WSRP – UDDI Proposal

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1 Preface

This document defines a methodology for publishing and finding WSRP services in a UDDI registry. It refers to the mapping of the WSDL data model to the UDDI data model defined in the “Using WSDL in a UDDI Registry, Version 2.0” technical note by the OASIS UDDI specifications technical committee. This document is published at http://oasis-open.org/committees/uddi-spec/doc/draft/wsdl-TN-V2.00-Draft-20021022.pdf [2].

[Note: The technical note is currently in the working draft status. It is expected to be brought to the UDDI TC mid-January and released mid-February 2003.]

It is not the purpose of this document to educate on WSRP [1], WSDL [4] or UDDI [5,6]. The reader of this document should have a good understanding of the WSRP specification, the WSDL specification and the UDDI specification and data structures.

2 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].

Compliance: Mandatory – relevant to legal rules, regulations or laws. Compliancy is the act of complying with a specification and/or standard. Example: ISO 9001. IEEE defines as complying with laws and regulations.

Conformance: Not mandatory – ISO/IEC Guide 2 defines conformance or conformity as fulfillment of a product, process or service of specified requirements. Note that many times providers use “comply” to a standard to sidestep because they don’t actually “conform” to a standard. Reasons they do not “conform” often include the standard is not approved yet or that the provider does not actually meet the standard’s conformance requirements.

3 Conventions

Throughout the document XML code fragments are used to show the definitions of the data structures. The following text formatting conventions are used to ease the readability:

- Key Placeholders
  The structures contain values which reference UDDI key values like tModel keys, service keys and business keys. These keys uniquely identify the data structures within the UDDI repository. For convenience and a better readability these key values are replaced by meaningful variables to represent those keys. Another reason for using the placeholders is that some keys are not know yet as the
tModels are generated by the UDDI directory once a tModel is published. For example the following placeholder refers to a tModel key identifying the WSRP_v1_Registration_PortType tModel:

```
<tModel tModelKey="${TMODELKEY_REGISTRATION_PORTTYPE}" />
```

- **Constants**
  Constant values are printed in the Courier New font no matter whether they are defined by the UDDI technical note or this document. In addition constant values defined by this document are printed **bold face**. The following example shows the tModel name defined by this proposal for the WSRP_v1_Registration_PortType tModel.

```
<tModel tModelKey="${TMODELKEY_REGISTRATION_PORTTYPE}" >
  <name>
    WSRP_v1_Registration_PortType
  </name>
</tModel>
```

- **Sample Values**
  These values are represented in italic font. In the following example the access point sample value is shown:

```
<accessPoint URLType="http">
  http://vendor.com/producer/ServiceDescription
</accessPoint>
```

## 4 General Concepts

### 4.1 WSRP Interfaces and Bindings

The protocol defined by WSRP is factored into multiple interfaces. Each interface provides a certain functionality of the protocol. Some interfaces are optional. Each interface is defined as a PortType in the WSRP Interface WSDL file. As of writing this document the following interfaces are defined by the WSRP specification:

1. **Service Description Interface**
   This interface provides a means for the Consumer to discover capabilities of the Producer and its Portlets. This metadata MAY be context sensitive to the registration. The Service Description Interface is optional (see paragraph 5.1.3 for a refinement of this statement within the scope of this document).

2. **Markup Interface**
   WSRP compliant services MUST implement and expose this interface which deals with the generation and the interaction with markup.
3. **Registration Interface**
   Producers MAY choose to support in-band registration of Consumers and thus implement this interface.

4. **Entity Management Interface**
   In addition to “Producer Offered Portlets” offered through the description the Producer MAY expose this interface to allow Consumer to clone and customize the Entities. These Entities are referred to as “Consumer Configured Portlets”.

### 4.2 WSRP WSDLs

WSRP defines two WSDLs. First, an **Interface WSDL** which mainly defines WSRP specified types, **WSDL:Messages** and **WSDL:PortTypes**. The PortTypes are the technical descriptions of the interfaces described above in a WSDL sense. Second, a **Binding WSDL** is defined which contains various **WSDL:Binding** Elements for the above specified PortTypes. The **Binding WSDL** imports the **Interface WSDL**.

