

Bindings for oBIX: SOAP Bindings Version 1.0

Committee Specification Draft 01 / Public Review Draft 01

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Specification URIs

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Additional artifacts:

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

- WSDL files: <http://docs.oasis-open.org/obix/obix-soap/v1.0/csprd01/wSDL/>

Related work:

This specification is related to:

- *oBIX Version 1.1*. 11 July 2013. OASIS Committee Specification Draft 01 / Public Review Draft 01. <http://docs.oasis-open.org/obix/obix/v1.1/csprd01/obix-v1.1-csprd01.html>.
- *Encodings for oBIX: Common Encodings Version 1.0*. 11 July 2013. OASIS Committee Specification Draft 01 / Public Review Draft 01. <http://docs.oasis-open.org/obix/obix-encodings/v1.0/csprd01/obix-encodings-v1.0-csprd01.html>.
- *Bindings for oBIX: REST Bindings Version 1.0*. 11 July 2013. OASIS Committee Specification Draft 01 / Public Review Draft 01. <http://docs.oasis-open.org/obix/obix-rest/v1.0/csprd01/obix-rest-v1.0-csprd01.html>.

Abstract:

This document specifies SOAP protocol bindings for oBIX. oBIX provides the core information model and interaction pattern for communication with building control systems. Specific implementations of oBIX must choose how to bind oBIX interactions. This document describes the SOAP Binding and includes a WSDL artifact.

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.

Technical Committee members should send comments on this specification to the Technical Committee’s email list. Others should send comments to the Technical Committee by using the “[Send A Comment](#)” button on the Technical Committee’s web page at <http://www.oasis-open.org/committees/obix/>.

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Citation format:

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

[oBIX-SOAP]

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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 | <i>oBIX Version 1.1</i> .
See link in "Related work" section on cover page. |
| oBIX REST | <i>Bindings for OBIX: REST Bindings Version 1.0</i> .
See link in "Related work" section on cover page. |
| WS-I | R. Chumbley, J. Durand, G. Pilz, T. Rutt, Basic Profile Version 2.0, Web Services Interoperability Organization, 09 November 2010 |

1.3 Non-Normative References

- | | |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| SOAP | M Gudgin, M Hadley, N Mendelsohn, J Moreau, H Nielsen, A Karmarkar, Y Lafon, W3C SOAP Version 1.2 (Second Edition), W3C Recommendation 27 April 2007 |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|

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.

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://obix.org/ns/wsd1/1.1"
      xmlns="http://obix.org/ns/schema/1.1"
      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://obix.org/ns/wsd1/1.1"
      xmlns="http://obix.org/ns/schema/1.1">
      <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.

Missing from the standard oBIX WSDL is the service element. This element binds a SOAP server instance with a network address. 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://obix.org/ns/wsd/1.1"
  xmlns="http://obix.org/ns/wsd/1.1" xmlns:wsdl="http://schemas.xmlsoap.org/wsd/"
  xmlns:soap="http://schemas.xmlsoap.org/wsd/soap/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:obix="http://obix.org/ns/schema/1.1">
  <wsdl:types>
    <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      xmlns:obix="http://obix.org/ns/schema/1.1" elementFormDefault="qualified"
      xmlns:obixWS="http://obix.org/ns/wsd/1.1"
      targetNamespace="http://obix.org/ns/wsd/1.1"
      xmlns="http://obix.org/ns/wsd/1.1">

      <xsd:import namespace="http://obix.org/ns/schema/1.1"
        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:group ref="obix:objGroup" />
          </xsd:extension>
        </xsd:complexContent>
      </xsd:complexType>

      <xsd:complexType name="InvokeReq">
        <xsd:complexContent>
          <xsd:extension base="ReadReq">
            <xsd:group ref="obix:objGroup" />
          </xsd:extension>
        </xsd:complexContent>
      </xsd:complexType>

      <xsd:complexType name="ResponseType">
        <xsd:group ref="obix:objGroup" minOccurs="1"
          maxOccurs="1" />
      </xsd:complexType>

      <xsd:element name="read" type="obixWS:ReadReq" />
      <xsd:element name="response" type="obixWS:ResponseType" />
      <xsd:element name="write" type="obixWS:WriteReq" />
      <xsd:element name="invoke" type="obixWS: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="response" />
  </wsdl:message>
</wsdl:definitions>
```

```

133 </wsdl:message>
134
135 <wsdl:message name="writeSoapReq">
136   <wsdl:part name="body" element="write" />
137 </wsdl:message>
138
139 <wsdl:message name="writeSoapRes">
140   <wsdl:part name="body" element="response" />
141 </wsdl:message>
142
143 <wsdl:message name="invokeSoapReq">
144   <wsdl:part name="body" element="invoke" />
145 </wsdl:message>
146 <wsdl:message name="invokeSoapRes">
147   <wsdl:part name="body" element="response" />
148 </wsdl:message>
149
150 <wsdl:portType name="oBIXSoapPort">
151   <wsdl:operation name="read">
152     <wsdl:input message="readSoapReq" />
153     <wsdl:output message="readSoapRes" />
154   </wsdl:operation>
155   <wsdl:operation name="write">
156     <wsdl:input message="writeSoapReq" />
157     <wsdl:output message="writeSoapRes" />
158   </wsdl:operation>
159   <wsdl:operation name="invoke">
160     <wsdl:input message="invokeSoapReq" />
161     <wsdl:output message="invokeSoapRes" />
162   </wsdl:operation>
163 </wsdl:portType>
164 <wsdl:binding name="oBIXSoapBinding" type="oBIXSoapPort">
165   <soap:binding style="document"
166     transport="http://schemas.xmlsoap.org/soap/http" />
167   <wsdl:operation name="read">
168     <soap:operation soapAction="http://obix.org/ns/wsdl/1.1/read"
169       style="document" />
170     <wsdl:input>
171       <soap:body use="literal" />
172     </wsdl:input>
173     <wsdl:output>
174       <soap:body use="literal" />
175     </wsdl:output>
176   </wsdl:operation>
177   <wsdl:operation name="write">
178     <soap:operation soapAction="http://obix.org/ns/wsdl/1.1/write"
179       style="document" />
180     <wsdl:input>
181       <soap:body use="literal" />
182     </wsdl:input>
183     <wsdl:output>
184       <soap:body use="literal" />
185     </wsdl:output>
186   </wsdl:operation>
187   <wsdl:operation name="invoke">
188     <soap:operation soapAction="http://obix.org/ns/wsdl/1.1/invoke"
189       style="document" />
190     <wsdl:input>
191       <soap:body use="literal" />
192     </wsdl:input>
193     <wsdl:output>
194       <soap:body use="literal" />
195     </wsdl:output>
196   </wsdl:operation>
197 </wsdl:binding>
198 </wsdl:definitions>

```


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3 Conformance

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An implementation is compliant with this specification if it implements all MUST or REQUIRED level requirements.

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Appendix A. Acknowledgments

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

Participants:

Ron Ambrosio, IBM
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Markus Jung, Vienna University of Technology

Appendix B. Revision History

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