

# Using Interactive Forms by Adobe in SAP NetWeaver BPM



Angel Dichev,      SAP Intelligence Platform and NetWeaver RIG, SAP Labs LLC

Dec/2009

# Disclaimer



*The information in this presentation is confidential and proprietary to SAP and may not be disclosed without the permission of SAP. This presentation is not subject to your license agreement or any other service or subscription agreement with SAP. SAP has no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation and SAP's strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice. The information on this document is not a commitment, promise or legal obligation to deliver any material, code or functionality. This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. This document is for informational purposes and may not be incorporated into a contract. SAP assumes no responsibility for errors or omissions in this document, except if such damages were caused by SAP intentionally or grossly negligent.*

*All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.*

# Agenda



## 1. Introduction to BPM and Interactive Forms by Adobe

- BPM
- SAP Interactive Forms by Adobe Software

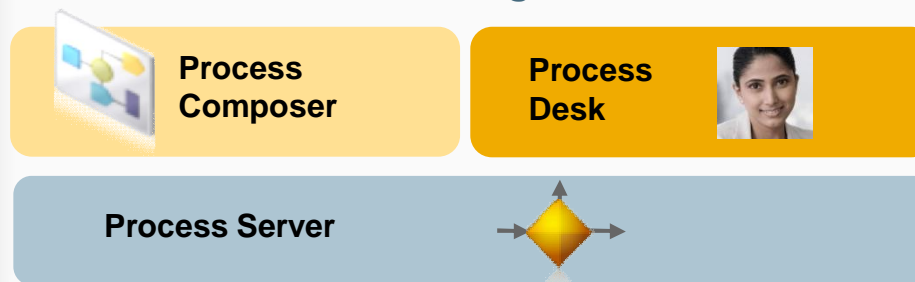
## 2. BPM and Interactive Forms Solution

- BPM Engine sending/receiving offline forms setup
- Designing and Storing Offline Forms
- BPM Forms Repository Infrastructure
- Offline Forms as task activities in BPM process

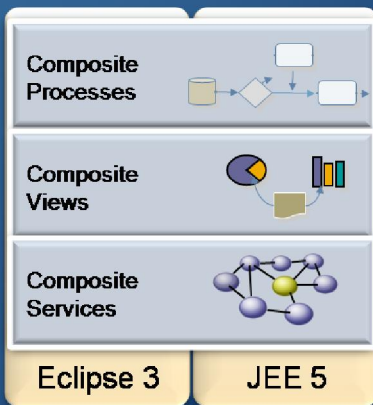
# SAP NetWeaver Business Process Management Embedded in SAP NetWeaver Composition Environment



## SAP NetWeaver Business Process Management



## SAP NetWeaver Composition Environment



- Comprehensive process management
  - Unifying human and system automation processing steps
  - Business Process is more than just service orchestration
- Composition of event-driven processes
  - Seamless combination of service, event and human task
  - Enterprise services consumption
  - Tightly integrated with native Business Rules Management
- Benefits of an integrated composition environment
  - Model-driven development
  - Integrated toolset
  - Out-of-the-box ESR integration
  - Lifecycle management

# SAP Interactive Forms by Adobe



## Design layout

SAP NetWeaver Developer Studio  
ABAP Workbench



ABAP

Java

Adobe LiveCycle  
Designer

## Deliver forms Process data

SAP NetWeaver  
Application Server



Java

Adobe Document  
Services

## Capture data

User Front-end



Adobe Reader



Deploy

View, fill, submit

# Agenda



## 1. Introduction to BPM and Interactive Forms by Adobe

- BPM
- SAP Interactive Forms by Adobe Software

## 2. BPM and Interactive Forms Solution

- BPM Engine sending/receiving offline forms setup
- Designing and Storing Offline Forms
- BPM Forms Repository Infrastructure - ECM
- Offline Forms as task activities in BPM process

# Using Offline Forms in a BPM Process Use Cases



*Forms in BPM process help retrieve input from users not directly involved in the process due to various reasons. For example an external collaboration where a firewall is sitting between the user and the system, or collecting survey results*

## ■ Use a Form as Task/Human Activity inside a BPM process

- Forms are distributed via e-mail.
- User fills out the form and submits it back replying to this email.
- As the end result: Form data is exposed to the process context the BPM process continues with the next activity.