The Binding names adhere to the following naming schema:

```
SPEC_VERSION_FACTOR_WSDLTYPE_TYPESPECIFIC
```

Where

```
SPEC   = WSRP
VERSION = v1
FACTOR  = ServiceDescription | Markup | Registration | EntityManagement
WSDLTYPE = Binding
TYPESPECIFIC = SOAP
```

Note that additional bindings MAY be added which define SOAP attachments mechanisms like DIME or MIME. This additional Bindings will add **TYPESPECIFIC** binding names.

The service has to provide its own **Service WSDL** which defines Ports for the various bindings. This WSDL has to import the **Binding WSDL**.

### 4.3 Using WSDLs in UDDI

The UDDI technical note describes how general WSDLs can be used to create **UDDI:businessService** entries along with the necessary data types in UDDI. Figure 1 gives a general overview how WSDL data types are mapped to UDDI data types. [Note: this figure has been captured from [2].]
Each `WSDL:portType` is published as a `UDDI:tModel`. The tModel’s name maps the PortType name in the WSDL. The `UDDI:overviewURL` points to the location of the Interface `WSDL`. The `UDDI:categoryBag` holds `UDDI:keyedReferences` to the `WSDL Entity Type` tModel and `XML Namespace` tModel defined in the UDDI technical note.

The `UDDI:keyValue` for the Entity Type classifies that the tModel represents a PortType. The XML Namespace `UDDI:keyValue` maps to the target namespace of this particular PortType in that WSDL definition.

Analogue each `WSDL:Binding` is exposed as a `UDDI:tModel`. This tModel’s name equals the Binding’s name. The `UDDI:overviewURL` points to the Binding `WSDL`. Like the PortType tModel, the `UDDI:categoryBag` holds `UDDI:keyedReferences` to the `WSDL Entity Type` tModel and the `XML Namespace` tModel. Additionally the `WSDL portType Reference` tModel indicates within its `UDDI:keyValue` which PortType the hereby represented Binding implements.
The **UDDI:businessService** data type is composed from data defined in the *Service WSDL*. Note that the businessService name is a human-readable name. The **WSDL:service** name is reflected by the **UDDI:keyedReference** to the *XML Local Name* tModel in the businessService’s **UDDI:categoryBag**. The **UDDI:keyValue** contains the name of the **WSDL:Service** element specified in the **WSDL**.

For each **WSDL:Port** definition in the **WSDL** a **UDDI:bindingTemplate** data structure is created. It specifies the access endpoint for this particular Port. The **WSDL** location points to the *Service WSDL*.

The mapping defined in the technical note introduces additional canonical tModels. This canonical tModels are used to represent relationships between these structures and additional metadata.

Mainly the following metadata is being defined:

- The type of **WSDL** entity being defined (i.e., PortType, Binding, Service, or Port). This taxonomy is defined by the **WSDL Entity Type tModel**.
- The target namespace of the **WSDL** definitions file that defines the **WSDL** entity. This taxonomy is defined by the **XML Namespace tModel**.
- The local name of the **WSDL** entity being defined. This mechanism is defined by the **XML Local Name tModel**.
- The location of the **WSDL** file that defines the **WSDL** entity is captured for PortType, Binding and Service entities. This is defined by the **WSDL URL Categorization tModel**.
- Any relationships and dependencies between **UDDI** entities are also captured. For example, a tModel that represents a Binding provides a reference to the tModel that represents the PortType implemented by the Binding. For this purpose the **WSDL portType Reference tModel** is used.

---

5 **Publishing WSRP Services to UDDI**

In contrast to “simple” Web Services, WSRP services are more complex. WSRP Producers optionally expose multiple interfaces accessible via different access points. Portlets could also be understood as services hosted by the Producer. In contrast to Producers, Portlets are not services in a Web Service sense. They do not explicitly expose PortTypes or access points. Rather an Portlet is being exposed by the Producer. The Consumer interacts indirectly with Portlets through the Producer’s infrastructure.

In addition to the plain interface specification WSRP services carry metadata which describes both, the Producer and its Portlets. Prior to using a Producer or Portlet its metadata has to be obtained.

Furthermore there are various possibilities on how to define a WSRP service in UDDI sense. This document defines how:

1. **The Producer is published as a **UDDI:businessService**.**
2. A Producer Offered Portlet is published as a UDDI:businessService.
3. The WSDL data types are published as UDDI:tModels.
4. Additional tModels are defined.

