Oracle SOA
Hands-On-Workshop

Arne Brüning - Bernhard Fischer-Wasels
Leitende Systemberater
The succeeding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle’s products remains at the sole discretion of Oracle.
Agenda

- Überblick Workshop Inhalte
- Installation SOA Suite 11g
- Tutorial “echo”
- Tutorial “PO Processing”
Oracle Fusion Middleware

- Applications
- Middleware
- Database
- Infrastructure

Development Tools

- User Interaction
- Enterprise Performance Management
- Business Intelligence
- Content Management
- SOA & Process Management
- Application Grid

Enterprise Management

Identity Management
Oracle Fusion Middleware
Comprehensive, Integrated, Hot Pluggable, Apps Alignment
SCA ➔ SOA Composite Editor im JDeveloper
Agenda

- Überblick Workshop Inhalte
- Installation SOA Suite 11g
- Tutorial “echo”
- Tutorial “PO Processing”
Installation instructions for JDeveloper and SOA 11g on Windows

Pre-requisites before you begin installation... 2
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B Check your browser ..................................... 3
C Check your JDK ........................................... 3
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D Install WebLogic server ............................... 3
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Agenda

• Überblick Workshop Inhalte
• Installation SOA Suite 11g
• Tutorial “echo”
• Tutorial “PO Processing”
“Echo“ Tutorial
Agenda

- Überblick Workshop Inhalte
- Installation SOA Suite 11g
- Tutorial “echo”
- Tutorial “PO Processing”
1. Setup

2. Credit Card Status

- Small orders (defined as those under $1,000) are to be automatically approved. Large orders (those greater than or equal to $1,000) go through a validation and approval process. The customer’s credit card must be validated.
  If the order is $5,000 or more, a customer service representative must manually approve the order. Approved orders shall have the status "approved."
- Large orders with an invalid credit card shall have the status "invalidCreditCard."
- Large orders rejected by the customer service representative shall have the status "rejected."

Back-end processing of a new order. All orders will be written to a text file for later reference.

• All approved orders are sent to the fulfillment service which uses the order value to determine the fulfillment vendor:
  <1000 goes to USPS,
  >= 1000 and < 5000 goes to UPS,
  > 5000 goes to FedEx.
SOA 11g LABS – overview: core

D:\SOAWS\Student\Labs\SOA11gFoundationTutorial\doc

- e2e-105-POProcessing-01-Setup
- e2e-105-POProcessing-02-DBAdapter
- e2e-105-POProcessing-03-FileAdapter
- e2e-105-POProcessing-04-BPEL
- e2e-105-POProcessing-05-HW
- e2e-105-POProcessing-06-update
- e2e-105-POProcessing-07-Rules
- e2e-105-POProcessing-08-DT
- e2e-105-POProcessing-09-JMSAdapter
- e2e-105-POProcessing-A-Deploy
SOA 11g LABS – overview: extras

D:\SOAWS\Student\Labs\SOA11gFoundationTutorial\doc

- e2e-105-POProcessing-B-Lifecycle
- e2e-105-POProcessing-C-UnitTest
- e2e-105-POProcessing-D-FaultHandling
- e2e-105-POProcessing-E-OWSM
- e2e-105-POProcessing-F-EDN
- e2e-105-POProcessing-G-SDO
- e2e-105-POProcessing-H-BAM
- e2e-105-POProcessing-I-B2B
Agenda

• Überblick Workshop Inhalte
• Installation SOA Suite 11g
• Tutorial “echo”
• Tutorial “PO Processing”

Bitte anfangen - oder: fortfahren !!! 😊 😊 😊
<?xml version="1.0" encoding="UTF-8"?><ns1:order xmlns:ns1="http://">
    <ns1:customerId>1111</ns1:customerId>
    <ns1:orderId>2222</ns1:orderId>
    <ns1:prodName>iPod shuffle</ns1:prodName>
    <ns1:itemType>Electronics</ns1:itemType>
    <ns1:price>145</ns1:price>
    <ns1:qty>30</ns1:qty>
    <ns1:status>approved</ns1:status>
    <ns1:creditCardInfo>
        <ns1:cardNumber>1234-1234-1234-1234</ns1:cardNumber>
        <ns1:cardType>Mastercard</ns1:cardType>
    </ns1:creditCardInfo>
</ns1:Order>