## ■ Offline Form to instantiate a new process – (will be delivered with future releases)

- Form is published for download or sent to one or several individuals.
- The form submit calls BPM and triggers a process
- Form data is exposed to the process context
- The form could be reused several times.

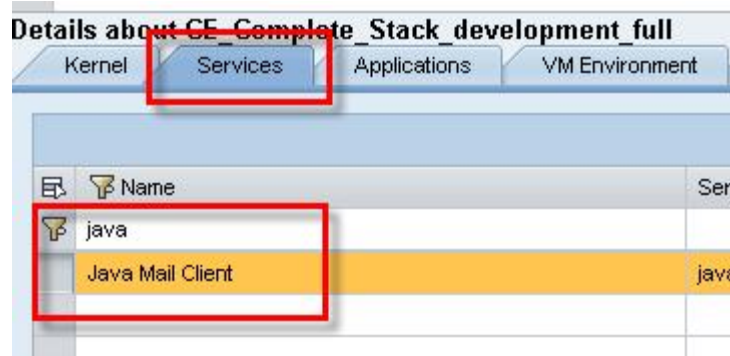


# Mail Server Connectivity Properties Processing Offline Forms in BPM



## ■ Sending e-mails with attached forms

- E-mail sending functionality for the *Notifications* in BPM is re-used.
- The **Java Mail Client** service **SMTP** properties are used along with the authentication and connection properties.
- The sender of the e-mail is set to be the value of the configuration property *mail.mailbox.address* (see *Receiving e-mails with attached forms*).



Name	Default Value	Online Modifiable	Custom Value
mail.pop3s.host		<input checked="" type="checkbox"/>	
mail.pop3s.password	*****	<input checked="" type="checkbox"/>	
mail.pop3s.port	995	<input checked="" type="checkbox"/>	
mail.pop3s.user		<input checked="" type="checkbox"/>	
mail.smtp.auth	false	<input checked="" type="checkbox"/>	
mail.smtp.host		<input checked="" type="checkbox"/>	localhost
mail.smtp.password	*****	<input checked="" type="checkbox"/>	*****
mail.smtp.port	25	<input checked="" type="checkbox"/>	
mail.smtp.submitter		<input checked="" type="checkbox"/>	
mail.smtp.user		<input checked="" type="checkbox"/>	teched
mail.smtps.auth	false	<input checked="" type="checkbox"/>	
mail.smtps.host		<input checked="" type="checkbox"/>	
mail.smtps.password	*****	<input checked="" type="checkbox"/>	

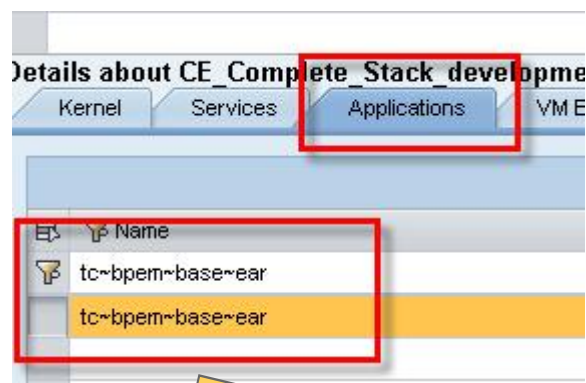


# Mail Server Connectivity Properties Processing Offline Forms in BPM



## ■ Receiving e-mails with attached forms

- When the form is submitted by the end user, a new e-mail is created with the submitted form as an attachment.
- The receiver of this email is configured mailbox used by BPM



