Session 606: Workflow integration with non-SAP workflow applications

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In this presentation we will....

- List the options available when integrating SAP Business Workflow with non-SAP tasks and non-SAP systems
- Explain real world scenarios where some of the options have been implemented
- Discuss the future of workflow integration
Topics

• Integration options
  • Create workflow tasks for external service calls and BSP’s
  • Universal Worklist launch handlers
  • SAP NetWeaver Exchange Infrastructure Business Process Management
  • Wf-XML and Web Services

• Real world examples
  • Accessing Web Services
  • Integration with Lotus Notes
  • Extended notifications for Outlook integration

• Future
  • Universal Worklist API to access non-SAP tasks
  • Guided Procedures
Topics

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Evolution of workflow tools

- 1995
- Business Workflow
- Universal Worklist
- EP 5.0
- 2003
- BPM
- Collaboration Tasks
- SAP NetWeaver ‘04
- + Guided Procedures
- 2004s
Integration Options

- Web activity step (Wf-XML, SOAP)
- WF_EXTSRV to import ABAP services such as BSP
- WFWS to import WSDL (WSDL 1.1, only simple schema types, only http bindings)
- Web service via XI proxy
- UWL launch handlers
- UWL API
- Lotus/Outlook Integration

ABAP Dialog or Background

Service call via Exchange Infrastructure

WebDynpro

Wf-XML

SOAP
Import ABAP Services

- Transaction: WF_EXTSRV
- Generate your service
  ➔ SAP will guide you through the next steps via a Wizard
### Generated Task

<table>
<thead>
<tr>
<th>Standard Task</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Display Decision</td>
</tr>
<tr>
<td>Package</td>
<td>Display Decision</td>
</tr>
<tr>
<td>Work Item TXT</td>
<td>Display Vacation Request &amp; WORKITEM_ID &amp; status &amp; STATUS</td>
</tr>
<tr>
<td>Release status</td>
<td>Not defined</td>
</tr>
</tbody>
</table>

**Business Object Type**

**WEBSERVICE**

**Method**

**PROCESSDIALOG**
Required Configuration

- **WF_HANDCUST** to configure workflow URLs.
- **WFWS** to import external WSDL.
- **WF_EXTSRV** for BSP’s and ABAP services.
- **Generate** tasks.
- **Extend** service itself to do callback to **WF_HANDCUST** URL.

**Hint!**

Example BSP: **SWXTRAREQ**
Example Workflow: **WS66700042**
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Universal Worklist Features

- Unified and centralized access to their work.
- Aggregate task items from multiple providers into one list.
  - SAP Business Workflow
  - Collaboration Tasks
  - Alert Management System
  - Knowledge Management Notifications
  - Guided Procedure Actions
  - Current pilot to include external tasks in UWL
- Custom worklists enable specific views for specific tasks
- Enables user personalization
- Applications can bypass having to implement their own inbox
Parameterized launching for

- BSP
- iView
- URL
- Web Dynpro
- Object navigation
- SAP GUI (for HTML)

**Note:**

- Enables you to add new UI's for legacy SAP task (use Web Dynpro to launch existing task in a 4.6C system).
- Currently piloting API to enable external tasks to appear in UWL
XML Example

```xml
<Action name="launchWebDynProABAP" handler="SAPWebDynproABAPLauncher"/>
```
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XI Integration Process

Unbounded Process
Integration Process
Embedded Process

System A
Application Process

System B
Application Process

Embedded Process

Process Bridge

Interfaces for
Data Integration
Process Integration
Process Communication
Integration Process Definition in XI
Generated Workflow

- SAP NetWeaver Exchange Infrastructure (XI) has “Integration Processes” built in the Integration Repository.
- When activated, these processes generate workflows.
- BPM processes are used for orchestration of XML messages between systems.
- Correlations are used to match messages for the process.
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Wf-XML

