

DOAG Regionaltreffen NRW 30.09.2009

Webservices mit PL/SQL in der Praxis

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enterprise web ag

Die Aufgabe:

„Three new web-services have been developed in order to distribute the information stored on the European EURAXESS Portal.

These web-services could be used to populate your National Portal pages with the information retrieved by the European central database.

A new web service has been developed for each unit of information:

- *Job Vacancies*
- *Practical Information*
- *Fellowships & Grants“*

WSDL – Webservice Definition Language

<http://ec.europa.eu/...../JV.cfc?wsdl>

Diesem XML-Dokument kann entnommen werden, wie die Job-Suche aufgerufen wird und welche Parameter dazu übergeben werden können.

Das macht man am besten mit einem geeigneten Tool – z.B. soapUI: www.soapui.org

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- WSDL created by ColdFusion version 8,0,1,195765-->
<wsdl:definitions targetNamespace="http://ws.euraxess" xmlns:apacheSOAP="http://xml.apache.org/xml-soap" xmlns:impl="http://ws.euraxess" xmlns:
<wsdl:types>
  <schema targetNamespace="http://rpc.xml.coldfusion" xmlns="http://www.w3.org/2001/XMLSchema"
    <import namespace="http://schemas.xmlsoap.org/soap/encoding/" />
    <complexType name="CFCInvocationException">
      <sequence />
    </complexType>
  </schema>
</wsdl:types>
<wsdl:message name="getInputDataRequest" />
<wsdl:message name="getJVInfoRequest">
  <wsdl:part name="country" type="xsd:string" />
  <wsdl:part name="researchField" type="xsd:string" />
  <wsdl:part name="idOrganisation" type="xsd:string" />
  <wsdl:part name="onlyMarieCurie" type="xsd:string" />
  <wsdl:part name="orderByField" type="xsd:string" />
  <wsdl:part name="offset" type="xsd:string" />
  <wsdl:part name="limit" type="xsd:string" />
</wsdl:message>
<wsdl:message name="getInputDataResponse">
  <wsdl:part name="getInputDataReturn" type="xsd:string" />
</wsdl:message>
<wsdl:message name="filterJVResponse">
  <wsdl:part name="filterJVReturn" type="xsd:string" />
</wsdl:message>
<wsdl:message name="CFCInvocationException">
  <wsdl:part name="fault" type="tns:CFCInvocationException" />
</wsdl:message>
<wsdl:message name="filterJVRequest">
  <wsdl:part name="country" type="xsd:string" />
  <wsdl:part name="researchField" type="xsd:string" />
  <wsdl:part name="idOrganisation" type="xsd:string" />
  <wsdl:part name="onlyMarieCurie" type="xsd:string" />
</wsdl:message>
<wsdl:message name="getJVInfoResponse">
  <wsdl:part name="getJVInfoReturn" type="xsd:string" />
</wsdl:message>
<wsdl:portType name="JV">
  <wsdl:operation name="getInputData">
    <wsdl:input message="impl:getInputDataRequest" name="getInputDataRequest" />
    <wsdl:output message="impl:getInputDataResponse" name="getInputDataResponse" />
    <wsdl:fault message="impl:CFCInvocationException" name="CFCInvocationException" />
  </wsdl:operation>
  <wsdl:operation name="getJVInfo" parameterOrder="country researchField idOrganisation onlyMarieCurie orderByField offset limit">
    <wsdl:input message="impl:getJVInfoRequest" name="getJVInfoRequest" />
    <wsdl:output message="impl:getJVInfoResponse" name="getJVInfoResponse" />
    <wsdl:fault message="impl:CFCInvocationException" name="CFCInvocationException" />
  </wsdl:operation>
  <wsdl:operation name="filterJV" parameterOrder="country researchField idOrganisation onlyMarieCurie">
    <wsdl:input message="impl:filterJVRequest" name="filterJVRequest" />
    <wsdl:output message="impl:filterJVResponse" name="filterJVResponse" />
    <wsdl:fault message="impl:CFCInvocationException" name="CFCInvocationException" />
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="JV.cfoSoapBinding" type="impl:JV">
  <wsdl:soap:binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http" />
  <wsdl:operation name="getInputData">
    <wsdl:soap:operation soapAction="" />
    <wsdl:input name="getInputDataRequest">
      <wsdl:soap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" namespace="http://ws.euraxess" use="encoded" />
    </wsdl:input>
    <wsdl:output name="getInputDataResponse">
      <wsdl:soap:body encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" namespace="http://ws.euraxess" use="encoded" />
    </wsdl:output>
    <wsdl:fault name="CFCInvocationException">
      <wsdl:soap:fault encodingStyle="http://schemas.xmlsoap.org/soap/encoding/" name="CFCInvocationException" namespace="http://ws.euraxess" />
    </wsdl:fault>
  </wsdl:operation>
</wsdl:binding>
</wsdl:definitions>
```

soapUI 3.0.1

File Tools Desktop Help

Search Forum

Navigator

- Projects
 - JV
 - JV.cfcSoapBinding
 - filterJV
 - getInputData
 - getJVInfo
 - Request 1

Request Properties

Property	Value
Name	Request 1
Description	
Message...	843
Encoding	UTF-8
Endpoint	http://15...
Bind Addr...	
Follow Re...	false
Username	
Password	
Domain	
WSS-Pass...	
WSS Time...	
SSL Keyst...	
Skip SOAP...	false
Enable M...	false
Force MT...	false
Inline Res...	false
Expand M...	false

Request 1

Request

