Bindings for OBIX: SOAP Bindings
Version 1.0
Committee Specification 01
14 September 2015

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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/cs01/wSDL/

Related work:
This specification is related to:

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.

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

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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

|------------|---------------------------------------------------------------------------------------------------|
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:

```xml
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
             xmlns:obixWS="http://docs.oasis-open.org/obix/ns/201410/wsdl"
             xmlns:obix="http://docs.oasis-open.org/obix/ns/201410/schema">
  <env:Body>
    <obixWS:read href="http://localhost/obix/about/"/>
  </env:Body>
</env:Envelope>
```

An example response to the above request:

```xml
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
              xmlns:obixWS="http://docs.oasis-open.org/obix/ns/201410/wsdl"
              xmlns:obix="http://docs.oasis-open.org/obix/ns/201410/schema">
  <env:Body>
    <obixWS:response>
      <obj name="about" href="http://localhost/obix/about/"/>
      <str name="obixVersion" val="1.1"/>
      <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>
  </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:

```xml
<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:

```xml
<wsdl:definitions targetNamespace="http://docs.oasis-open.org/obix/ns/201410/wsdl"
    xmlns="http://docs.oasis-open.org/obix/ns/201410/wsdl"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/
    xmlns:obix="http://docs.oasis-open.org/obix/ns/201410/schema">
    <wsdl:types>
        <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
            elementFormDefault="qualified" targetNamespace="http://docs.oasis-open.org/obix/ns/201410/schema">
            <xsd:import namespace="http://docs.oasis-open.org/obix/ns/201410/schema"/>
            <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:definitions>
```
<wsdl:message name="readSoapReq" />
<wsdl:message name="readSoapRes" />
<wsdl:message name="writeSoapReq" />
<wsdl:message name="writeSoapRes" />
<wsdl:message name="invokeSoapReq" />
<wsdl:message name="invokeSoapRes" />

<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/201410/wsd1/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/201410/wsd1/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/201410/wsd1/invoke" style="document" />
    <wsdl:input>
      <soap:body use="literal" />
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal" />
    </wsdl:output>
  </wsdl:operation>
</wsdl:binding>
</wsdl:definitions>
3 Conformance

To be compliant with this specification and the following conditions need to be satisfied.

1. OBIX server MUST provide an SOAP interface according to the WSDL document that is provided as additional artifact to this specification.

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:

Participants:

- Ron Ambrosio, IBM
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* indicates the name of an organization
## Appendix B. Revision History

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