Bindings for OBIX: SOAP Bindings Version 1.0

Committee Specification Draft ~~02~~03 / Public Review Draft ~~02~~03

~~19 December 2013~~

06 November 2014

Specification URIs

This version:

http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd03/obix-soap-v1.0-csprd03.pdf (Authoritative)
http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd03/obix-soap-v1.0-csprd03.html
http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd03/obix-soap-v1.0-csprd03.doc

Previous version:

http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd02/obix-soap-v1.0-csprd02.pdf (Authoritative)
http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd02/obix-soap-v1.0-csprd02.html
http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd02/obix-soap-v1.0-csprd02.doc

Latest version:

http://docs.oasis-open.org/obix/obix-soap/v1.0/obix-soap-v1.0.pdf (Authoritative)
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http://docs.oasis-open.org/obix/obix-soap/v1.0/obix-soap-v1.0.doc

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Additional artifacts:

This prose specification is one component of a Work Product that also includes:

- WSDL files: http://docs.oasis-open.org/obix/obix-soap/v1.0/csd03/wsdl/

Related work:

This specification is related to:

- *OBIX Version 1.1*. Edited by Craig Gemmill. Latest version. http://docs.oasis-open.org/obix/obix/v1.1/obix-v1.1.html.
- *Bindings for OBIX: REST Bindings Version 1.0*. Edited by Craig Gemmill and Markus Jung. Latest version. http://docs.oasis-open.org/obix/obix-rest/v1.0/obix-rest-v1.0.html.
- *Bindings for OBIX: WebSocket Bindings Version 1.0*. Edited by Matthias Hub. Latest version. http://docs.oasis-open.org/obix/obix-websocket/v1.0/obix-websocket-v1.0.html.
- *Encodings for OBIX: Common Encodings Version 1.0.* Edited by Mar~~c~~kus Jung. Latest version. http://docs.oasis-open.org/obix/obix-encodings/v1.0/obix-encodings-v1.0.html.

Declared XML namespace:

- http://docs.oasis-open.org/obix/ns/201410/wsdl

Abstract:

This document specifies SOAP protocol bindings for OBIX.

Status:

This document was last revised or approved by the OASIS Open Building Information Exchange (oBIX) TC on the above date. The level of approval is also listed above. Check the "Latest version" location noted above for possible later revisions of this document. Any other numbered Versions and other technical work produced by the Technical Committee (TC) are listed at https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=obix#technical.

~~Technical Committee~~TC members should send comments on this specification to the ~~Technical Committee's~~TC's email list. Others should send comments to the ~~Technical Committee~~TC's public comment list, after subscribing to it by ~~using~~following the ~~"~~instructions at the "Send A Comment" button on the ~~Technical Committee's~~TC's web page at https://www.oasis-open.org/committees/obix/.

For information on whether any patents have been disclosed that may be essential to implementing this specification, and any offers of patent licensing terms, please refer to the Intellectual Property Rights section of the Technical Committee web page (https://www.oasis-open.org/committees/obix/ipr.php).

Citation format:

When referencing this specification the following citation format should be used:

[OBIX-SOAP-v1.0]

Bindings for OBIX: SOAP Bindings Version 1.0. Edited by Markus Jung. ~~19 December 2013.~~06 November 2014. OASIS Committee Specification Draft ~~02~~03 / Public Review Draft ~~02.~~03. http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd03/obix-soap-v1.0-csprd03.html. Latest version: http://docs.oasis-open.org/obix/obix-soap/v1.0/obix-soap-v1.0.html.

Notices

Table of Contents

1 Introduction

This document specifies the SOAP protocol bindings for OBIX.

1.1 Terminology

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in RFC2119.

1.2 Normative References

RFC2119	Bradner, S., “Key words for use in RFCs to Indicate Requirement Levels”, BCP 14, RFC 2119, March 1997. http://www.ietf.org/rfc/rfc2119.txt.
OBIX	*OBIX Version 1.1*. Edited by Craig Gemmill. Latest version. http://docs.oasis-open.org/obix/obix/v1.1/obix-v1.1.html.
OBIX REST	*Bindings for OBIX: REST Bindings Version 1.0*. Edited by Craig Gemmill and Markus Jung. Latest version. http://docs.oasis-open.org/obix/obix-rest/v1.0/obix-rest-v1.0.html.
WS-I	R. Chumbley, J. Durand, G. Pilz, T. Rutt, Basic Profile Version 2.0, Web Services Interoperability Organization, 09 November 2010
SOAP	~~M Gudgin, M Hadley, N Mendelsohn, J Moreau, H Nielsen, A Karmarkar, Y Lafon, W3C~~ SOAP Version 1.2 Part 0: Primer (Second Edition~~),~~) , N. Mitra, Y. Lafon, Editors, W3C Recommendation, 27 April 2007, http://www.w3.org/TR/2007/REC-soap12-part0-20070427/ . Latest version available at http://www.w3.org/TR/soap12-part0/

