTGASIMGNETT" minOccurs="1"
maxOccurs="1"/>
        <xsd:element ref="gasexchrates:SFVOTGASEXCHRATE" minOccurs="1"
maxOccurs="1"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

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```
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendResponse">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
```

5 Service description - OZE

The service design is based on the structures defined in document D1.4.2 XML formats, published on OTE public web reports.

Full service definitions are published on OTE's public website.

5.1 Services for communication subscriber -> OTE

5.1.1 RESService

This service implements the functionality of sending data or querying OTE data. It is registered in the namespace <http://www.ote-cr.cz/schema/service/res> and contains the following structures:

- RESREQ.xsd
- RESCLAIM.xsd
- RESDATA.xsd
- RESSOURCE.xsd
- RESFUEL.xsd
- RESHEAT.xsd

One **Send** operation with the following structure is defined on this service

Input:

```
<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="request:RESREQ" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="claim:RESCLAIM" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="data:RESDATA" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="source:RESSOURCE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="fuel:RESFUEL" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="heat:RESHEAT" minOccurs="1" maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>
```

Output:

```
<xsd:element name="SendResponse">
```

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```

    <xsd:complexType>
      <xsd:sequence>
        <xsd:element          ref="globals:RETURN_CODE"          minOccurs="1"
maxOccurs="1"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

```

It enables asynchronous sending of the request/data to OTE, while as a response an error code and additional data are sent asynchronously via the registered channel (to the Callback service, or by email).

5.2 Services for OTE-> subscriber communication (callback services)

To support asynchronous operation, the following callback services are designed, which must be implemented in the target system with which the communication server will communicate. These are the counterparts of the functions already introduced. Each generated service has a dual Send operation. The return structure contains a single RETURN_CODE element indicating the success of the operation call.

5.2.1 RESCallbackService

This service includes asynchronous reception of XML structures other than EDIGAS format. It is registered in the namespace <http://www.ote-cr.cz/schema/service/callback/cdsgas> and contains the following structures:

- RESRESPONSE.xsd
- RESCLAIM.xsd
- RESDATA.xsd
- RESSOURCE.xsd
- RESSETTLDOC.xsd
- RESFUEL.xsd
- RESHEAT.xsd
- RESDELEGATE.xsd

One **Send** operation with the following structure is defined on this service

Input:

```

<xsd:element name="SendRequest">
  <xsd:complexType>
    <xsd:choice>
      <xsd:element ref="response:RESRESPONSE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="claim:RESCLAIM" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="data:RESDATA" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="source:RESSOURCE" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="settlldoc:RESSETTLDOC" minOccurs="1"
maxOccurs="1"/>
      <xsd:element ref="fuel:RESFUEL" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="heat:RESHEAT" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="delegate:RESDELEGATE" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
  </xsd:complexType>
</xsd:element>

```

Output:

```

<xsd:element name="SendResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element ref="globals:RETURN_CODE" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

6 Sample of signed document

This appendix contains a practical example of a signed XML document as defined in the Message Body chapter. The ISOTEDATA element contains as the last element `{http://www.w3.org/2000/09/xmldsig#}` Signature representing the digital signature of the ISOTEDATA message.

```
<data:ISOTEDATA id="" message-code="" date-time="" dtd-version="1" dtd-
release="1" answer-required="" interval="" err-reaction="">
  <data:SenderIdentification id="" coding-scheme=""/>
  <data:ReceiverIdentification id="" coding-scheme=""/>
  <!--Optional:-->
  <data:DataProvider id="" coding-scheme=""/>
  <!--Optional:-->
  <data:Reference id=""/>
  <!--1 or more repetitions:-->
  <data:Trade id="" id-definition="" trade-day="" trade-day-
to="" version="" trade-state="" trade-type="" trade-order="" error-
code="" replacement="" acceptance="" market="" trade-flag="" trade-
stage="" short-description="" anulaton-proposer="" anulaton-type=""
sett-curr="" source-sys="" version-a="" market-area="">
    <!--Zero or more repetitions:-->
    <data:TimeData          datetime=""          datetime-type=""
timeattribute=""/>
    <!--Zero or more repetitions:-->
    <data:ProfileData profile-role="">
      <!--1 or more repetitions:-->
      <data>Data period="" value="" unit="" splitting=""
perflag-cancel="" perflag-aggregation="" timeattribute="" anulaton-
proposer="" period-stage="">
        <!--Zero or more repetitions:-->
        <data:ProcReason code=""/>
      </data>Data>
    </data:ProfileData>
    <!--Optional:-->
    <data:Comment>?</data:Comment>
    <!--0 to 4 repetitions:-->
    <data:Party id="" role=""/>
    <!--Zero or more repetitions:-->
    <data:ProcReason code=""/>
  </data:Trade>
```

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```

    <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
      <ds:SignedInfo
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
        <ds:CanonicalizationMethod
Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#" />
        <ds:SignatureMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#" />
        <ds:Reference URI=""
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
          <ds:Transforms
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
            <ds:Transform
Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#" />
          </ds:Transforms>
          <ds:DigestMethod
Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#" />
          <ds:DigestValue
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">hSyyBsLmZbORDXG/qFObVMDl00U=
          </ds:DigestValue>
          </ds:Reference>
        </ds:SignedInfo>
        <ds:SignatureValue
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
g82dQcKq/aM5CFoerU0Ee5Qf4ImvF8U09cb+nAiq3Gic9nhgxG1/Y6y5QTiqPUkN8KHiu6VBo5M
8
WmFxVKv7qev8Ru4meIe+66AqQ7jpsWfwYku2G2TnyagwZnubUuyK34o5siTg+I7ERmpENZx6to/
y
8Yr+blhf4hUCdwo4b20=
          </ds:SignatureValue>
        <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
          <ds:X509Data
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
            <ds:X509Certificate
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
MIIDRTCCAi2gAwIBAgIKKL+fAQAFAAASTDANBgkqhkiG9w0BAQUFADEBCMQswCQYDVQQGEwJDWjE
P
MA0GA1UEChMGTG9naWNhMRIwEAYDVQQLEwlQS0kgR3JvdXAxXzIwMjMwMjEwMTUwMjUwMjUwMjUw
4

