

IHE Change Proposal

Tracking information:

IHE Domain	Patient Care Devices
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Change Proposal Status:	Ballot
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Person assigned:	John Rhoads

Change Proposal Summary information:

WS-Addressing error resolution	
Submitter's Name(s) and e-mail address(es):	
Submission Date:	2012-06-13
Integration Profile(s) affected:	DEC
Actor(s) affected:	DOR, DOC
IHE Technical Framework or Supplement modified:	IHE Patient Care Device (PCD) Technical Framework; Volume 2; Revision 1.0; August 12, 2011
Volume(s) and Section(s) affected:	Vol. 2
Rationale for Change: Add appendix material on Message Transport using WS* which was formerly in the Trial Implementation version but not in Final Text because it formerly was not backed up by sufficient testing in the consensus of the PCD Technical Committee, but which has now had sufficient testing. Clarification was also added that WS-Addressing elements, although not required and not expected by some testing tools, was	

Insert the following:

Appendix J Message Transport using WS*

IHE PCD HL7 V2 messages *may* be sent over Web Services (WS*).

The IHE IT Infrastructure Technical Framework Volume 2x Appendix V provides guidance regarding the appropriate WSDL files, schema and sample XML messages. The following artifacts are provided here as informative implementations and should match the versions found in the IHE ftp://ftp.ihe.net/TF_Implementation_Material/ for PCD. If a later version is available at the ftp site, it should be used.

A.1 Sample WSDL file and schema

The Web Services Description Language (WSDL) is a W3C standard designed to define a web service through concrete endpoints and operations. The IHE IT Infrastructure Technical Framework Volume 2x Appendix V provides guidance on deriving WSDL files from an IHE transaction.

Non-normative illustrative examples of an WSDL file «DeviceObservationConsumer.wsdl» and schema «DeviceObservationConsumer.xsd» are shown below:

DeviceObservationConsumer.wsdl
<pre><?xml version="1.0" encoding="UTF-8"?> <wsdl:definitions name="DeviceObservationConsumer" targetNamespace="urn:ihe:pcd:dec:2010" xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:tns="urn:ihe:pcd:dec:2010"> <wsdl:types> <xsd:schema> <xsd:import namespace="urn:ihe:pcd:dec:2010" schemaLocation="DeviceObservationConsumer.xsd"/> </xsd:schema> </wsdl:types> <wsdl:message name="CommunicatePCDDData_Message"> <wsdl:documentation>Communicate PCD Data</wsdl:documentation> <wsdl:part name="body" element="tns:CommunicatePCDDData"/> </wsdl:message> <wsdl:message name="CommunicatePCDDDataResponse_Message"> <wsdl:documentation>Communicate PCD Data Response</wsdl:documentation> <wsdl:part name="body" element="tns:CommunicatePCDDDataResponse"/> </wsdl:message> <wsdl:portType name="DeviceObservationConsumer_PortType"> <wsdl:operation name="CommunicatePCDDData"> <wsdl:input message="tns:CommunicatePCDDData_Message" wsaw:Action="urn:ihe:pcd:2010:CommunicatePCDDData"/> <wsdl:output message="tns:CommunicatePCDDDataResponse_Message" wsaw:Action="urn:ihe:pcd:2010:CommunicatePCDDDataResponse"/> </wsdl:operation> </wsdl:portType> <wsdl:binding name="DeviceObservationConsumer_Binding_Soap12" type="tns:DeviceObservationConsumer_PortType"> <soap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/> <wsaw:UsingAddressing wsdl:required="true"/> <wsdl:operation name="CommunicatePCDDData"> <soap12:operation soapAction="urn:ihe:pcd:2010:CommunicatePCDDData" soapActionRequired=""/> <wsdl:input> <soap12:body use="literal"/> </wsdl:input> <wsdl:output> <soap12:body use="literal"/> </wsdl:output> </wsdl:operation> </wsdl:binding> <wsdl:service name="DeviceObservationConsumer_Service"> <wsdl:port name="DeviceObservationConsumer_Port_Soap12" binding="tns:DeviceObservationConsumer_Binding_Soap12"> <soap12:address location="http://www.example.org"/> </wsdl:port> </wsdl:service> </wsdl:definitions></pre>

Note: the element `<wsaw:UsingAddressing wsdl:required="true"/>` is required for strict conformance to IHE ITI Technical Framework Vol. 2x, Appendix V (and is required by IHE testing tools), but readers are warned that some web services infrastructure implementation will not use or recognize it, so it is well if feasible to be prepared to include it or not, to be prepared to deal with both situations.