5.1 Publishing Producers

In essence Producers are Web Services. They expose interfaces a Consumer can interact with. These interfaces and their bindings are described in the WSRP WSDLs. Thus publishing a Producer maps very well to the WSDL to UDDI mapping described by the UDDI technical note.

Given the technical note by the OASIS UDDI TC it is anticipated that WSRP SHOULD NOT define its own WSDL to UDDI mapping but rather rely on the expertise of the OASIS UDDI TC on how to achieve these mappings.

Generally, to publish a Producer two steps need to be taken:

1. Publish WSDL:PortTypes and WSDL:Bindings to UDDI.
   As the PortTypes and Bindings for WSRP Producers are defined by WSRP and are common to all Producers, these definitions MUST be published as UDDI:tModels, i.e. the data types specified in the Interface and Binding WSDL are owned by the WSRP TC and therefore SHOULD be published by the WSRP TC.

2. Publish the WSDL:service definition to UDDI along with its WSDL:Port definitions.
   The Service WSDL refers to the Binding and Interface WSDL. It is owned by the Producer provider. To publish a Producer the provider MUST publish the mapping of the Service WSDL to a UDDI:businessService and the corresponding UDDI:bindingTemplates referring to the Binding tModels and PortType tModels specified by WSRP.

The following sections describe how the tasks mentioned above are accomplished.

5.1.1 WSRP PortTypes and Bindings

The UDDI technical note describes very well how PortTypes and Bindings are mapped to UDDI structures. This section gives a summary of the data structures (i.e. tModels) that SHOULD be published to UDDI by the WSRP technical committee. It defines tModels for the currently defined PortTypes and Bindings by the WSRP specification. It is anticipated that additional Bindings MAY be defined in future. These additions can easily be added to these structures.
5.1.1.1 General PortType tModel Description

The PortType tModels adhere to the PortType to UDDI tModel mapping defined in the UDDI technical note. All following PortType tModels have the same structure. The tModels describe the PortTypes defined by WSRP. The tModel name is aligned with the PortType name defined in the WSRP Interface WSDL.

The category bag references the XML Namespace tModel defined in the UDDI technical note. The key value of this reference holds the target namespace of the wsdl:definitions element that contains the PortType definition. This is the target namespace defined in the WSRP Interface WSDL.

The reference to the WSDL Entity Type tModel indicates that this tModel represents a WSDL Entity. The key value “portType” defines that this tModel represents a WSDL PortType element.

The UDDI:overviewURL holds the URL of the WSRP Interface WSDL document describing the PortType. It is expected that this WSDL will be published on a WSRP web site.

5.1.1.2 WSRP_v1_ServiceDescription_PortType tModel

```xml
<tModel tModelKey="${TMODELKEY_SERVICEDESCRIPTION_PORTTYPE}" >
  <name>
    WSRP_v1_ServiceDescription_PortType
  </name>
  <categoryBag>
    <keyedReference
      tModelKey="${TMODELKEY_XML_NAMESPACE}"
      keyName="portType namespace"
      keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:intf" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
      keyName="WSDL type"
      keyValue="portType" />
  </categoryBag>
  <overviewDoc>
    <overviewURL>
      http://www.oasis-open.org/committees/wsrp/v1/wsd1/WSRP_v1_Interfaces.wsdl
    </overviewURL>
  </overviewDoc>
</tModel>
```
5.1.1.3  *WSRP_v1_Markup_PortType tModel*

```xml
<tModel tModelKey="${TMODELKEY_MARKUP_PORTTYPE}" >
  <name>
    WSRP_v1_Markup_PortType
  </name>
  <categoryBag>
    <keyedReference
      tModelKey="${TMODELKEY_XML_NAMESPACE}"
      keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:intf" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
      keyValue="portType" />
  </categoryBag>
  <overviewDoc>
    <overviewURL>
      http://www.oasis-open.org/committees/wsrp/v1/wsdl/WSRP_v1_Interfaces.wsdl
    </overviewURL>
  </overviewDoc>
</tModel>
```