~~1.3 Non-Normative References~~

2 SOAP Binding

The SOAP binding maps a SOAP operation to each of the three OBIX request types: `read`, `write` and `invoke`. Like the HTTP binding, read is supported by every object, write is supported by objects whose `writable` attribute is `true`, and invoke is only supported by operations. Inputs and outputs of each request are specific to the target object.

Unlike the HTTP binding, requests are not accessed via the URI of the target object, but instead via the URI of the SOAP server with the object's URI encoded into the body of the SOAP envelope. The examples given in this specification are non-normative. The additional documents (WSDL file and the OBIX schema) provide a normative specification.

2.1 SOAP Example

The following is a SOAP request to an OBIX server's `About` object:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
 <env:Body>
  <obixWS:read xmlns:obixWS=" http://docs.oasis-open.org/obix/ns/201341120/wsdl"
               xmlns="http://docs.oasis-open.org/obix/ns/201341120/schema"
        href="http://localhost/obix/about" />
 </env:Body>
</env:Envelope>
```

An example response to the above request:

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
 <env:Body>
  <obixWS:response xmlns:obixWS="http://docs.oasis-open.org/obix/ns/201341120/wsdl"
                   xmlns="http://docs.oasis-open.org/obix/ns/201341120/schema">
    <obj name="about"
         href="http://localhost/obix/about/">
      <str name="obixVersion" val="1.1"/>
      <str name="serverName" val="obix"/>
      <abstime name="serverTime" val="2006-02-08T09:40:55.000+05:00:00Z"/>
      <abstime name="serverBootTime" val="2006-02-08T09:33:31.980+05:00:00Z"/>
      <str name="vendorName" val="Acme, Inc."/>
      <uri name="vendorUrl" val="http://www.acme.com"/>
      <str name="productName" val="Acme OBIX Server"/>
      <str name="productVersion" val="1.0.3"/>
      <uri name="productUrl" val="http://www.acme.com/obix"/>
    </obj>
  </obixWS:response>
 </env:Body>
</env:Envelope>
```

2.2 Error Handling

The OBIX specification defines no SOAP faults. If a request is processed by an OBIX server, then a valid OBIX document SHOULD be returned with a failure indicated via the `err` object.

2.3 Security

Refer to the recommendations in WS-I Basic Profile 2.0 for security [WS-I].

2.4 Localization

SOAP bindings SHOULD follow localization patterns defined for the HTTP binding when applicable (see Section [OBIX REST].

2.5 WSDL

In the types section of the WSDL document, the OBIX schema is imported. Server implementations might consider providing the `schemaLocation` attribute which is absent in the standard document.

Each instance will have to provide its own services section of the WSDL document. The following is an example of the WSDL service element:

```
<wsdl:service name="obix">
  <wsdl:port name="obixPort" binding="tns:obixSoapBinding">
    <soap:address location="http://localhost/obix/soap"/>
  </wsdl:port>
</wsdl:service>
```