<?xml version="1.0" encoding="UTF-8"?><ns1:order xmlns:ns1="http://">
    <ns1:customerId>1111</ns1:customerId>
    <ns1:orderId>2222</ns1:orderId>
    <ns1:prodName>iPod shuffle</ns1:prodName>
    <ns1:itemType>Electronics</ns1:itemType>
    <ns1:price>145</ns1:price>
    <ns1:qty>30</ns1:qty>
    <ns1:status>invalidCreditCard</ns1:status>
    <ns1:creditCardInfo>
        <ns1:cardNumber>4321-4321-4321-4321</ns1:cardNumber>
        <ns1:cardType>Mastercard</ns1:cardType>
    </ns1:creditCardInfo>
</ns1:Order>
Flow Trace

This page shows the flow of the message through various composite and component instances.

Faults (0)

Faults
Select a fault to locate it in the trace view.

Error Message
No faults found

Sensors (0)

Trace
Click a component instance to see its detailed audit trail.

Show Instance IDs

Instance | Type | State | Time | Composite Instance
--- | --- | --- | --- | ---
receivePO | Service | Completed | May 25, 2009 3:56:30 PM | POProcessing of 7
routePO | Mediator Component | Completed | May 25, 2009 3:56:30 PM | POProcessing of 7
WriteApprovalResults | Reference | Completed | May 25, 2009 3:56:30 PM | POProcessing of 7
approveLargeOrder | BPEL Component | Completed | May 25, 2009 3:56:30 PM | POProcessing of 7
getCreditcardStatus | Reference | Completed | May 25, 2009 3:56:30 PM | POProcessing of 7
getStatusByCC | Service | Completed | May 25, 2009 3:56:30 PM | validationForCC of 8
RouteRequest | Mediator Component | Completed | May 25, 2009 3:56:30 PM | validationForCC of 8
getCreditValidation | Reference | Completed | May 25, 2009 3:56:30 PM | validationForCC of 8

Done
generated
Flow Trace
This page shows the flow of the message through various composite and component instances.

Faults (0)
Faults
Select a fault to locate it in the trace view.

```
<table>
<thead>
<tr>
<th>Error Message</th>
<th>Recovery</th>
<th>Fault Time</th>
<th>Fault Location</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>No faults found</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Sensors (0)

Trace
Click a component instance to see its detailed audit trail.