5.1.1.4  *WSRP_v1_Registration_PortType tModel*

```xml
<tModel tModelKey="${TMODELKEY_REGISTRATION_PORTTYPE}" >
  <name>
    WSRP_v1_Registration_PortType
  </name>
  <categoryBag>
    <keyedReference
      tModelKey="${TMODELKEY_XML_NAMESPACE}"
      keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:intf" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
      keyValue="portType" />
  </categoryBag>
  <overviewDoc>
    <overviewURL>
      http://www.oasis-open.org/committees/wsrp/v1/wsdl/WSRP_v1_Interfaces.wsdl
    </overviewURL>
  </overviewDoc>
</tModel>
```
5.1.1.5  **WSRP_v1_EntityManagement_PortType tModel**

```xml
<tModel tModelKey="${TMODELKEY_ENTITYMANAGEMENT_PORTTYPE}" >
    <name>
        WSRP_v1_EntityManagement_PortType
    </name>
    <categoryBag>
        <keyedReference
            tModelKey="${TMODELKEY_XML_NAMESPACE}"
            keyName="portType namespace"
            keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:intf" />
        <keyedReference
            tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
            keyName="WSDL type"
            keyValue="portType" />
    </categoryBag>
    <overviewDoc>
        <overviewURL>
            http://www.oasis-open.org/committees/wsrp/v1/wsd1/WSRP_v1_Interfaces.wsdl
        </overviewURL>
    </overviewDoc>
</tModel>
```
5.1.1.6 General Binding tModel Description

The Binding tModels adhere to the Binding to UDDI tModel mapping defined in the UDDI technical note. All following Binding tModels have the same structure. The tModels describe the Bindings defined by WSRP. The tModel name is aligned with the Binding name defined in the WSRP Interface WSDL.

The category bag references the XML Namespace tModel defined in the UDDI technical note. The key value of this reference holds the target namespace of the wsdl:definitions element that contains the Binding definition. This is the target namespace defined in the WSRP Binding WSDL.

The reference to the WSDL Entity Type tModel indicates that this tModel represents a WSDL Entity. The key value “binding” defines that this tModel represent a WSDL Binding element.

The reference to the WSDL PortType Reference tModel allows to indicate which PortType this binding implements. The key value holds the tModel key of the PortType tModel that this binding implements.

For compatibility reasons to the UDDI best practices V1.0 document the category bag also contains a reference to a tModel which indicates that this binding is defined by a WSDL. It is not needed for operation according to the UDDI technical note [2].

The UDDI:overviewURL holds the URL of the WSRP Bindings WSDL document describing the Binding. It is expected that this WSDL will be published on a WSRP web site.

5.1.1.7 WSRP_v1_ServiceDescription_Binding_SOAP tModel

```xml
<tModel tModelKey="${TMODELKEY_SERVICEDESCRIPTION_BINDING}">
  <name>
    WSRP_v1_ServiceDescription_Binding_SOAP
  </name>
  <categoryBag>
    <keyedReference
      tModelKey="${TMODELKEY_XML_NAMESPACE}"
      keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:bind"/>
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
      keyValue="binding"/>
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_PORTTYPE_REFERENCE}"
      keyValue="${TMODELKEY_SERVICEDESCRIPTION_PORTTYPE}"/>
    <keyedReference
      tModelKey="uuid:c1acf26d-9672-4404-9d70-39b756e62ab4"
      keyValue="wslSpec"/>
  </categoryBag>
  <overviewDoc>
    <overviewURL>
      http://www.oasis-open.org/committees/wsrp/v1/wsdI/WSRP_v1_Binding.wsdl
    </overviewURL>
  </overviewDoc>
</tModel>
```
5.1.1.8  WSRP_v1_Markup_Binding_SOAP tModel

```xml
<tModel tModelKey="${TMODELKEY_MARKUP_BINDING}" >
   <name>
      WSRP_v1_Markup_Binding_SOAP
   </name>
   <categoryBag>
      <keyedReference
         tModelKey="${TMODELKEY_XML_NAMESPACE}"
         keyName="binding namespace"
         keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:bind"/>
      <keyedReference
         tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
         keyName="WSDL type"
         keyValue="binding"/>
      <keyedReference
         tModelKey="${TMODELKEY_WSDL_PORTTYPE_REFERENCE}"
         keyName="portType reference"
         keyValue="${TMODELKEY_MARKUP_PORTTYPE}"/>
      <keyedReference
         tModelKey="uuid:c1acf26d-9672-4404-9d70-39b756e62ab4"
         keyName="uddi-org:types"
         keyValue="wsdlSpec"/>
   </categoryBag>
   <overviewDoc>
      <overviewURL>
         http://www.oasis-open.org/committees/wsrp/v1/wsdl/WSRP_v1_Binding.wsdl
      </overviewURL>
   </overviewDoc>
</tModel>
```
5.1.1.9  WSRP_v1_Registration_Binding_SOAP tModel

```xml
<tModel tModelKey="${TMODELKEY_REGISTRATION_BINDING}" >
  <name>
    WSRP_v1_Registration_Binding_SOAP
  </name>
  <categoryBag>
    <keyedReference
      tModelKey="${TMODELKEY_XML_NAMESPACE}"
      keyName="binding namespace"
      keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:bind" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_ENTITY}" 
      keyName="WSDL type"
      keyValue="binding" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_PORTTYPE_REFERENCE}"
      keyName="portType reference"
      keyValue="${TMODELKEY_REGISTRATION_PORTTYPE}" />
    <keyedReference
      tModelKey="uuid:c1acf26d-9672-4404-9d70-39b756e62ab4"
      keyName="uddi-org:types"
      keyValue="wsdlSpec" />
  </categoryBag>
  <overviewDoc>
    <overviewURL>
      http://www.oasis-open.org/committees/wsrp/v1/wsdI/WSRP_v1_Binding.wsdl
    </overviewURL>
  </overviewDoc>
</tModel>
```