```
<soapenv:Envelope
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ws="http://ws.euraxess">
  <soapenv:Header />
  <soapenv:Body>
    <ws:getJVInfo soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/
      <country xsi:type="xsd:string"?</country>
      <researchField xsi:type="xsd:string"?</researchField>
      <idOrganisation xsi:type="xsd:string"?</idOrganisation>
      <onlyMarieCurie xsi:type="xsd:string"?</onlyMarieCurie>
      <orderByField xsi:type="xsd:string"?</orderByField>
      <offset xsi:type="xsd:string"?</offset>
      <limit xsi:type="xsd:string"?</limit>
    </ws:getJVInfo>
  </soapenv:Body>
</soapenv:Envelope>
```

Aut Headers (0) Attachments (0) WS-A WS-RM

19 : 1

soapUI log http log jetty log error log wsrm log memory log

Soap-Request mit PL/SQL programmieren

Wie schreibt man eine PL/SQL-Funktion, die einen solchen *Envelope* an den Webservice-Anbieter sendet und die Antwort auswertet?

```
-----  
-- SOAP-Call Job-Vacancies  
-----  
FUNCTION soap_call_getJVInfo (  
    i_country          IN VARCHAR2 DEFAULT NULL,  
    i_researchField    IN VARCHAR2 DEFAULT NULL,  
    i_idOrganisation   IN VARCHAR2 DEFAULT NULL,  
    i_onlyMarieCurie  IN VARCHAR2 DEFAULT NULL,  
    i_orderByField     IN VARCHAR2 DEFAULT NULL,  
    i_offset           IN VARCHAR2 DEFAULT NULL,  
    i_limit            IN VARCHAR2 DEFAULT NULL  
)  
RETURN XMLType;
```

Soap-Envelope formulieren

```

l_soap_envelope_template :=
    '<soapenv:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    || '      xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    || '      xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
    || '      xmlns:ws="http://ws.euraxess">'
    || '  <soapenv:Header/>'
    || '  <soapenv:Body>'
    || '    <ws:getJVInfo soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">'
    || '      <country xsi:type="xsd:string">${country}</country>'
    || '      <researchField xsi:type="xsd:string">${researchField}</researchField>'
    || '      <idOrganisation xsi:type="xsd:string">${idOrganisation}</idOrganisation>'
    || '      <onlyMarieCurie xsi:type="xsd:string">${onlyMarieCurie}</onlyMarieCurie>'
    || '      <orderByField xsi:type="xsd:string">${orderByField}</orderByField>'
    || '      <offset xsi:type="xsd:string">${offset}</offset>'
    || '      <limit xsi:type="xsd:string">${limit}</limit>'
    || '    </ws:getJVInfo>'
    || '  </soapenv:Body>'
    || '</soapenv:Envelope>';

l_soap_envelope := l_soap_envelope_template;
l_soap_envelope := replace(l_soap_envelope, '${country}', i_country);
l_soap_envelope := replace(l_soap_envelope, '${researchField}', i_researchField);
l_soap_envelope := replace(l_soap_envelope, '${idOrganisation}', i_idOrganisation);
l_soap_envelope := replace(l_soap_envelope, '${onlyMarieCurie}', i_onlyMarieCurie);
l_soap_envelope := replace(l_soap_envelope, '${orderByField}', i_orderByField);
l_soap_envelope := replace(l_soap_envelope, '${offset}', i_offset);
l_soap_envelope := replace(l_soap_envelope, '${limit}', i_limit);
    
```

Soap-Request über HTTP aufrufen

```
-----  
-- HTTP-Request: Start  
-----  
l_http_req:=  
  utl_http.begin_request (  
    url          => 'http://ec.europa.eu/...../JV.cfc',  
    method       => 'POST',  
    http_version => 'HTTP/1.1'  
  );  
  
-----  
-- HTTP-Request: Header und Envelope schreiben  
-----  
utl_http.set_header (r => l_http_req, name => 'Content-Type', value => 'text/xml; charset=ISO-8859-1');  
utl_http.set_header (r => l_http_req, name => 'Content-Length', value => length(l_soap_envelope));  
utl_http.set_header (r => l_http_req, name => 'SOAPAction', value => 'getJVInfo');  
  
utl_http.write_text (r => l_http_req, data => l_soap_envelope);
```

Soap-Request über HTTP aufrufen