```
<table>
<thead>
<tr>
<th>Instance</th>
<th>Type</th>
<th>State</th>
<th>Time</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>receivePO</td>
<td>Service</td>
<td>Completed</td>
<td>May 26, 2009 3:42:46 PM</td>
<td>POProcessing of 10003</td>
</tr>
<tr>
<td>routePO</td>
<td>Mediator Component</td>
<td>Running</td>
<td>May 26, 2009 3:42:46 PM</td>
<td>POProcessing of 10003</td>
</tr>
<tr>
<td>approveLargeOrder</td>
<td>BPEL Component</td>
<td>Running</td>
<td>May 26, 2009 3:43:09 PM</td>
<td>POProcessing of 10003</td>
</tr>
<tr>
<td>getCreditcardStatus</td>
<td>Reference</td>
<td>Completed</td>
<td>May 26, 2009 3:42:47 PM</td>
<td>POProcessing of 10003</td>
</tr>
<tr>
<td>getStatusByCC</td>
<td>Service</td>
<td>Completed</td>
<td>May 26, 2009 3:42:47 PM</td>
<td>validationForCC of 10004</td>
</tr>
<tr>
<td>RouteRequest</td>
<td>Mediator Component</td>
<td>Completed</td>
<td>May 26, 2009 3:42:48 PM</td>
<td>validationForCC of 10004</td>
</tr>
<tr>
<td>getCreditValidation</td>
<td>Reference</td>
<td>Completed</td>
<td>May 26, 2009 3:42:48 PM</td>
<td>validationForCC of 10004</td>
</tr>
</tbody>
</table>
```
ORACLE BPM-Arbeitsliste

<table>
<thead>
<tr>
<th>Aktoren</th>
<th>Beauftragte</th>
<th>Meine und Gruppe</th>
<th>Status</th>
<th>zugewiesen</th>
<th>Suche</th>
<th>Erweitert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approve order</td>
<td>200000</td>
<td>3</td>
<td>Beauftragte</td>
<td>zugewiesen</td>
<td>26.05.2009 15:42</td>
<td></td>
</tr>
</tbody>
</table>

**Details**

- **Inhalt**
  - **Customer Id**: 1111
  - **Order Id**: 2222
  - **Prod Name**: Pod shuffle
  - **Item Type**: Electronics
  - **Price**: 145
  - **Qty**: 30
  - **Status**: Initial

- **Order - Credit Card Info**
  - **Card Number**: 1234-1234-1234-1234
  - **Card Type**: Mastercard

**Task-Aktionen**

- [Gesondern](#)
- [Abnehmen](#)
Genehmigt: verschwindet aus Task-Liste
Flow Trace
This page shows the flow of the message through various composite and component instances.

Facts (0)

Facts
Select a fact to locate it in the trace view.

<table>
<thead>
<tr>
<th>Error Message</th>
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<th>Fault Location</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>No faults found</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sensors (0)

Trace
Click a component instance to see its detailed audit trail.

Show Instance IDs

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<tr>
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<th>Type</th>
<th>State</th>
<th>Time</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>receivePO</td>
<td>Service</td>
<td>✓ Completed</td>
<td>May 26, 2009 3:42:46 PM</td>
<td>POProcessing of 10003</td>
</tr>
<tr>
<td>routePO</td>
<td>Mediator Component</td>
<td>✓ Completed</td>
<td>May 26, 2009 4:06:55 PM</td>
<td>POPprocessing of 10003</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>✓ Completed</td>
<td>May 26, 2009 4:06:55 PM</td>
<td>POPprocessing of 10003</td>
</tr>
<tr>
<td>approveLargeOrder</td>
<td>BPEL Component</td>
<td>✓ Completed</td>
<td>May 26, 2009 4:06:55 PM</td>
<td>POPprocessing of 10003</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>✓ Completed</td>
<td>May 26, 2009 3:42:47 PM</td>
<td>POPprocessing of 10003</td>
</tr>
<tr>
<td>getCreditchardStatus</td>
<td>Service</td>
<td>✓ Completed</td>
<td>May 26, 2009 3:42:47 PM</td>
<td>validationForCC of 10004</td>
</tr>
<tr>
<td>getStatusByCC</td>
<td>Reference</td>
<td>✓ Completed</td>
<td>May 26, 2009 3:42:48 PM</td>
<td>validationForCC of 10004</td>
</tr>
<tr>
<td>RouteRequest</td>
<td>Mediator Component</td>
<td>✓ Completed</td>
<td>May 26, 2009 3:42:48 PM</td>
<td>validationForCC of 10004</td>
</tr>
<tr>
<td>getCreditValidation</td>
<td>Reference</td>
<td>✓ Completed</td>
<td>May 26, 2009 3:42:48 PM</td>
<td>validationForCC of 10004</td>
</tr>
<tr>
<td>ManualPOApproval</td>
<td>Human Workflow Component</td>
<td>✓ Completed</td>
<td>May 26, 2009 4:06:54 PM</td>
<td>POPprocessing of 10003</td>
</tr>
</tbody>
</table>
Business Rule