5.1.1.10  WSRP_v1_EntityManagement_Binding_SOAP tModel

```xml
<tModel tModelKey="${TMODELKEY_ENTITYMANAGEMENT_BINDING}" >
  <name>
    WSRP_v1_EntityManagement_Binding_SOAP
  </name>
  <categoryBag>
    <keyedReference
      tModelKey="${TMODELKEY_XML_NAMESPACE}"
      keyName="binding namespace"
      keyValue="urn:oasis:names:tc:wsrp:wsdl:v1:bind" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}" 
      keyName="WSDL type"
      keyValue="binding" />
    <keyedReference
      tModelKey="${TMODELKEY_WSDL_PORTTYPE_REFERENCE}"
      keyName="portType reference"
      keyValue="${TMODELKEY_ENTITYMANAGEMENT_PORTTYPE}" />
    <keyedReference
      tModelKey="uuid:c1acf26d-9672-4404-9d70-39b756e62ab4"
      keyName="uddi-org:types"
      keyValue="wsdlSpec" />
  </categoryBag>
  <overviewDoc>
    <overviewURL>
      http://www.oasis-open.org/committees/wsrp/v1/wsdI/WSRP_v1_Binding.wsdl
    </overviewURL>
  </overviewDoc>
</tModel>

5.1.2 WSRP Service Type canonical tModel

Besides the tModels described above it is desirable to have a mechanism which indicates what type of service a UDDI:businessService represents. The type of the service may be a producer published to UDDI or a Portlet. The WSRP ServiceType tModel provides a typing system for this purpose. This taxonomy is then used to indicate whether a UDDI:businessService published to UDDI refers to a Producer or a Portlet. This taxonomy MUST be used to allow the search for WSRP Producers or Portlets published to UDDI. As these service types are defined by the WSRP specification, this tModel SHOULD ideally also be published by the WSRP TC. It is anticipated that in future other valid values like “Portlet Application” MAY be defined.

While this is an unchecked taxonomy, there are only two values that SHOULD be used:

<table>
<thead>
<tr>
<th>keyValue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer</td>
<td>Represents a UDDI businessService categorized as a WSRP Producer</td>
</tr>
<tr>
<td>Portlet</td>
<td>Represents a UDDI businessService categorized as a WSRP Portlet</td>
</tr>
</tbody>
</table>

5.1.3 Producer’s Service WSDL

The Producer provider is owner of the Service WSDL. Therefore it is the provider’s responsibility to publish its Service WSDL to UDDI according to the UDDI technical note and this proposal.
The Producer’s Service WSDL MUST be published as described in the UDDI technical note.

In addition a published UDDI:businessService entity MUST contain in its UDDI:categoryBag a UDDI:keyedReference to the WSRP Service Type tModel with the UDDI:keyValue set to “Producer”.

For each WSDL:Port definition in the Service WSDL which should be published, a UDDI:bindingTemplate MUST be added.

At least one UDDI:bindingTemplate MUST refer to the WSRP_v1_Markup_PortType tModel and indicate that it implements the WSRP_v1_Markup_Binding_SOAP Binding. This rule adheres to the WSRP specification which describes this PortType as mandatory.

At least one UDDI:bindingTemplate MUST refer to the WSRP_v1_ServiceDescription_PortType and indicate that it implements the WSRP_v1_ServiceDescription_Binding_SOAP Binding. This PortType and Binding are minimally required to obtain the Producer’s metadata.

The following shows an example of a UDDI:businessService entity with UDDI:bindingTemplates which fulfills the minimum requirements. Note that the Producer MAY add further bindingTemplates and refer to additional PortTypes and Bindings. These may be the optional PortTypes and Bindings defined by the WSRP specification or vendor specific PortTypes and Bindings.

