DIP
Data, Information and Process Integration with Semantic Web Services
FP6 – 507483

Deliverable

WP4: Service Usage
D4.20
DIP Orchestration prototype

Thomas Haselwanter
Sami Bhiri
Amit Goyal

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**Executive Summary**

This deliverable documents the release of the WSMX orchestration component. The document displays the scope of this component and describes roughly its functionality. It explains how to run the provided demonstration illustrating the functionality of the orchestration component prototype. Finally, it details how to install and use it with respect to the DIP/WSMX architecture.

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**Abstract (for dissemination)**

This deliverable documents the orchestration component release. It displays the component scope and roughly describes its functionality. The document explains how to run the provided demonstration of the prototype. It details how to install and use this component in the scope of the DIP/WSMX architecture.

**Keywords**

WSMO, WSMO service orchestration, ontologized abstract state machine
### Project Consortium Information

<table>
<thead>
<tr>
<th>Partner</th>
<th>Acronym</th>
<th>Contact</th>
</tr>
</thead>
</table>
| National University of Galway                | NUIG    | Prof. Dr. Christoph Bussler  
Digital Enterprise Research Institute (DERI)  
National University of Ireland, Galway  
Galway  
Ireland  
E-mail: chris.bussler@deri.ie  
Tel: +353 91 512460 |
| Fundacion De La Innovacion. Bankinter        | Bankinter | Monica Martinez Montes  
Fundacion de la Innovation. BankInter,  
Paseo Castellana, 29  
28046 Madrid,  
Spain  
Email: mmtnez@bankinter.es  
Tel: 916234238 |
| Berlecon Research GmbH                        | Berelcon | Dr. Thorsten Wichmann  
Berlecon Research GmbH,  
Oranienburger Str. 32,  
10117 Berlin, Germany  
E-mail: tw@berlecon.de  
Tel: +49 30 2852960 |
| British Telecommunications Plc.              | BT      | Dr. John Davies  
BT Exact (Orion Floor 5 pp12)  
Adastral Park Martlesham  
Ipswich IP5 3RE,  
United Kingdom  
Email: john.nj.davies@bt.com  
Tel: +44 1473 609583 |
| Swiss Federal Institute of Technology, Lausanne | EPFL    | Prof. Karl Aberer  
Distributed Information Systems Laboratory  
École Polytechnique Fédérale de Lausanne  
Bât. PSE-A  
1015 Lausanne, Switzerland  
E-mail: Karl.Aberer@epfl.ch  
Tel: +41 21 693 4679 |
| Essex County Council                          | Essex   | Mary Rowlett,  
Essex County Council,  
PO Box 11, County Hall, Duke Street,  
Chelmsford, Essex, CM1 1LX,  
United Kingdom.  
E-mail: maryr@essexcc.gov.uk  
Tel: +44 (0)1245 436524 |
| Forschungszentrum Informatik                  | FZI     | Andreas Abecker  
Forschungszentrum Informatik  
Haid-und-Neu Strasse 10-14  
76131 Karlsruhe  
Germany  
E-mail: abecker@fzi.de  
Tel: +49 721 96540 |
<table>
<thead>
<tr>
<th>Institut für Informatik, Leopold-Franzens Universität Innsbruck</th>
<th>UIBK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Dieter Fensel</td>
<td>Institute of computer science University of Innsbruck Technikerstr. 25 A-6020 Innsbruck, Austria Email: <a href="mailto:dieter.fensel@deri.org">dieter.fensel@deri.org</a> Tel: +43 512 5076485</td>
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<th>ILOG SA</th>
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<tbody>
<tr>
<td>Christian de Sainte Marie, ILOG 9 Rue de Verdon, 94253, Gentilly, France Email: <a href="mailto:csma@ilog.fr">csma@ilog.fr</a> Tel: +33 1 49082981</td>
<td></td>
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<th>inubit AG</th>
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<tbody>
<tr>
<td>Torsten Schmale, inubit AG, Lützowstraße 105-106 D-10785 Berlin, Germany Email: <a href="mailto:ts@inubit.com">ts@inubit.com</a> Tel: +49 30726112 0</td>
<td></td>
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<tr>
<th>Intelligent Software Components, S.A.</th>
<th>iSOCO</th>
</tr>
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<tr>
<td>Dr. V. Richard Benjamins, Director R&amp;D Intelligent Software Components, S.A. Pedro de Valdivia 10 28006 Madrid, Spain Email: <a href="mailto:rbenjamins@isoco.com">rbenjamins@isoco.com</a> Tel. +34 913 349 797</td>
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<th>The Open University</th>
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<tbody>
<tr>
<td>Dr. John Domingue Knowledge Media Institute, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK Email: <a href="mailto:j.b.domingue@open.ac.uk">j.b.domingue@open.ac.uk</a> Tel.: +44 1908 655014</td>
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<th>SAP AG</th>
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<tbody>
<tr>
<td>Dr. Elmar Dorner SAP Research, CEC Karlsruhe SAP AG Vincenz-Priessnitz-Str. 1 76131 Karlsruhe, Germany Email: <a href="mailto:elmar.dorner@sap.com">elmar.dorner@sap.com</a> Tel: +49 721 6902 31</td>
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<tr>
<th>Sirma AI Ltd.</th>
<th>Sirma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atanas Kiryakov, Ontotext Lab, - Sirma AI EAD, Office Express IT Centre, 3rd Floor 135 Tzarigradsko Chausse, Sofia 1784, Bulgaria Email: <a href="mailto:atanas.kiryakov@sirma.bg">atanas.kiryakov@sirma.bg</a> Tel.: +359 2 9768 303</td>
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<tr>
<th>Tiscali Österreich GmbH</th>
<th>Tiscali</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Dieter Haacker Tiscali Österreich GmbH. Diefenbachgasse 35, A-1150 Vienna, Austria Email: <a href="mailto:Dieter.Haacker@at.tiscali.com">Dieter.Haacker@at.tiscali.com</a> Tel: +43 1 899 33 160</td>
<td></td>
</tr>
</tbody>
</table>
| Unicorn Solution Ltd. | ![Unicorn Logo] | Jeff Eisenberg  
Unicorn Solutions Ltd,  
Malcha Technology Park 1  
Jerusalem 96951, Israel  
E-mail: Jeff.Eisenberg@unicorn.com  
Tel.: +972 2 6491111 |
|---------------------|----------------|-----------------------------------------------|
| Vrije Universiteit Brussel | ![VUB Logo] | Carlo Wouters,  
Starlab- VUB  
Vrije Universiteit Brussel  
Pleinlaan 2, G-10  
1050 Brussel, Belgium  
E-mail: carlo.wouters@vub.ac.be  
Tel.: +32 (0) 2 629 3719 |
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1 Documentation of the orchestration component release