A business rule defines or constrains one aspect of your business that is intended to assert business structure or influence the behavior of your business.

Create Dictionary

Specify the name and package for the dictionary that will be created.
Name: [Input Field]
Package: [Input Field]
Project: [Input Field]

Inputs/Outputs:

<table>
<thead>
<tr>
<th>Direction</th>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>price</td>
<td>{<a href="http://www.globalcompany.com/...%7D">http://www.globalcompany.com/...}</a></td>
</tr>
<tr>
<td>Output</td>
<td>discountandshipping</td>
<td>{<a href="http://www.globalcompany.com/...%7D">http://www.globalcompany.com/...}</a></td>
</tr>
</tbody>
</table>

Expose as Composite Service

Help  OK  Cancel
• Small orders (defined as those under $1,000) are to be automatically approved. Large orders (those greater than or equal to $1,000) go through a validation and approval process. The customer’s credit card must be validated.
  
  If the order is $5,000 or more, a customer service representative must manually approve the order. Approved orders shall have the status "approved."

• Large orders with an invalid credit card shall have the status "invalidCreditCard."

• Large orders rejected by the customer service representative shall have the status "rejected."
### JMS Destination Details

A JMS destination identifies a queue (Point-To-Point) or a topic (Pub/Sub) that are targeted to a JMS server.

This page summarizes the active JMS destinations that have been created for this JMS module.

#### Destinations (Filtered - More Columns Exist)

<table>
<thead>
<tr>
<th>Name</th>
<th>Messages Current</th>
<th>Messages Pending</th>
<th>Messages Total</th>
<th>Consumers Current</th>
<th>Consumers High</th>
<th>Consumers Total</th>
<th>Consumers High</th>
<th>Messages High</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOA-JMSModule-demoFulfillmentQueue</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

### JMS Messages (Filtered - More Columns Exist)

<table>
<thead>
<tr>
<th>ID</th>
<th>CorId</th>
<th>Time Stamp</th>
<th>State String</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ID:&lt;710637.1243423726328.0&gt;</td>
<td>Wed May 27 13:28:46 CEST 2009</td>
<td>visible</td>
</tr>
<tr>
<td></td>
<td>ID:&lt;710637.1243423750921.0&gt;</td>
<td>Wed May 27 13:29:10 CEST 2009</td>
<td>visible</td>
</tr>
</tbody>
</table>
## Flow Trace
This page shows the flow of the message through various composite and component instances.

### Faults (0)
Faults
Select a fault to locate it in the trace view.

<table>
<thead>
<tr>
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<th>Recovery</th>
<th>Fault Time</th>
<th>Fault Location</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>No faults found</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sensors (0)

## Trace
Click a component instance to see its detailed audit trail.

<table>
<thead>
<tr>
<th>Instance</th>
<th>Type</th>
<th>State</th>
<th>Time</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>receivePO</td>
<td>Service</td>
<td>Completed</td>
<td>May 27, 2009 1:29:28 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>routePO</td>
<td>Mediator Component</td>
<td>Running</td>
<td>May 27, 2009 1:29:28 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>approveLargeOrder</td>
<td>BPEL Component</td>
<td>Running</td>
<td>May 27, 2009 1:29:46 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>getCreditCardStatus</td>
<td>Reference</td>
<td>Completed</td>
<td>May 27, 2009 1:29:28 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>getStatusByCC</td>
<td>Service</td>
<td>Completed</td>
<td>May 27, 2009 1:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>RouteRequest</td>
<td>Mediator Component</td>
<td>Completed</td>
<td>May 27, 2009 1:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>getCreditValidation</td>
<td>Reference</td>
<td>Completed</td>
<td>May 27, 2009 1:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>ManualApproval</td>
<td>Decision Service Component</td>