Extended Details

Properties

Save Restore to Default Modify Show Details

Name	Default Value	Online Modifiable	Custom Value
mail.from		<input type="checkbox"/>	teched@system.mail
mail.mailbox.address		<input checked="" type="checkbox"/>	teched@system.mail
mail.mailbox.folder		<input checked="" type="checkbox"/>	Inbox
mail.mailbox.password	*****	<input checked="" type="checkbox"/>	*****
mail.mailbox.protocol	imap	<input checked="" type="checkbox"/>	pop3
mail.mailbox.reader.timeout	60	<input type="checkbox"/>	10
mail.mailbox.username		<input checked="" type="checkbox"/>	teched
mail.received.attachments.logging	true	<input checked="" type="checkbox"/>	
mail.sent.attachments.logging	true	<input checked="" type="checkbox"/>	

# Properties for Receiving E-Mails with Attached Forms



## Properties of application ***tc~bpem~base~ear***

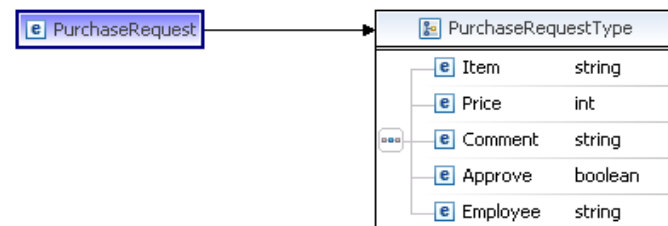
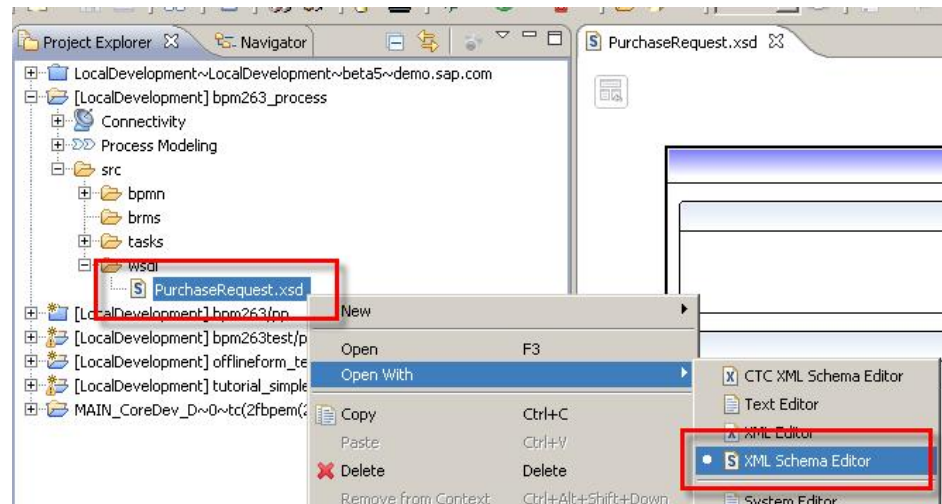
- ***mail.mailbox.reader.timeout*** - Default value 60 sec, min – 10,
  - *Very high value could lead to **full mailbox (potential lost emails)** between two reads*
  - *Property is from type **Long***
  - *If not required, for performance reasons should not be set to low values.*
- ***mail.mailbox.address***
- ***mail.mailbox.username***
- ***mail.mailbox.password***
- ***mail.mailbox.folder*** - For example *Inbox*
- ***mail.mailbox.protocol*** - possible values ***imap4***, ***pop3***, ***imap4s*** and ***pop3s***
- ***mail.mailbox.server***

These properties are also incorporated into the *CTC Template for Galaxy Process Server*.