```xml
<businessService
    serviceKey="${SERVICEKEY_PRODUCER_SERVICE}"
    businessKey="${BUSINESSKEY_PRODUCER_VENDOR_BUSINESS}">
  <name>Corporate Producer</name>
  <bindingTemplates>
    <bindingTemplate
        bindingKey="${BINDINGKEY_PRODUCER_SERVICEDESCRIPTION}"
        serviceKey="${SERVICEKEY_PRODUCER_SERVICE}">
      <accessPoint URLType="http">
        http://vendor.com/producer/ServiceDescription
      </accessPoint>
      <tModelInstanceDetails>
        <tModelInstanceInfo
            tModelKey="${TMODELKEY_SOAP_PROTOCOL}"
            description xml:lang="en">
          This service supports a SOAP binding.
        </tModelInstanceInfo>
        <tModelInstanceInfo
            tModelKey="${TMODELKEY_HTTP_PROTOCOL}"
            description xml:lang="en">
          This service uses HTTP transport.
        </tModelInstanceInfo>
      </tModelInstanceDetails>
    </bindingTemplate>
  </bindingTemplates>
</businessService>
```
<tModelInstanceInfo
  tModelKey="${TMODELKEY_SERVICEDESCRIPTION_BINDING}"
  <instanceDetails>
    <instanceParms>WSRPServiceDescriptionPort</instanceParms>
  </instanceDetails>
</tModelInstanceInfo>

<tModelInstanceInfo
  tModelKey="${TMODELKEY_SERVICEDESCRIPTION_PORTTYPE}"
</tModelInstanceInfo>
</tModelInstanceDetails>
</bindingTemplate>
</bindingTemplates>
</categoryBag>
</keyedReference>
<keyedReference
  tModelKey="${TMODELKEY_WSDL_ENTITY_TYPE}"
  keyName="WSDL type"
  keyValue="service"/>
<keyedReference
  tModelKey="${TMODELKEY_XML_NAMESPACE}"
  keyName="service namespace"
  keyValue="urn:com:vendor:prod" />
<keyedReference
  tModelKey="${TMODELKEY_XML_LOCAL_NAME}"
  keyName="service local name"
  keyValue="VendorProducerService" />
<keyedReference
  tModelKey="${TMODELKEY_WSRP_SERVICE_TYPE}"
  keyName="WSRP Service Type"
  keyValue="Producer" />
</categoryBag>
</businessService>
The **UDDI:businessService** name is a human readable name describing this service. In this example the service contains two **UDDI:bindingTemplates**. The first describes the WSRP ServiceDescription Port the second the WSRP Markup Port. The mapping of the **WSDL:Port** element to **UDDI:bindingTemplate** is described in [2]. The **UDDI:accessPoint** holds the URL to the endpoint address of the Port. **UDDI:tModelInstanceInfo** structures refer to tModels which add further taxonomy to the Port description. First the **SOAP Protocol tModel** and the **HTTP Protocol tModel** are referenced to indicate that in this example the Port can be accessed via SOAP over HTTP.

Further more a Binding tModel is referenced to indicate that this Port implements a specific binding. In this example one bindingTemplate refers to the `WSRP_v1_ServiceDescription_Binding_SOAP` tModel the other one to the `WSRP_v1_Markup_Binding_SOAP` tModel. The **UDDI:instanceParams** hold the local name of the Port which implements that particular binding. The local name is the value of the name attribute of the **WSDL:Port** element in the **Service WSDL**.

Additionally a PortType tModel is referenced to indicate which PortType is implemented by that Port. The **UDDI:businessService** category bag holds further keyed references to taxonomy tModels. First the **WSDL Entity Type tModel** is referenced. The key value “service” shows that the service structure mapps to a **WSDL:Service** entity.

The key value of the **XML Namespace tModel** holds the target namespace of the `wsdl:definitions` element which defines the **WSDL:Service** element. The local name of the service, say the name attribute of the **WSDL:Service** element is kept in the key value of the keyed reference to the **XML Local Name tModel**.

Last, to indicate that this service is a published WSRP Producer the **WSRP Service Type tModel** is being referenced. The key value in that case contains the string “Producer”.

### 5.1.4 Producer’s Metadata

Producer’s metadata is not directly published to UDDI. The metadata MUST be retrieved using the ServiceDescription Interface published by the Producer. Currently there is no need seen to publish this metadata. However, in the future use-cases might come up which desire to search for Producers defining certain metadata values in UDDI and thus need exposure to UDDI. This will be deferred to later versions of this document.