Standard OBIX WSDL is:

```
<wsdl:definitions targetNamespace="http://docs.oasis-open.org/obix/ns/20134120/wsdl"
  xmlns="http://docs.oasis-open.org/obix/ns/20134120/wsdl"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:obix="http://docs.oasis-open.org/obix/ns/201312/wsdl201410/schema">
  <wsdl:types>
    <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified" targetNamespace="http://docs.oasis-
open.org/obix/ns/20134120/wsdl"
      xmlns="http://docs.oasis-open.org/obix/ns/20134120/wsdl">
      <xsd:import namespace="http://docs.oasis-open.org/obix/ns/20134120/schema"
        schemaLocation="obix.xsd" />
      <xsd:complexType name="ReadReq">
        <xsd:attribute name="href" type="xsd:anyURI" />
      </xsd:complexType>
      <xsd:complexType name="WriteReq">
        <xsd:complexContent>
          <xsd:extension base="ReadReq">
            <xsd:sequence>
              <xsd:element ref="obix:obj" maxOccurs="1"
                minOccurs="1" />
            </xsd:sequence>
          </xsd:extension>
        </xsd:complexContent>
      </xsd:complexType>
      <xsd:complexType name="InvokeReq">
        <xsd:complexContent>
          <xsd:extension base="ReadReq">
            <xsd:sequence>
              <xsd:element ref="obix:obj" maxOccurs="1"
                minOccurs="1" />
            </xsd:sequence>
          </xsd:extension>
        </xsd:complexContent>
      </xsd:complexType>
      <xsd:element name="read" type="ReadReq" />
      <xsd:element name="write" type="WriteReq" />
      <xsd:element name="invoke" type="InvokeReq" />
    </xsd:schema>
  </wsdl:types>
  <wsdl:message name="readSoapReq">
    <wsdl:part name="body" element="read" />
  </wsdl:message>
  <wsdl:message name="readSoapRes">
    <wsdl:part name="body" element="obix:obj" />
  </wsdl:message>
  <wsdl:message name="writeSoapReq">
    <wsdl:part name="body" element="write" />
  </wsdl:message>
  <wsdl:message name="writeSoapRes">
    <wsdl:part name="body" element="obix:obj" />
  </wsdl:message>
  <wsdl:message name="invokeSoapReq">
    <wsdl:part name="body" element="invoke" />
  </wsdl:message>
  <wsdl:message name="invokeSoapRes">
```

```
    <wsdl:part name="body" element="obix:obj" />
  </wsdl:message>
  <wsdl:portType name="OBIXSoapPort">
    <wsdl:operation name="read">
      <wsdl:input message="readSoapReq" />
      <wsdl:output message="readSoapRes" />
    </wsdl:operation>
    <wsdl:operation name="write">
      <wsdl:input message="writeSoapReq" />
      <wsdl:output message="writeSoapRes" />
    </wsdl:operation>
    <wsdl:operation name="invoke">
      <wsdl:input message="invokeSoapReq" />
      <wsdl:output message="invokeSoapRes" />
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="OBIXSoapBinding" type="OBIXSoapPort">
    <soap:binding style="document"
      transport="http://schemas.xmlsoap.org/soap/http" />
    <wsdl:operation name="read">
      <soap:operation soapAction="http://docs.oasis-open.org/obix/ns/20134120/wsdl/read"
        style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="write">
      <soap:operation soapAction="http://docs.oasis-open.org/obix/ns/20134120/wsdl/write"
        style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="invoke">
      <soap:operation soapAction="http://docs.oasis-
open.org/obix/ns/20134120/wsdl/invoke"
        style="document" />
      <wsdl:input>
        <soap:body use="literal" />
      </wsdl:input>
      <wsdl:output>
        <soap:body use="literal" />
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>

  <wsdl:service name="obix">
    <wsdl:port name="obixPort" binding="OBIXSoapBinding">
      <soap:address location="http://localhost/soap" />
    </wsdl:port>
  </wsdl:service>
</wsdl:definitions>
```

3 Conformance

~~An implementation is~~ To be compliant with this specification ~~if it implements all~~and the following conditions need to be satisfied.

1. OBIX server MUST ~~or REQUIRED level requirements~~provide an SOAP interface according to the WSDL document that is provided as additional artifact to this specification.
2. ~~1.~~2. An OBIX client that uses SOAP to interact with the server MUST use the SOAP message definition according to the types defined in the WSDL file and the referenced OBIX core schema.

Appendix A. Acknowledgments

The following individuals have participated in the creation of this specification and are gratefully acknowledged:

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241 # Appendix B. Revision History

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Revision	Date	Editor	Changes Made
wd01	18 Mar 2013	Markus Jung	Initial creation, WSDL modifications, SOAP
wd02	26 Mar 2013	Markus Jung	Reverted changes to the state of OBIX 1.1 WD07.
wd03	13 Jun 2013	Markus Jung	Formatting changes
wd04	28 Jun 2013	Markus Jung	Modified WSDL to work with the OBIX 1.1 XML schema. Introduced wrapping response type and element.
WD05	8 Jul 2013	Toby Considine	Minor formatting and before PR
wd06	7 Nov 2013	Markus Jung	Incorporating PR review comments
wd07	5 Dec 2013	Markus Jung	Fixed namespaces
wd08	16 Dec 2013	Markus Jung	Updated namespaces, Uppercase writing of OBIX
wd09	16 Dec 2013	Markus Jung	Minor fixes: OBIX-83, OBIX-84
wd10	05 Mar 2014	Markus Jung	Addressing PR2 comments
wd11	05 Nov 2014	Toby Considine	Adjusted WSDL for most recent namespace Replaced references to obix w/ references to OBIX

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