# Designing Offline Form 1/3



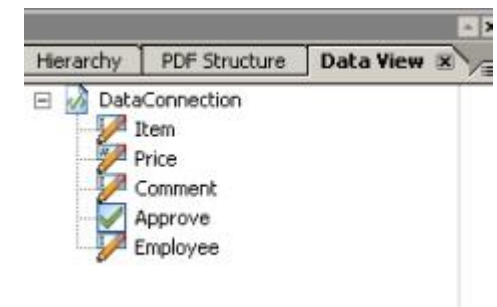
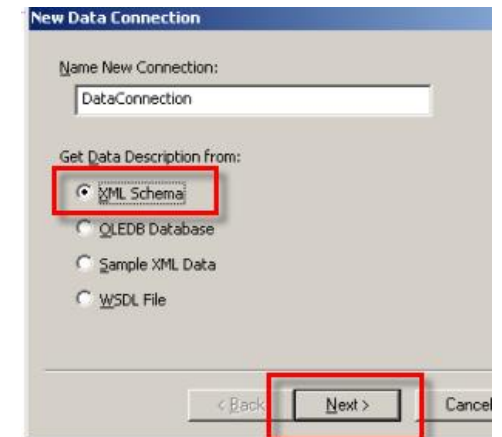
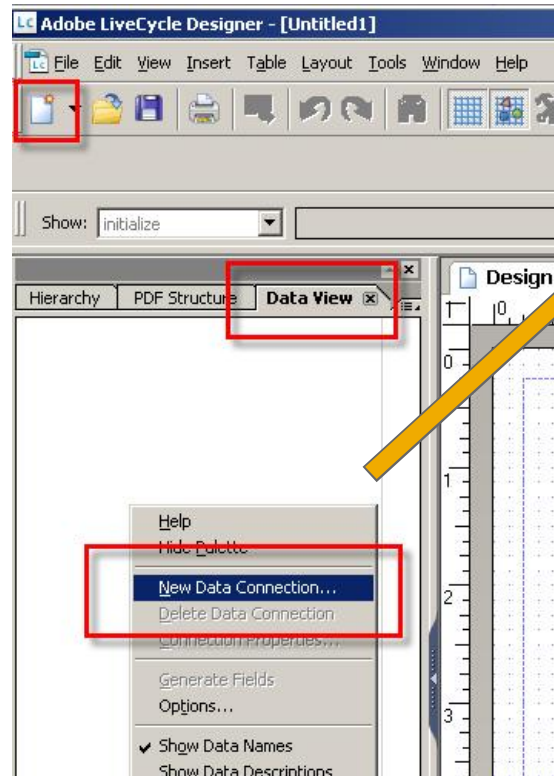
- Use NWSD -> ***XML Schema Designer View*** to define ***Form XML Data Structure***.
- Use Adobe LiveCycle Designer -> Data Connection to import XML schema
- Use Form *Button Submit* as *PDF* functionality to implement submit back to process functionality.
- *Note:* The BPM engine will populate the required e-mail address at runtime.



## Designing Offline Form 2/3



- Use NWSD -> XML Schema Designer View to define Form XML Data Structure.
- Use **Adobe LiveCycle Designer -> Data Connection** to import XML schema
- Use Form *Button Submit* as *PDF* functionality to implement submit back to process functionality.
- Note: The BPM engine will populate the required e-mail address at runtime.



# Designing Offline Form 3/3



- Use NWSD -> XML Schema Designer View to define Form XML Data Structure.
- Use Adobe LiveCycle Designer -> Data Connection to import XML schema
- Use Form **Button Submit as PDF** functionality to implement submit back to process functionality.
- **Note:** The BPM engine will populate the required e-mail address at runtime.

The screenshot shows the 'Design View' of a SAP form titled 'Purchase Request Form'. It features a grid background and a ruler at the top. The form contains several input fields: 'Employee', 'Item', 'Price', and a larger 'Comment' field. Below these are two radio buttons labeled 'Approve' and 'Reject', and a 'Submit' button with a yellow warning icon. A red box highlights the 'Submit' button, and a yellow arrow points from it towards the right-hand panels.

This panel shows the 'Object' properties for the 'Submit' button. The 'Type' is set to 'Button'. The 'Caption' is 'Submit'. The 'Appearance' is 'Raised Border' and 'Highlighting' is 'Inverted'. The 'Control Type' is set to 'Submit' (selected over 'Regular' and 'Execute'). The 'Presence' is 'Visible' and the 'Locale' is 'Default locale'.