<td>Completed</td>
<td>May 27, 2009 1:29:29 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>ManualPOApproval</td>
<td>Human Workflow Component</td>
<td>Running</td>
<td>May 27, 2009 1:29:42 PM</td>
<td>POProcessing of 20004</td>
</tr>
</tbody>
</table>
Approve Order

Contents

Customer Id: 1111
Order Id: 1212
Prod Name: HD TV
Item Type: Electronics
Price: 2250
Qty: 10
Status: Initial

Order - Credit Card Info
Card Number: 1234-1234-1234-1234
Card Type: Mastercard

History

<table>
<thead>
<tr>
<th>Participant</th>
<th>Action</th>
<th>Updated By</th>
<th>Action Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>weblogic</td>
<td>Assigned</td>
<td>workflowsystem</td>
<td>27.05.2009 13:29</td>
</tr>
</tbody>
</table>
Flow Trace
This page shows the flow of the message through various composite and component instances.

Faults (0)
Faults
Select a fault to locate it in the trace view.

No faults found

Sensors (0)

Trace
Click a component instance to see its detailed audit trail.

<table>
<thead>
<tr>
<th>Instance</th>
<th>Type</th>
<th>State</th>
<th>Time</th>
<th>Composite Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>receivePO</td>
<td>Service</td>
<td>✔</td>
<td>May 27, 2009 1:29:28 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>routePO</td>
<td>Mediator Component</td>
<td>✔</td>
<td>May 27, 2009 2:21:10 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>WriteApprovalResults</td>
<td>Reference</td>
<td>✔</td>
<td>May 27, 2009 2:21:10 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>approveLargeOrder</td>
<td>BPEL Component</td>
<td>✔</td>
<td>May 27, 2009 2:21:10 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>getCreditCardStatus</td>
<td>Reference</td>
<td>✔</td>
<td>May 27, 2009 2:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>getStatusByCC</td>
<td>Service</td>
<td>✔</td>
<td>May 27, 2009 2:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>RouteRequest</td>
<td>Mediator Component</td>
<td>✔</td>
<td>May 27, 2009 2:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>getCreditValidation</td>
<td>Reference</td>
<td>✔</td>
<td>May 27, 2009 2:29:29 PM</td>
<td>validationForCC of 20005</td>
</tr>
<tr>
<td>ManualApproval</td>
<td>Decision Service Component</td>
<td>✔</td>
<td>May 27, 2009 2:29:29 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>fulfillmentProcess</td>
<td>BPEL Component</td>
<td>✔</td>
<td>May 27, 2009 2:21:11 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>fulfillmentRules</td>
<td>Decision Service Component</td>
<td>✔</td>
<td>May 27, 2009 2:21:11 PM</td>
<td>POProcessing of 20004</td>
</tr>
<tr>
<td>JMS_FedEx</td>
<td>Reference</td>
<td>✔</td>
<td>May 27, 2009 2:21:11 PM</td>
<td>POProcessing of 20004</td>
</tr>
</tbody>
</table>
Kleine Order – automatisch approved und infos an UPS weitergeleitet
Instances of this SOA composite are listed below. There may be more instances in the database than shown in this page. Also when composite audit tracking is disabled, component instances may be created within the composite without its own instances. Click Delete with Options to purge the instances from the database.

Search

- Instance ID
- Name
- Conversation ID
- Start Time From (UTC+01:00) Berlin
- Start Time To (UTC+01:00) Berlin

Show

Any

View

- Delete Selected...
- Delete With Options...
- Abort...

<table>
<thead>
<tr>
<th>Instance ID</th>
<th>Name</th>
<th>Conversation ID</th>
<th>State</th>
<th>Start Time</th>
<th>Logs</th>
</tr>
</thead>
<tbody>
<tr>
<td>200057</td>
<td></td>
<td>?</td>
<td></td>
<td>May 27, 2009 3:49:27 PM</td>
<td></td>
</tr>
<tr>
<td>200066</td>
<td></td>
<td>?</td>
<td></td>
<td>May 27, 2009 3:48:23 PM</td>
<td></td>
</tr>
</tbody>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Sensors (0)

Trace

Click a component instance to see its detailed audit trail.

Show Instance IDs

<table>
<thead>
<tr>
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<th>State</th>
<th>Time</th>
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Done
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