- In the late 90’s someone said interoperability between workflow engines would be a “good thing”
- Standardized exchange of messages between workflow systems for different manufacturers
- Workflow Management Coalition (WfMC) is a non-profit, organization of workflow vendors, users, analysts and university/research groups - http://www.wfmc.org/
- The WfMC is an organization for the standardization of Workflow Management Systems of which they have released Wf-XML 1.0, 1.1 and 2.0 (draft)
- SAP currently supports WfXML 1.0 and WfXML 1.1
Inside-Out: Wf-XML
Outside-In: Wf-XML

```xml
<?xml version="1.0" ?>
<WfMessage Version="1.0" xmlns="http://www.wfmc.org/standards/docs/Wf-XML">
  <WfMessageHeader>
    <Request ResponseRequired="Yes" />
    <Key>http://esgsap01.esginternal.com/SAP/BC/WORKFLOW_XML/?~protocol=03&~localkey=000000572824</Key>
  </WfMessageHeader>
  <WfMessageBody>
    <CreateProcessInstance.Request StartImmediately="true">
      <ObserverKey>http://esgsap01.esginternal.com/SAP/BC/WORKFLOW_XML/?~protocol=03&~localkey=000000572824</ObserverKey>
      <ContextData>
        <REQUEST>StartTask</REQUEST>
      </ContextData>
    </CreateProcessInstance.Request>
  </WfMessageBody>
</WfMessage>

<?xml version="1.0" ?>
<WfMessage Version="1.0" xmlns="http://www.wfmc.org/standards/docs/Wf-XML">
  <WfMessageHeader>
    <Request ResponseRequired="Yes" />
    <Key>http://esgsap01.esginternal.com/SAP/BC/WORKFLOW_XML/?~protocol=03&~localkey=000000572824</Key>
  </WfMessageHeader>
  <WfMessageBody>
    <ProcessInstanceStateChanged.Request>
      <ProcessInstanceKey>http://esgsap01.esginternal.com/SAP/BC/WORKFLOW_XML/?~protocol=03&~localkey=000000572825</ProcessInstanceKey>
      <State>
        <closed.completed />
      </State>
      <ResultData>
        <RESPONSE>Process Rejected</RESPONSE>
      </ResultData>
    </ProcessInstanceStateChanged.Request>
  </WfMessageBody>
</WfMessage>
```
Web Services

- A web service is a process that has been exposed by the provider to request or supply information
- One of the most common protocols for Web Service communication is Simple Object Access Protocol (SOAP)
- Web services can be developed by a variety of web development platforms however they all support this protocol
- Many of these web services are simple Remote Procedure Calls (RPCs) but offer very valuable capabilities
- Along with Wf-XML support, SAP has included support for calling external SOAP services
Web Services Examples

- Pricing
- Packaging Costs
- Shipping Routes
- Inventory
- Weather

You name it…
Web Services Examples

You name it…
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Example: Web Service

- **Business Problem:**
  - Within SAP, need to trigger action on an external system

- **Scenario:**
  - Inbound data mapped via an external EAI tool to inbound IDOC
  - IDOC fails to post in SAP and triggers workflow
  - User chooses to update the mapping data and requests the data to be remapped and sent to SAP; Workflow cancels existing IDOC error

- **Parameters:**
  - External mapping tool utilizes web services as communication links via SOAP protocol

- **Practical application:**
  - This is a very simple scenario that can be applied to other valuable business processes that exist between disparate systems
Web Service: Process flow

- User is prompted for action to take
- Chooses to notify web service to Resend
- Notification is sent to Web Service via SOAP Protocol
- Acknowledgement is received and WF continues.
Web Service: Webactivity Step

Web activity 000053  Web: Request IDOC Resnd

**Step Name**: Web: Request IDOC Resnd
**Address (URL) from Expr.**: http://demo.wisco.com:8001/oSapServieSapServ

**Transfer Format**: SOAP <Coding 10>
**Function**: Execute Transfer
**Wait for Feedback**: Yes
**Function Control**: Binding (Exists)
**Data Transfer**: Binding (Exists)