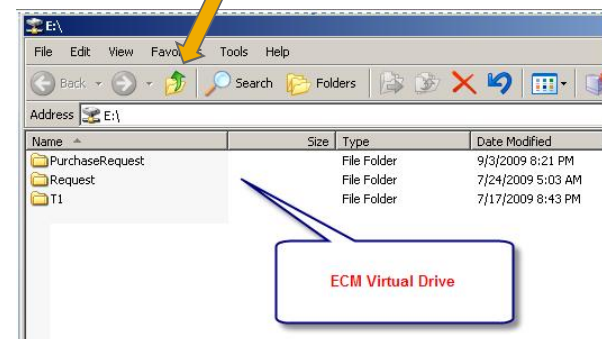
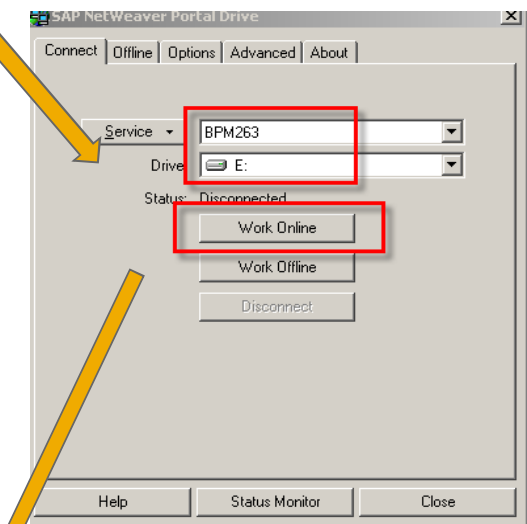
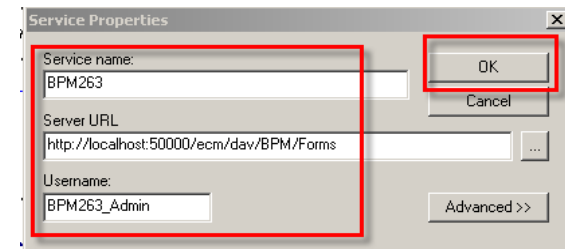
This panel shows the 'Object' properties for the 'Submit' button, specifically the 'Submit' tab. The 'Submit to URI' field is empty. The 'Submit As' dropdown is set to 'PDF'. The 'Sign Submit' checkbox is unchecked. The 'Include' dropdown is set to 'XML Data (XML)'. The 'Data Encoding' is set to 'UTF-16'.

# Storing Offline Forms

## Enterprise Content Management Repository



- **ECM Repository** is used to store all offline form templates/schemas used in BPM processes.
- Access to ECM is done with **WebDAV protocol**.
  - SAP recommends the use of SAP Portal Drive tool available on SMP
  - other *web folder* tools could be used too.
- ECM Repository location is:  
<http://<server>:<port>/ecm/dav/BPM/Forms>
- **SAP\_FPINFRACALLER** role is required to access the ECM repository.
- ECM is delivered with these 2 SCA
  - ECMCORE00\_0.SCA
  - ECMAAPP00\_0.SCA



# Agenda



## 1. Introduction to BPM and Interactive Forms by Adobe

- BPM
- SAP Interactive Forms by Adobe Software

## 2. BPM and Interactive Forms Solution

- BPM Engine sending/receiving offline forms setup
- Designing and Storing Offline Forms
- BPM Forms Repository Infrastructure - ECM
- Offline Forms as task activities in BPM process



# Offline Form Task in BPM



- In SAP NetWeaver CE 7.2, BPM process supports 3 UI components: WebDynpro, VC with the unified UI Wizard, and *Interactive Forms* with the *Offline Form Wizard*

The screenshot shows the SAP NetWeaver CE 7.2 BPM console interface for configuring a task. The main window is titled 'PurchaseRequest.xsd' and 'Purchase Request Approval Process'. The 'Offline Approval Task' is selected. The 'Overview' section is expanded, showing 'General Information' and 'User Interface' sections. The 'User Interface' section is highlighted with a red box. The 'Component' field is set to '/Forms/BPM263/PurchaseRequest.xdp' and the 'Type' is 'forms'. A dialog box titled 'Select a UI Wizard' is open, showing a list of wizards. The 'Offline Form Import Wizard' is selected, highlighted with a red box. The 'Unified UI Import wizard' is also visible. The 'OK' and 'Cancel' buttons are at the bottom of the dialog.