In the following we describe the scope of the orchestration component and depict roughly its functionality. Then we detail how to run the demonstration that illustrates its practicality. Finally, we explain how to install and use it in the scope of the DIP/WSMX architecture.

1.1 Purpose and functionality

The scope of the WSMX orchestration component is to execute orchestration interfaces of composite services. From a conceptual point of view, a service orchestration describes how its functionality is implemented by orchestrating other services functionalities. In WSMO/WSMX context, a service orchestration interface is implemented as an Ontologized Abstract State Machine (OASM).

This component registers first a service orchestration interface after parsing its wsml file description. Then, given an input message, it navigates through the OASM invoking when indicated/necessary the component services functionalities.

1.2 Functionality demonstration

This component is intended to be run on the WSMX platform (see section 1.3 for installation). However, for illustration purpose all necessary libraries are included in the binary distribution.

We demonstrate the functionality of the prototype through an e-banking use case scenario (see the compressed document "Demonstration of the component functionalities"). The demonstration shows how the orchestration component registers the orchestration interface from the service description after parsing its wsml file description. It illustrates also the states change of the OASM (after eventually invoking other services functionalities). An illustrative movie demonstrates the main functionalities of this component. To play the movie; start the html file "demo".

To run manually the demo, you should: 1. launch the orchestration component, 2. register the Web service orchestration interface, 3. invoke the service orchestration and 4. eventually review the OASM states change. In the following we detail how to realize each of these steps.

1. To launch the orchestration component; run the batch file wsmx_ebanking\start, then point your browser to http://localhost:8080, choose the Server view tab from where choose the RadexOrchestration component. The component view tab displays 3 operations:

   • registerOrchestration: this operation allows to register the service orchestration given the wsml service description file (to paste it in the corresponding text box)
   • getMachineHistory: this operation allows to review the OASM states change.
   • updateState: this operation allows to invoke the registered orchestration interface. It requires, as a parameter, the sent message (to paste it in the corresponding text boxes)
2. To register a web service orchestration interface, invoke the registerOrchestration operation by providing the wsml description file. The wsml file describing the web service WSExecuteIfValueRises is provided under wsmx\ebanking\resources\resourcemanager\webservices.

3. To execute the orchestration interface, invoke the updatestate operation by providing the message to be sent. A message to send to the WSExecuteIfValueRises service is provided under wsmx\ebanking\resources\resourcemanager\webservices.

4. To review the states change of the orchestration OASM, invoke the gethistory operation.

1.3 Installation and usage

The licensing model of this component is LGPL. This component conforms with the DIP/WSMX Architecture and is intended to run on the WSMX platform. In order to execute it the following steps are necessary:

- Download a WSMX binary distribution from sourceforge or get the latest nightly build from http://www.wsmx.org/downloads.html

- Optional step: Start up a JavaSpaces compliant space implementation such as Outrigger or Blitz. If WSMX does not find a space during boot time it will substitute a virtual space that works as long as components only have local communication requirements.

- The microkernel within the executable wsmx.core can be run from the command line given that sufficient privileges are granted:

  java -Djava.security.policy=/path/to/policy -jar wsmx.core

  A sample policy file (policy.all) which grants unrestricted access is supplied with the release.

- To deploy the orchestration component, copy the packaged component archive to the systemcodebase. WSMX will discover it automatically and inject it into the running instance.

You may monitor and administer the orchestration component through either the GUI-based web console, the TUI-based SSH console, or the eclipse-base WSMT. Point your browser to http://localhost:port, where port is the port number which has been defined in the kernel configuration and is 8080 by default, if undefined and fallback for invalid ports. Point your SSH client to localhost and login with user root at the port defined in the configuration.

Even while it may be driven manually in this way, it is best utilized when driven by an execution semantic that executes the component in concert with other components. Execution semantics may be executed through the consoles as well.