**How does the chosen transfer format work?**

All container elements of the task container that use the ABAP Dictionary as the data type reference are sent in a XML document.
Web Service: Webactivity Step

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All container elements of the task container that use the ABAP Dictionary as the data type reference are sent in an XML document.
# Web Service: Webactivity Step

## Binding Workflow: Step 'Web Step: Resend IDOC'

<table>
<thead>
<tr>
<th>Binding Workflow</th>
<th>Step 'Web Step: Resend IDOC'</th>
</tr>
</thead>
<tbody>
<tr>
<td>&amp;REFDOCNUMBER&amp;</td>
<td>&amp;REFDOCNUMBER&amp;</td>
</tr>
<tr>
<td>&amp;MESSAGETYPE&amp;</td>
<td>&amp;MESSAGETYPE&amp;</td>
</tr>
<tr>
<td>&amp;ACTION&amp;</td>
<td>&amp;ACTION&amp;</td>
</tr>
</tbody>
</table>

## Binding Workflow: Step 'Web Step: Resend IDOC'

<table>
<thead>
<tr>
<th>Binding Workflow</th>
<th>Step 'Web Step: Resend IDOC'</th>
</tr>
</thead>
<tbody>
<tr>
<td>&amp;RESPONSETIME&amp;</td>
<td>&amp;TIME&amp;</td>
</tr>
<tr>
<td>&amp;RESPONSERESULT&amp;</td>
<td>&amp;RESENMIDDOCRESULT&amp;</td>
</tr>
</tbody>
</table>

## Data Transfer

How does the chosen transfer format work?

All container elements of the task container that use the ABAP Dictionary as the data type reference are sent in an XML document.
Web Service: SOAP on the Ropes

• The Good
  • By default the SAP builds the XML per the selected protocol
  • All container elements with values are added to XML document
  • SOAP protocol is a synchronous process, therefore SAP waits on a response
  • SAP automatically matches data elements in the returned XML document to container elements and transfers the data (in theory)

• The Bad
  • Current problems with return binding for SOAP processes require special handling
  • The Web step allows manipulation of the outgoing and incoming XML document via rules
  • the following may ease some learning pains
Web Service: Format Rule

To process the Web activity, the fields in the pipeline are evaluated in the following order:

- Address (URL) via
Web Service: Format Rule

To process the Web activity, the fields in the pipeline are evaluated in the following order:

- Address (URL) via
Wf-XML: Conversion Rule

- Create New Rule for Webflow: XML Format
- Create a custom class with the standard interface of IF_SWF_XML_RULE_DATA_SET
- Now encoding and decoding are done by custom methods, standard SAP processing no longer takes place for this step (i.e. you have to do it all now)
- Use class CL_SWF_DEMO_WEBACTIVITY as an example (sample coding supplied below in the appendix)
- Now......
**Wf-XML: Format Rule**

**Outgoing XML Document**

To process the Web activity, the fields in the pipeline are evaluated in the following order:

- Address (URL) via
Wf-XML: Format Rule

To process the Web activity, the fields in the pipeline are evaluated in the following order:

- Address (URL) via
Wf-XML: Encoding and Decoding

Class Builder: Display Class ZWF.XML.SOAP_IDOC_HNDLR

Class Interface: ZWF.XML.SOAP_IDOC_HNDLR

Implemented/Active

Properties: Implemented/Active

Methods: Implemented/Active

IF_SWF.XML_RULE_DATA_SET-ENCODE_DATA_TO_XML
Sets the Data into the XML Document

IF_SWF.XML_RULE_DATA_SET-DECODE_DATA_FROM_XML
Delivers the Data from the XML Document
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Integration with Lotus Notes

- About Lotus Notes
  - Manage emails, collaboration and electronic calendar function in an online and offline mode
  - Lotus Domino provides workflow functionality used for many intra company approval processes