```
-----  
-- HTTP-Antwort erwarten:  
-----  
l_http_resp := utl_http.get_response (r => l_http_req);  
  
-----  
-- Antwort lesen:  
-----  
utl_http.read_text (r => l_http_resp, data => l_soap_response);  
  
-----  
-- HTTP-Verbindung beenden:  
-----  
utl_http.end_response (r => l_http_resp);
```


Antwort des Webservice

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <ns1:getJVInfoResponse
      soapenv:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
      xmlns:ns1="http://ws.euraxess">
      <getJVInfoReturn xsi:type="xsd:string">
```

```
&lt;result src="http://rmp2.reggiani.it/rmp" subject="Job Vac
&#xd;
3 years-PhD Position&#xd;
&#xd;
within an international research project which engages on &#xd;
'Automatic monitoring of pig aggression (sows and fattening pigs)''&#xd;
at the University of Veterinary Medicine Hannover, Foundation, Germany.&#xd;
&#xd;
_
..
.
```

Antwort des Webservice – vereinfachte Darstellung

```
<soapenv:Envelope>  
  <soapenv:Body>  
    <ns1:getJVInfoResponse>  
      <getJVInfoReturn>  
        (Eingebettetes, maskiertes XML)  
      </getJVInfoReturn>  
    </ns1:getJVInfoResponse>  
  </soapenv:Body>  
</soapenv:Envelope>
```

Suchergebnis aus der Antwort herausfiltern

```
-----  
-- Content aus der Soap-Antwort extrahieren:  
-----  
l_soap_response_xml := XMLType.createXML(l_soap_response);  
  
l_xpath :=  
    '/soapenv:Envelope/soapenv:Body/ns1:getJVInfoResponse/getJVInfoReturn/text()';  
  
l_namespace :=  
    'xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" ' ||  
    'xmlns:ns1="http://ws.euraxess"';  
  
l_soap_content_string :=  
    l_soap_response_xml.extract (  
        xpath => l_xpath,  
        nsmapping => l_namespace  
    ).getStringVal();
```

Das Ergebnis muss für die weitere Verarbeitung noch konvertiert werden, damit aus dem maskierten Text ein richtiges XML-Dokument wird.

```
&lt;result src=&quot;http://ec.europa.eu/euraxess&quot; subject=
Fixed-term of two years with possibility of renewal pending sati
probationary period of half a year, which can be extended up to
201E;Marie-Curie Actions - Industry-Academia Partnerships and P.
The project is called: GREEN ROOF SYSTEMS - Collaborative resear
&amp;#xd;
The Graduate School of Excellence &apos;&apos;JSMC&apos;&apos; i
&amp;#xd;
4 PhD Student Fellowships&amp;#xd;
&amp;#xd;
&lt;/jobSummary&gt;&lt;country id=&quot;1359&quot;&gt;Germany&lt
&amp;#xd;
JSMC invites applications for a&amp;#xd;
PhD Fellowship (Ref.No. JSMC-20/2009) on the topic&amp;#xd;
&amp;#xd;
Interaction between aerobic fungi and anaerobic bacteria: Role o
ether-utilizing anaerobes in the synergistic process of lignin d
&amp;#xd;
Phenyl methyl ethers (PME) are degradation products of lignin. T.
&lt;/jobSummary&gt;&lt;country id=&quot;1359&quot;&gt;Germany&lt
&amp;#xd;
JSMC invites applications for a&amp;#xd;
PhD Fellowship (Ref.No. JSMC-23/2009) on the topic&amp;#xd;
&amp;#xd;
PI3Ky as a mediator of septic encephalopathy&amp;#xd;
&amp;#xd;
This project aims to elucidate the contribution of the signaling
&lt;/jobSummary&gt;&lt;country id=&quot;1359&quot;&gt;Germany&lt
&amp;#xd;
JSMC invites applications for a&amp;#xd;
```

Die maskierten Zeichen werden mit ***dbms_xmlgen.convert*** in richtige „<“, „>“ etc. umgewandelt. Rückgabe als XMLType:

```
-----  
-- "&gt;" und "&lt;" in "<" und ">" zurueckverwandeln:  
-----  
l_soap_content_string :=  
  dbms_xmlgen.convert (  
    xmlData => l_soap_content_string,  
    flag    => dbms_xmlgen.ENTITY_DECODE -- (0=encode, 1=decode)  
  );  
  
-----  
-- Das Ergebnis in einen XMLType umwandeln und zurueckgeben:  
-----  
RETURN XMLType.createXML(l_soap_content_string);
```