**Overview**

▼ **General Information**  
Define general information like the task name and documentation

Name: Offline Approval Task

Documentation:

Sharing: ☒ Allow actual owner to invite contributors to this task

Locale: English

▼ **User Interface**  
Define the UI component you want to use to execute instances of this task

Component: /Forms/BPM263/PurchaseRequest.xdp

Type: forms

▼ **Priority**  
Set the default priority for this task

Priority: Medium

**Select a UI Wizard**  
Select a UI Wizard

Type

Offline Form Import Wizard

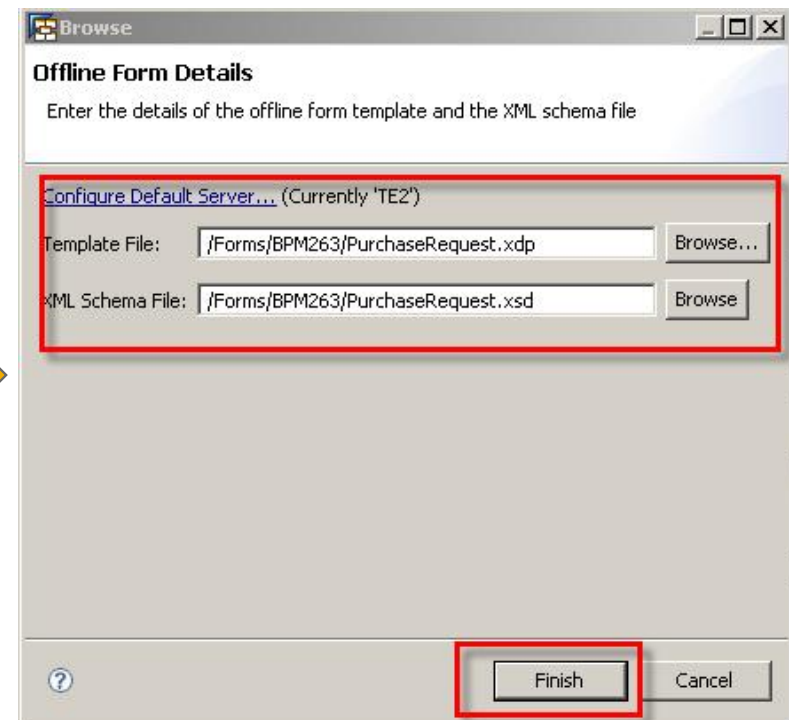
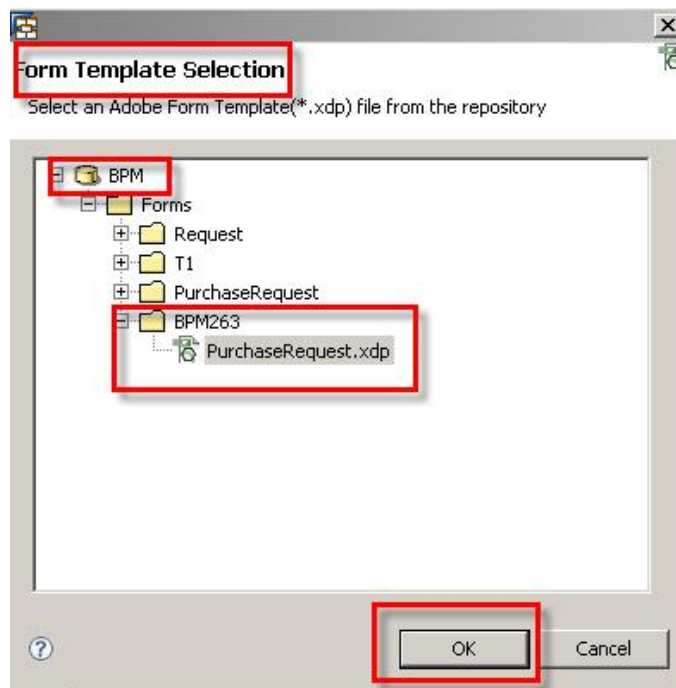
Unified UI Import wizard