- Why Integrate SAP Workflow with Lotus Notes?
  - Occasional SAP users
  - Existing Notes Domino Workflow
  - Frequent Lotus Notes email or workflow users
  - Users prefers single point of notification for work or approvals requiring their attention
SAP/ Lotus Notes Workflow Case Study

Business Scenario 1 – Initially implemented SAP R/3 3.1H

- Create an SAP workflow solution that estimates the material scrap and rework costs of implementing an Engineering Change (EC) at a given future date by reading SAP Inventory Management tables.
- Start this SAP workflow from an estimate approval workflow request form in Lotus Notes.
- Calculate the estimated costs and return the values to Lotus Notes Workflow Approval Form.
- Route the completed form through the Notes Workflow approval process.
SAP/Lotus Notes Workflow Integration Flow

1. Perform Cost Estimate
2. Call Z_EC_CostSheet
3. Export SAP Fields to Lotus Cost Sheet fields
4. Send Return Code to SAP Function Module
5. Event - Cost Sheet Updated triggers background Lotus task Notify Approver
6. Cost Center Work Item Created in SAP Inbox of Cost Accountant
   - Work Item processed
   - Approval Notice Sent to Cost Account in Lotus
   - Work Item Deleted by Accountant
   - Yes
   - Lotus Cost Sheet Approved
   - No
   - Rejection Notice Sent to SAP Cost Accountant
SAP Workflow

Start SAP Workflow (in Lotus)

raise createdpdm event (RFC function)

Create ECM

Overwrite estimate?

yes

Delete Duplicate estimate

Duplicate Notification

no

Create ECM

Cancel Workflow

Estimate EC Cost

end of workflow
SAP Workflow started by RFC from Lotus Notes Automation Object
EC Cost Estimate Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhouse Parts Scrap</td>
<td>0.00</td>
</tr>
<tr>
<td>Inhouse Parts Rework</td>
<td>0.00</td>
</tr>
<tr>
<td>Inhouse Tooling Rework</td>
<td>0.00</td>
</tr>
<tr>
<td>Vendor Parts Scrap</td>
<td>0.00</td>
</tr>
<tr>
<td>Vendor Parts Rework</td>
<td>0.00</td>
</tr>
<tr>
<td>Vendor Tooling Scrap / Rework</td>
<td>0.00</td>
</tr>
<tr>
<td>Field Bills of Material</td>
<td>0.00</td>
</tr>
<tr>
<td>Cancellation Charges for Purchase Orders</td>
<td>0.00</td>
</tr>
<tr>
<td>Total EC Expense</td>
<td>0.00</td>
</tr>
<tr>
<td>Total Product Cost Expense</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Click here for list of CAI Codes

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Description</th>
<th>CAI</th>
<th>DIS</th>
<th>S&amp;R</th>
</tr>
</thead>
<tbody>
<tr>
<td>03N3414</td>
<td>Something to scrap</td>
<td>992</td>
<td>YY</td>
<td>IS</td>
</tr>
</tbody>
</table>

Add Part and CLEAR fields

EC Cost Estimate Summary

Inhouse Parts Scrap
Inhouse Parts Rework

ECCost Workflow Triggered

OK
<table>
<thead>
<tr>
<th>St</th>
<th>EU</th>
<th>Rec. on</th>
<th>Creat. ti</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>03/14/2000</td>
<td>13:01:34</td>
<td>Please perform cost estimate for F12100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11/09/1999</td>
<td>08:26:40</td>
<td>Please perform cost estimate for F55356</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06/14/1999</td>
<td>08:29:13</td>
<td>Please perform cost estimate for TEST13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06/11/1999</td>
<td>17:12:16</td>
<td>Please perform cost estimate for G51114</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06/11/1999</td>
<td>17:02:03</td>
<td>Please perform cost estimate for G11154</td>
</tr>
</tbody>
</table>
### Cost estimate for ECR F12100