```

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```
MDYzMDE1NDcwMFoXDSAwMDYzMDE1NTcwMFowQDELMaKGA1UEBhMCQ1oxDDAKBgNVBAoTA09URTE
Q
MA4GA1UECxMHUGVyc29uczERMA8GA1UEAxMIZWludm9pY2UwgZ8wDQYJKoZIhvcNAQEBBQADgYO
A
MIGJAoGBAM1ltRACfYCAyEay3wEs1tqgr6QMuPm2yOz7pfrLrrfSBH77jSZ82UUEPHE8QfPSP9Q
J
MH1hZKy2yN1Ibr3mQo7PwBsBwbPiBU4ynVSMSp5YCNywVcUdEejS4bdTV7VQ+a6Kw1DlkqP8d1
7
OO8J08kT/ys8a2WhDwr4pRi9itLtAgMBAAGjgcIwgb8wDgYDVR0PAQH/BAQDAgTwMBMGA1UdJQQ
M
MAoGCCsGAQUFBwMCMB0GA1UdDgQWBBrhP/9LuhLsaEmlBXdmB34BY8ZpdDB5BgNVHSMecjBwgBT
0
8Vf3iDofXlR27DvrxE+H5diP0aFGpEQwQjELMAkGA1UEBhMCQ1oxDzANBgNVBAoTBkxvZ21jYTE
S
MBAGA1UECxMJUEtJIEdyb3VwMQ4wDAYDVQQDEwVPVEVDQYIQeYNCXj6Lf6NNexTEzftfDANBgk
q
hkiG9w0BAQUFAAOCAQEAKikZTqWOBvVh5/Rv1+1Cad55CH+9zbBrI4v7BdWKHW3KBUV+Z7jDFTE
H
CQLiWjAjJ8bpfmb2r3UH9pG/ojzJDNxfAc8/eX62iDrD06IdKcKnca7c6ZCkCEK716KHJQPileC
D
Cw8mQA1BN0/mv1BOE75mYmqIs/1oIPpMelqgLXk2mbOvRKeeQWdFL1LG0dJCjC/OIhbgun2n4R
D
Y6XTAzsSJBvRu3PKfA+8JG+0SKx0sAaOZjYtUv4fZ1gCgLkDwXuJUmq1cxMs4X32BHXGtPfh8C
7
DB8LCXwlq1FFoj4JJdBGWxYOjIpiawXD/6VFodo3V+Wj6uXGCdMYNrTsNw==
</ds:X509Certificate>
</ds:X509Data>
<ds:KeyValue
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
  <ds:RSAKeyValue
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
    <ds:Modulus
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
zWW1EAJ9gIBgRrLfASzW2qCvpAy4+bbI7Pul+suut9IEfvuNJnzZRR48cTxB89I/1AkfwWFkrLb
I
3UhtHeZCjs/AGwHBs+IFTjKdVIxKnlgI1jC5VxR0R6NLht1NXtVD5rorDUOWSo/x3Xs47wnTyRP
/
KzxrZaEPCvilGL2K0u0=
    </ds:Modulus>
    <ds:Exponent
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">AQAB
    </ds:Exponent>
  </ds:RSAKeyValue>
```

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```
</ds:KeyValue>
</ds:KeyInfo>
</ds:Signature>
</data:ISOTEDATA>
```