DeviceObservationConsumer.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:tns="urn:ihe:pcd:dec:2010"
targetNamespace="urn:ihe:pcd:dec:2010">
  <element name="CommunicatePCDDData" type="tns:UnsolicitedObservationResult"/>
  <element name="CommunicatePCDDDataResponse" type="tns:GeneralAcknowledgement"/>
  <simpleType name="UnsolicitedObservationResult">
    <restriction base="string"/>
  </simpleType>
  <simpleType name="GeneralAcknowledgement">
    <restriction base="string"/>
  </simpleType>
</schema>
```

A.2 Sample PCD-01 message and response

In addition to the WSDL-related rules found in Appendix V of the IHE ITI Technical Framework Volume 2, the framework contains a number of conformance constraints for web service consumers and providers. These rules were developed to improve IHE-related web service interoperability and PCD implementations using web services are required to comply.

Note that the contents of the `urn:ihe:pcd:dec:2010:CommunicatePCDDData` element must contain the entire contents of a valid PCD-01 Observation Result message. However, based on the character restrictions of XML and web services, there are a number of characters that cannot be used in their literal form (see <http://www.w3.org/International/questions/qa-controls#support> for more information).

Restricted characters, such as "&" and "<cr>", must be escaped using XML predefined character entity references wherever possible (e.g., &). For restricted characters that have no predefined character entity references, a numeric character references should be used instead (e.g., &#d;). Messages containing characters which are prohibited from use in XML in both literal and escaped format are prohibited from being sent using the WS* transport profile.

For a complete list of excluded characters, please see the XML specification at <http://www.w3.org/TR/xml/#syntax>

Examples of a Communicate PCD Data message «CommunicatePCDData.xml» and a typical response «CommunicatePCDDataResponse.xml» are shown below (informative).

CommunicatePCDData.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <wsa:To soapenv:mustUnderstand="true">
      http://localhost/org.openhealthtools.stepstone.backend.gateway/DeviceObservationConsumer_Service
    </wsa:To>
    <wsa:From soapenv:mustUnderstand="true">
      <wsa:Address>
        http://www.w3.org/2005/08/addressing/anonymous
      </wsa:Address>
      </wsa:From>
      <wsa:MessageID soapenv:mustUnderstand="true">
        urn:uuid:A52590343911955D1A1251497585530
      </wsa:MessageID>
      <wsa:Action soapenv:mustUnderstand="true">
        urn:ihe:pcd:2010:CommunicatePCDData
      </wsa:Action>
    </soapenv:Header>
    <soapenv:Body>
      <CommunicatePCDData xmlns="urn:ihe:pcd:dec:2010">
        MSH|^~\&|AcmeInc^ACDE48234567ABCD^EUI-64|||20090713090030+0500||ORU^R01^ORU_R01|MSGID1234|P|2.6||NE|AL|||IHE PCD ORU-R01
        2006^HL7^2.16.840.1.113883.9.n.m^HL7&#xD;
        PID||789567^^^Imaginary Hospital^PI||Doe^John^Joseph^^^L^A||M&#xD;
        OBR|1|AB12345^AcmeAHDInc^ACDE48234567ABCD^EUI-64|CD12345^AcmeAHDInc^ACDE48234567ABCD^EUI-64|528391^MDC_DEV_SPEC_PROFILE_BP^MDC||20090813095715+0500&#xD;
        OBX|1|528391^MDC_DEV_SPEC_PROFILE_BP^MDC|1|||||R|||||0123456789ABCDEF^EUI-64&#xD;
        OBX|2|150020^MDC_PRESS_BLD_NONINV^MDC|1.0.1|||||R||20090813095715+0500&#xD;
        OBX|3|NM|150021^MDC_PRESS_BLD_NONINV_SYS^MDC|1.0.1.1|120|266016^MDC_DIM_MMHG^MDC|||R&#xD;
        OBX|4|NM|150022^MDC_PRESS_BLD_NONINV_DIA^MDC|1.0.1.2|80|266016^MDC_DIM_MMHG^MDC|||R&#xD;
        OBX|5|NM|150023^MDC_PRESS_BLD_NONINV_MEAN^MDC|1.0.1.3|100|266016^MDC_DIM_MMHG^MDC|||R&#xD;
      </CommunicatePCDData>
    </soapenv:Body>
  </soapenv:Envelope>
```

CommunicatePCDDataResponse.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <wsa:Action>
      urn:ihe:pcd:2010:CommunicatePCDDataResponse
    </wsa:Action>
    <wsa:RelatesTo>
      urn:uuid:F8C3FF2964F94E404E1251145112405
    </wsa:RelatesTo>
  </soapenv:Header>
  <soapenv:Body>
    <CommunicatePCDDataResponse xmlns="urn:ihe:pcd:dec:2010">
      MSH|^~\&|Stepstone|AcmeInc^ACDE48234567ABCD^EUI64||20090726095731+0500||ACK^A01^ACK|MSGID1234|P|2.6|&#xD;
      MSA|AA|MSGID1234|Message Accepted|&#xD;
    </CommunicatePCDDataResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