**Change number**: F12100  
**Sponsor**: OSAMI MATSUZ  
**Reason Code(s)**:  
**Machine**: 2003  

**ECRB#**:  
**Plant**: 1202  
**LAB**: 954  
**BIP Date**: 03/31/2000

#### Costs Estimate

<table>
<thead>
<tr>
<th>Object</th>
<th>Plant</th>
<th>Total Factory Cost</th>
<th>Total Field Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000003N3414</td>
<td>1202</td>
<td>13,660.00</td>
<td>550.00</td>
</tr>
<tr>
<td>00000003N3414</td>
<td>1203</td>
<td>151.00</td>
<td>55.00</td>
</tr>
</tbody>
</table>

**Total**: 13,811.00 usd  

---

*Note: The image contains a screenshot of a software interface displaying a cost estimate for ECR F12100. The interface includes fields for change number, sponsor, machine, and a table showing object, plant, total factory cost, and total field cost. The total cost is presented in US dollars (usd).*
Click here for list of CAI Codes -->

**SAP RFC**

<table>
<thead>
<tr>
<th>Seq</th>
<th>Part Number</th>
<th>Part Description</th>
<th>LOC CAI #</th>
<th>DIS</th>
<th>S&amp;R</th>
<th>Qty</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>992</td>
<td>YY</td>
<td>IS</td>
<td>0</td>
<td>0.000</td>
<td>0.00</td>
</tr>
<tr>
<td>002</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>992</td>
<td>YY</td>
<td>IR</td>
<td>70</td>
<td>90.000</td>
<td>6300.00</td>
</tr>
<tr>
<td>003</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>992</td>
<td>YY</td>
<td>VR</td>
<td>80</td>
<td>90.000</td>
<td>7200.00</td>
</tr>
<tr>
<td>004</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>992</td>
<td>YY</td>
<td>VS</td>
<td>50</td>
<td>0.000</td>
<td>0.00</td>
</tr>
<tr>
<td>005</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>992</td>
<td>YY</td>
<td>FF</td>
<td>120</td>
<td>0.000</td>
<td>0.00</td>
</tr>
<tr>
<td>006</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>980</td>
<td>YY</td>
<td>IR</td>
<td>7</td>
<td>9.000</td>
<td>63.00</td>
</tr>
<tr>
<td>007</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>980</td>
<td>YY</td>
<td>VR</td>
<td>8</td>
<td>9.000</td>
<td>72.00</td>
</tr>
<tr>
<td>008</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>980</td>
<td>YY</td>
<td>VS</td>
<td>5</td>
<td>0.000</td>
<td>0.00</td>
</tr>
<tr>
<td>009</td>
<td>03N3414</td>
<td>Something to scrap</td>
<td>980</td>
<td>YY</td>
<td>FF</td>
<td>12</td>
<td>0.000</td>
<td>0.00</td>
</tr>
<tr>
<td>010</td>
<td>1111111</td>
<td>(None Available)</td>
<td>992</td>
<td>??</td>
<td>FF</td>
<td>121</td>
<td>5.000</td>
<td>605.00</td>
</tr>
</tbody>
</table>

**EC Cost Estimate Summary**

- Inhouse Parts Scrap: 0.00
- Inhouse Parts Rework: 6363.00
- Inhouse Tooling Rework: 0.00
- Vendor Parts Scrap: 0.00
- Vendor Parts Rework: 7272.00
- Vendor Tooling Scrap / Rework: 0.00
## EC Cost Sheet

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor Parts Scrap</td>
<td>0.00</td>
</tr>
<tr>
<td>Vendor Parts Rework</td>
<td>7272.00</td>
</tr>
<tr>
<td>Vendor Tooling Scrap / Rework</td>
<td>0.00</td>
</tr>
<tr>
<td>Field Bills of Material</td>
<td>605.00</td>
</tr>
<tr>
<td>Cancellation Charges for Purchase Orders</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total EC Expense</strong></td>
<td><strong>14240.00</strong></td>
</tr>
</tbody>
</table>