### 5.2 Publishing Portlets

Portlets are different from Producers. They don’t expose interfaces, access points or bindings directly. A Consumer interacts with Portlets via the Producer addressing them by the PortletHandles.
Therefore the WSDL to UDDI mapping does not match here. Portlets should not be published as common Web Services exposing the Producer’s access point and bindings. Rather than this, Portlets should point to the Producer which manages them. The following sections describe how the UDDI data structures should be utilized to publish Producer Offered Portlets defined by WSRP.

### 5.2.1 WSRP canonical tModels

To make the proposal work ideally the WSRP TC SHOULD publish additional canonical tModels.

First a tModel is introduced which defines a reference to a `UDDI:businessService` entity of the Producer managing this particular Portlet. Using this reference a Producer can be found in UDDI and therefore the access point, the interfaces and bindings exposed and the metadata can be obtained.

Second a tModel defining the PortletHandle is specified. This tModel identifies the published Portlet in scope of the Producer.
5.2.1.1  WSRP Producer Reference tModel

The valid values for this taxonomy are UDDI:serviceKeys. The content of UDDI:keyValue in a UDDI:keyedReference that refers to this tModel is the UDDI:serviceKey of the UDDI:businessService definition of the Producer managing this Portlet.

5.2.1.2  WSRP Portlet Handle tModel

The valid values for this taxonomy are PortletHandles. The content of UDDI:keyValue in a UDDI:keyedReference that refers to this tModel is the
PortletHandle of the Portlet managed by the Producer the WSRP Producer Reference taxonomy refers to.

### 5.2.2 Portlet to BusinessService Mapping

Producer Offered Portlets MAY be published to UDDI. If a provider decides to publish a Producer Offered Portlet then it MUST be published as a UDDI:businessService.

An Portlet published as a UDDI:businessService entity MUST contain in its UDDI:categoryBag a UDDI:keyedReference to the WSRP_v1_ServiceType tModel with the UDDI:keyValue of “Portlet”.

Additionally a UDDI:businessService entry MUST contain a UDDI:keyedReference in its UDDI:categoryBag which refers to the WSRP Producer Reference tModel. The UDDI:keyValue MUST contain the UDDI:serviceKey of the Producer’s UDDI:businessService entry which manages this Portlet.

The UDDI:businessService entry MUST also hold a UDDI:keyedReference to the WSRP Portlet Handle tModel in its UDDI:categoryBag. The UDDI:keyValue MUST be the PortletHandle of this Portlet known by the Producer referred by the WSRP Producer Reference UDDI:keyValue.

Optionally the UDDI:businessService MAY contain a UDDI:bindingTemplate. This bindingTemplate MUST specify a UDDI:hostingRedirector instead of an UDDI:accessPoint. The value specified herein MUST specify the UDDI:bindingKey of the UDDI:bindingTemplate exposed by the Producer which implements the WSRP_v1_ServiceDescription_Binding_SOAP Binding.
5.2.3 Portlet’s Metadata

Besides the PortletHandle, the Portlet’s metadata is not directly published to UDDI. The metadata MUST be retrieved using the ServiceDescription Interface published by the Producer.

Currently there is no need seen to publish this metadata. However, in the future use-cases might come up which desire to search for Portlets defining certain metadata values in UDDI and thus need exposure to UDDI.

This will be deferred to later versions of this document.
6 References

6.1 Normative


### Appendix A. Revision History

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<th>What</th>
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<td>0.1</td>
<td>12/16/02</td>
<td>Richard Jacob</td>
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<td>0.2</td>
<td>12/19/02</td>
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<td>0.3</td>
<td>01/14/03</td>
<td>Richard Jacob</td>
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