OK Cancel

# Creating an Offline Form Task



- The *Offline Form Wizard* connects to the ECM Repository in order to load the Offline Form Template and XML schema
- SAP\_FPINFRACALLER role is required in order to access ECM Repository

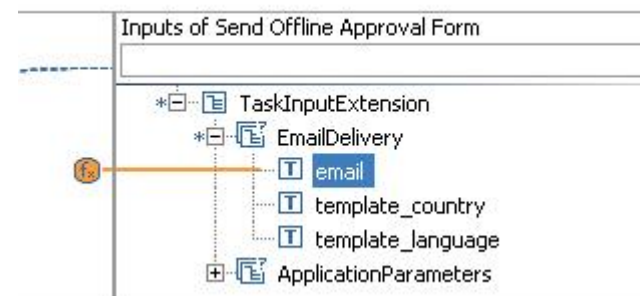


# Define Offline Form E-Mail Recipients



- Two types of recipients are supported: *UME users and External recipients*
- **UME Users** are defined as potential owners of the task.
  - They should have e-mail addresses assigned to their user profiles in the UME.
- **External recipients** are defined by entering their e-mail addresses, distribution lists, as an input data or mapping to element **TaskInputExtensions** -> **EmailDelivery** -> **e-mail**.
- Submissions by external recipients are completed on behalf of the preconfigured internal BPM user: **SAP\_BPM\_Service**

The screenshot shows the 'General Information' tab of a user profile for 'BPM263\_Mngr'. The 'First Name' field is highlighted with a red box and contains the value 'Manager'. The 'E-mail Address' field contains the value 'manager@system.mail'. Other fields include 'Last Name: Manager', 'Language:', 'Activate Accessibility Feature: ☐', 'Security Policy: Default', and 'Unique ID: USER.PRIVATE\_DATASOURCE.un:BPM263\_Mngr'.

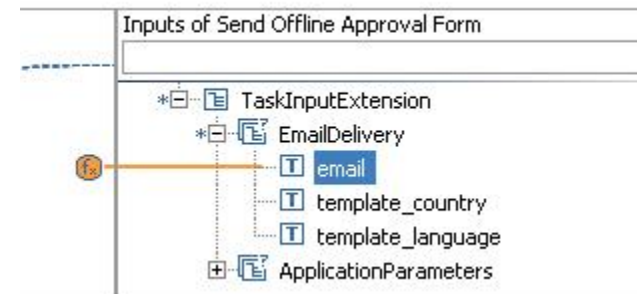


The screenshot shows a text input field labeled 'email' with the value '1 "external\_receipient@partner.com"'. The field is part of a larger form with a blue header bar.

# Customizing E-Mail Template



- **Task -> User Parameterized Texts**  
is used to customize e-mail *Subject*,  
*Body Data*



PurchaseRequest.xsd Purchase Request Approval Process \*Offline Approval Task

### User Texts

▼ Variables

Define the variables you want to use to parameterize the user texts below

Variables:	Name	Type	Expression
	sender	string	TaskAttributes/initiator/principalId
	date	time	TaskAttributes/createdOn
	potentialOwner	string	TaskAttributes/actualOwner/principalId
	deadline	time	TaskAttributes/completionDeadline

▼ Parameterized Texts

Define the texts that will be shown in the user's inbox. Use braces ({} ) to reference the variables defined above.