**Total Product Cost Expense**

0.00

---

**EC Cost Sheet**

- **Requested By**: George Gray
- **Requested By**: George Gray
- **Request Date**: 03/14/2000 12:49:00 PM
- **Status**: New
- **Requester**: George Gray
- **Approvers**: Otsu Matsuura

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**Educating** | **Networking** | **Influencing**
Business Scenario 2

- Create a centralized workflow solution to standardize approval to dispose of surplus assets across a global corporation

- Base approval routings on Clip Levels which vary by Geography

- Some users will initiate requests, process approvals and disposition assets in SAP using SAP workflow

- Others would like to receive workitem notifications to process approvals in Lotus Notes

- All managers and employees would like to receive deadline notifications in Lotus Notes
Lotus Integration Case Study

The Good News

- SAP Configuration to support Notes integration is simple
- No special SAP Workflow Configuration settings needed to enable Notes integration
- The *Challenge* is designing the SAP workflow
  - One workflow or multiple based on notification preferences geographies and clip levels?
  - Does the notification preference have any bearing on the agent determination method?
Step 1: Configure SAP to support outgoing mail

- Use Transaction SCOT to configure your Internet Connection
  - Two node types are available
    - SMTP based on Internet Mail Protocol
    - RTP based on Remote Function Call Protocol
  - For this Solution we used the SMTP Node
    - Assign the Mail host for outgoing mail
    - Assign the port
    - Assign the code page
  - Schedule a background job to link to your communication Node
Step 2: Ensure WF-BATCH and all SAP WF users have email addresses

- You may need your Security & Authorization team to take care of this
Step 3: Schedule the RSWUWFML2 report
Step 4: Requests are sent to the outbound internet mail queue

<table>
<thead>
<tr>
<th>Status</th>
<th>Send Meth</th>
<th>Doc Title</th>
<th>Sender</th>
<th>Recipient</th>
<th>Send Date</th>
<th>Send Time</th>
<th>Msg</th>
</tr>
</thead>
<tbody>
<tr>
<td>✷</td>
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<td>CD3: Approve EC Scrap For ID 000091 in Plant 1001</td>
<td>Dale Davis Davis</td>
<td><a href="mailto:DDU1ones@hotmail.com">DDU1ones@hotmail.com</a></td>
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<td>13:43:00</td>
<td>67.2</td>
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</table>
Step 4 Continued: Successfully Completed requests have a green status
Step 5: Workitem Notifications received in Lotus with Executable Workitems attached
Step 6: Opening of attachment prompts user for signon information once

ECS Scrap list # 000091
has been assigned to you for approval. Please approve or reject based on your review of the details shown on the scrap list.

Open the SAP shortcut attachment in order to process the work item.

If you have any problems logging on, contact your system administrator.

Username: DAVID
Password: ********

Once logged in, you can view and manage the scrap list.
The User is taken directly into the decision step in SAP to execute the approval using standard SAP Workflow Functionality

Decision Step in Workflow

Approve EC Scrap For ID 000091 in Plant 1001 EC 1000025J1999

Choose one of the following alternatives
- Approve EC Scrap
- Reject EC Scrap
- Cancel and keep work item in inbox

Description
ECS Scrap List #000091 has been assigned to you for approval. Please approve or reject based on your review of the details shown on the scrap list.
Implementation Considerations

• The user only needs to log on to SAP once from Lotus via an attachment
• Initial Sign on popup can be suppressed by minor coding of a Lotus Applet
• After release 4.6B RSWUWFML is end of maintenance
• RSWUWFML2 replaced RSWUWFML in release 4.6C and above
• For SAP 6.40 and Above use Extended Notifications.  
  • RSWUWFML is no longer supported in these higher releases
• Notes Domino 6.0 and Outlook 2002 are the last releases where the RSWUWFML/2 interfaces are supported
• Transaction SCOT Internet Mail configuration is sufficient to send Workflow generated notification emails to a non SAP mail server
  • This includes simple notifications and deadline notifications
  • the RSWUWFML/2 reports are not needed
Helpful Notes on email Integration with RSWUWFML2