Als Ergebnis unserer Soap-Function haben wir dieses XML-Dokument erhalten:

```
<result src="http://ec.europa.eu/euraxess" subject="Job Vacancies">
  <status value="OK" />
  <parameters>
    <parameter name="country" value="GERMANY" />
    <parameter name="researchField" value="" />
    <parameter name="organisation" value="" />
    <parameter name="onlyMarieCurie" value="false" />
    <parameter name="orderByField" value="postdate desc" />
    <parameter name="offset" value="1" />
    <parameter name="limit" value="10" />
  </parameters>
  <items limit="10" offset="1" totalCount="36">
    <item id="30830495">
      <postDate>2009-09-24 12:06:48.0</postDate>
      <applicationDeadline>15/12/2009</applicationDeadline>
      <jobStartingDate>
      </jobStartingDate>
      <marieCurie>FP7/People - Marie Curie Actions</marieCurie>
      <jobTitle>Experienced Scientific Officer</jobTitle>
      <jobSummary>Green Roof Research: Fixed-term of two years
      <country id="1359">Germany</country>
      <organisation id="30824330">Zinco GmbH</organisation>
      <researchField id="587">Environmental Science</researchF
    </item>
    <item id="30781080">
      <postDate>2009-09-23 15:41:30.0</postDate>
      <applicationDeadline>15/10/2009</applicationDeadline>
```

```
l_xml_response := soap_call_getJVInfo (
  i_country          => p_country,
  i_researchField   => p_researchField,
  i_onlyMarieCurie => p_onlyMarieCurie,
  i_offset           => (p_result_page-1)
                    * l_page_size,
  i_limit            => l_page_size
);
```

Das Function-Ergebnis wird mit einem FOR ... LOOP gelesen, um je LOOP einen Treffer des Suchergebnisses auszugeben

```
FOR rec IN (
  SELECT extractvalue(column_value, '/item/@id') as id,
         extractvalue(column_value, '/item/postDate') as postdate,
         extractvalue(column_value, '/item/applicationDeadline') as applicationDeadline,
         extractvalue(column_value, '/item/jobStartingDate') as jobStartingDate,
         extractvalue(column_value, '/item/jobTitle') as jobTitle,
         extractvalue(column_value, '/item/marieCurie') as marieCurie,
         extractvalue(column_value, '/item/jobSummary') as jobSummary
  FROM TABLE( XMLSequence(l_xml_response.extract( '/result/items/item' )))
)
LOOP
```



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Job-Angebote

Land:

Fachgebiet:

Nur Marie Curie

5 Angebote gefunden:

1. Predoc position in solid-state chemistry in the Max-Planck Institute in Stuttgart and the University of Liverpool

This position is supported by the ITN (Initial Training Network) SOPRANO Spin and Orbital Physics: Research of Advanced Nex Oxides. Candidates (EU citizens not from UK or Germany) are sought for a 36 month Ph.D position combining solid state measurement physics (MPI Stuttgart: 24 months) with new oxide materials chemistry (University of Liverpool: 12 months) within the SOPRANO FP7 ITN. The position will suit candidates with a physics, chemistry or materials science background and is in the topical area of spin and orbital ordering in condensed matter systems, offering access to unrivalled synthetic and measurement capability. Eligibility condition: maximum 4 years of research experience from the date of the Master Degree or equivalent to the time of appointment. See details on <http://www.icmcb.u-bordeaux1.fr/soprano>

Bewerbung bis: 30.09.2009

2. PostDoc position in computational drug design

EU-funded research project "Carbohydrate multivalent systems as tools to study pathogen interaction with DC-SIGN (CARMUSYS)". A multidisciplinary project of 12 European research organizations in a mixed academic and commercial environment

Start: 01.10.2009 **Bewerbung bis:** 30.09.2009

3. Experienced researcher - Effect-directed analysis in aquatic ecosystems

Her/His major task would be to contribute to effect-directed analysis of surface waters, effluents and sediments. Expertise in GC/MS, LC/MS and passive sampling techniques is appreciated.

Bewerbung bis: 31.01.2010



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Web Content Management

webag automat ist unser Web Content Management System. Es organisiert die gemeinschaftliche Erstellung und Bearbeitung von Webseiten und Dokumenten für Websites und Intranets.

Das System wird zentral auf einem Server installiert. Voraussetzung ist ein Windows-, Linux- oder Unix-Server mit Oracle-Datenbank. Die Benutzer benötigen für ihre Aufgaben lediglich einen Webbrowser.

Aktuelles

LOG mbh

Die LOG Logistik-Systembetreuungs-Gesellschaft mbH setzt den webag automat für die Pflege und den Betrieb ihrer neu gestalteten Website ein.

www.logmbh.de

Hitachi High-Technologies Europe

Die Hitachi Hightech-Sparte erneuert seine Website mit unserem WebCMS:

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