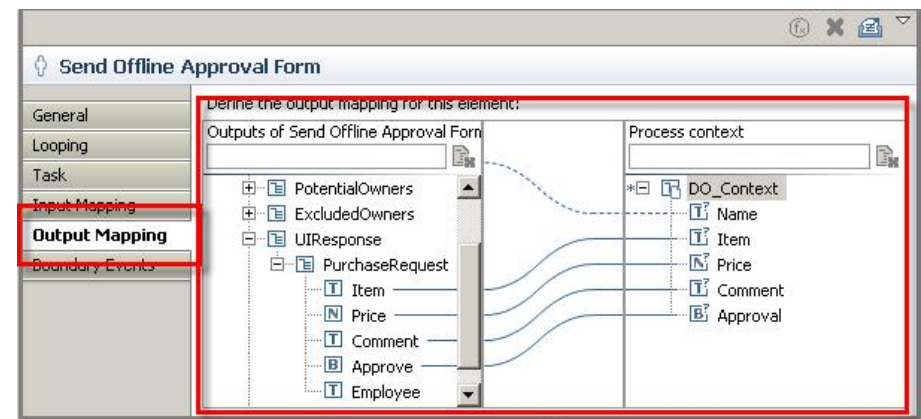
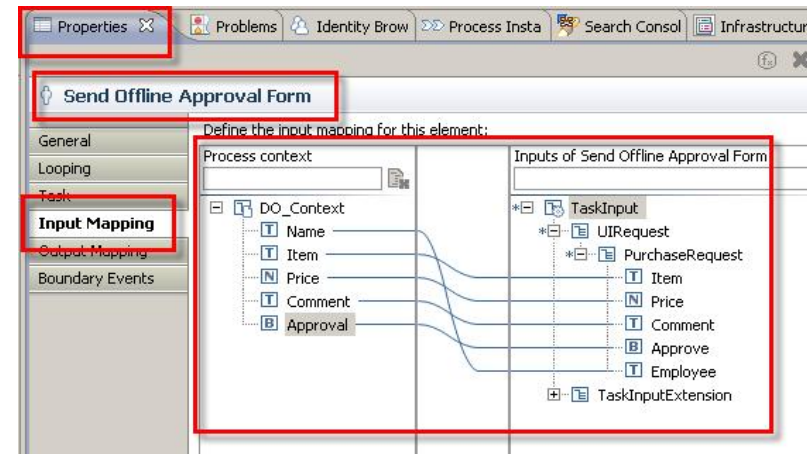
Subject: Purchase Approval Request from {sender} sent on {date}

Description: Dear {potentialOwner},  
Please adjudicate this purchase request.  
  
Response is expected by {deadline}.  
  
Kind regards,

# Task Activity Context Mapping



- **Input mapping** defines data that will be mapped to offline form *before* the e-mail is sent.
- Activity -> Input Mapping Tab -> map from *DO\_Context* node (left-hand side) to *TaskInput* -> *UIRequest* -> *<Offline Form Data Source>* (right-hand side)
- **Output mapping** defines Offline Form context that is extracted after form is submitted back to process context
- Activity -> Output Mapping Tab -> map from *TaskOutput* -> *UIResponse* -> *<Offline Form Data Source>* (left-hand side) to *DO\_Context* node (right-hand side)



Thank You!



No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Excel, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, System i, System i5, System p, System p5, System x, System z, System z10, System z9, z10, z9, iSeries, pSeries, xSeries, zSeries, eServer, z/VM, z/OS, i5/OS, S/390, OS/390, OS/400, AS/400, S/390 Parallel Enterprise Server, PowerVM, Power Architecture, POWER6+, POWER6, POWER5+, POWER5, POWER, OpenPower, PowerPC, BatchPipes, BladeCenter, System Storage, GPFS, HACMP, RETAIN, DB2 Connect, RACF, Redbooks, OS/2, Parallel Sysplex, MVS/ESA, AIX, Intelligent Miner, WebSphere, Netfinity, Tivoli and Informix are trademarks or registered trademarks of IBM Corporation.

Linux is the registered trademark of Linus Torvalds in the U.S. and other countries.

Adobe, the Adobe logo, Acrobat, PostScript, and Reader are either trademarks or registered trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

SAP, R/3, SAP NetWeaver, Duet, PartnerEdge, ByDesign, SAP Business ByDesign, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and other countries.

Business Objects and the Business Objects logo, BusinessObjects, Crystal Reports, Crystal Decisions, Web Intelligence, Xcelsius, and other Business Objects products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of Business Objects S.A. in the United States and in other countries. Business Objects is an SAP company.

All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice. These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warrant.