- 896090 : RSWUWFML2 vs RSWUWFML
- 810468 : Enhancement to Mail Notification
- 929393 : RSWUWFML2: Improved Logging
- 627397: End of maintenance of Outlook/Lotus workflow
Topics

- **Integration options**
  - Create workflow tasks for external service calls and BSP’s
  - Universal Worklist launch handlers
  - SAP NetWeaver Exchange Infrastructure Business Process Management
  - Wf-XML and Web Services

- **Real world examples**
  - Accessing Web Services
  - Integration with Lotus Notes
  - Extended notifications for Outlook integration

- **Future**
  - Universal Worklist API to access non-SAP tasks
  - Guided Procedures
Extended Notifications

SAP Business Workflow

collect workitems

Extended Notifications

send e-mails

Email

End user

process workitem

Email client

SAP GUI or Portal UWL
## Feature Comparison

<table>
<thead>
<tr>
<th>Feature</th>
<th>SAP MAPI</th>
<th>RSWUWF ML</th>
<th>RSWUWM L2</th>
<th>Extended Notifications</th>
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</thead>
<tbody>
<tr>
<td>Deliver workitems to any e-mail client</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SAP Shortcut attachments</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Prefix AND suffix text (surrounding workitem description)</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Enhanced address determination</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Enhanced substitution handling</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>HTML e-mail (Outlook only)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Generic decisions</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Links to new Web UIs (WebDynpro, etc)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Lists of workitems in one e-mail</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Support workitem forwarding via e-mail</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>
Email per work item or collection

SAP Note 627397
The following new work items require processing in system U6D, client 800:

**Overview**

*First step in workflow verification*
*First step in workflow verification*
*First step in workflow verification*
*Employee Markus Kiratcher: Approve notification of absence*

**First step in workflow verification**

Choose one of the decision options given. This completes the processing of this step.

Before you make a decision, you can display the attachments and objects which have been attached to the user decision. You can also create your own attachments.

If you choose **Cancel**, the user decision remains in your inbox for processing.
Required Configuration

- SWN_SELSEN is the batch that has to be planned to run periodically. You can run this directly for test purposes.
- Transaction SWNCONFIG is for advanced configuration.
- Transaction SWNADMIN is for basic administration.
- SAP Connect must be configured for email connectivity.
Topics

• Integration options
  • Create workflow tasks for external service calls and BSP’s
  • Universal Worklist launch handlers
  • SAP NetWeaver Exchange Infrastructure Business Process Management
  • Wf-XML and Web Services

• Real world examples
  • Accessing Web Services
  • Integration with Lotus Notes
  • Extended notifications for Outlook integration

• Future
  • Universal Worklist API to access non-SAP tasks
  • Guided Procedures
Connecting a 3rd party provider system

UWL Service

ProviderConnector

Java Stub

Protocol (e.g. http)

3rd party provider

Attachment Connector

Java Stub

Java Stub

Stub

Protocol

3rd party provider

UWL API Architecture
Development Tools & Documentation

- Documentation to get started
- SAP NetWeaver Developer Studio Plugin
  - Create code skeleton
  - JavaDoc
- RSS Tutorial + Sample Code
- SAP Office Mail HowTo Guide + Sample Code

Interested? Details in SAP Note 921758.
Topics

• Integration options
  • Create workflow tasks for external service calls and BSP’s
  • Universal Worklist launch handlers
  • SAP NetWeaver Exchange Infrastructure Business Process Management
  • Wf-XML and Web Services

• Real world examples
  • Accessing Web Services
  • Integration with Lotus Notes
  • Extended notifications for Outlook integration

• Future
  • Universal Worklist API to access non-SAP tasks
  Guided Procedures
Where guided procedures fits

Custom built or composed
“Next practice” processes
Business innovation
“Best practice” processes
Packaged solutions

Legacy/3rd Party
SAP NetWeaver Business Process Platform
Enterprise Services Repository
Composite Applications
Analytics

Partner
SAP
Platform Process Components

Copyright © 2008 Americas' SAP Users' Group
Guided Procedures components

Guided Procedures
- enter additional data
- send notification
- order equipment
- assign workplace

Guided Procedures Activity Gallery

Business Objects and Services
- Legacy
- FI
- CRM
- Office
- Email
- HR
Best Practices

- To incorporate BSP’s and ABAP services in your workflow, use WF_EXTSRV
- Use Universal Worklist as a central location to access all your tasks
- If using external WSDL files, use a Web Dynpro and Universal Worklist launch handlers for the service call
- Integration with non-SAP workflow systems requires the external system to support Wf-XML 1.1
Key Learnings

• When integrating non-SAP tasks with SAP Business Workflow your major options include:
  • WF_EXTSRV for ABAP services
  • WFWS for external services WSDL with simple XML schemas
  • Web Activity step for SOAP calls
  • Web Activity step for Wf-XML with non-SAP workflow systems
  • Universal Worklist Launch handlers to call any service or URL
  • UWL API should be generally available in a few months

• Options for delivery of workflow tasks:
  • Lotus Notes and Outlook with ABAP report
  • Extended Notifications on ERP2004 and beyond

• If your workflow process touches many different systems you may want to consider Guided Procedures (NetWeaver 2004s only – ERP2005)
Further Information

- BIT603 for use of external services
- BIT430 for BPM in Exchange Infrastructure
- SDN for guided procedures
Thank you for participating. Please remember to complete and return your evaluation form following this session.

For ongoing education on this area of focus, visit the Year-Round Community page at www.asug.com/yrcc

Session Code: 606
Appendix

- WF-XML sample coding Rule
WF-XML: Encoding

```
METHOD IF_SWF_XML_RULE_DATA_SET-ENCODE_DATA_TO_XML .
  // this method is called by a rule to encode the Workitem-Container
  // to the outgoing xml-data
  // inverse Method: decode_data_to_xml

  ATTN:
  // using this exit, the standard implementation converting the data
  // into the xml-document will not be used.

  // begin of local data
  // end of local data

  // Unless special handling is required, you may call the standard
  // encoding method to create the xml document from the container.

  CALL METHOD cl_webflow_services->container_to_xml
  EXPORTING
    im_data_container = im_data_container
    im_xml_document = im_xml_document
    im_xml_data_node = im_xml_data_node
    im_direction = im_direction

  EXCEPTIONS
    execution_failed = 1.

  OTHERS = 2.
  IF sy-subrc <> 0.
    MESSAGE ID sy-su01 TYPE sy-expt NUMBER sy-expt01.
    RAISE sy-expt01 sy-expt02 sy-expt03 sy-expt04.
  ENDIF.

ENDMETHOD.
```
WF-XML: Decoding
Appendix

- Wf-XML sample coding Rule
Wf-XML: Encoding
Wf-XML: Decoding

```java
METHOD IF_SAP_WF_XML_RULE_DATA_SET-DECODE_DATA_FROM_XML

* this method is called by a rule to decode the incoming xml-data
* to the WorkItem-Container
* Inverse Method: encode_data.to_xml

ATTENTION:
* using this exit. The standard-implementation converting the data
  into the xml-document will not be used!
* begin of local data

DATA: 1_string TYPE string.
* end of local data

* manually select the elements from the xml document and push them to
  the task container.

TRY
  clear 1_string.
  CALL METHOD IF_SAP_WF_XML_DOCUMENT->find_simple_element
    EXPORTING
      name = 'Time'
    RECEIVING
      value = 1_string.
  CALL METHOD if.sap.data_container->set
    EXPORTING
      name = 'Time'
      value = 1_string.
  CATCH cx_swf_cmit_container.
ENDTRY.
```