

SAP NetWeaver Process Integration 7.1
Using Integration Processes (ccBPM) in
SAP NetWeaver Process Integration 7.1



SAP NetWeaver Regional Implementation Group
SAP NetWeaver Product Management
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Reading this document, you will be able to:

- **Create an Integration Processes (ccBPM) in SAP NetWeaver Process Integration 7.1**
- **Understand the purpose of various step types**
- **Use abstract interfaces and correlations for message handling**
- **Use the ccBPM modeling enhancements**
- **Talk about the new ccBPM capabilities**

Agenda

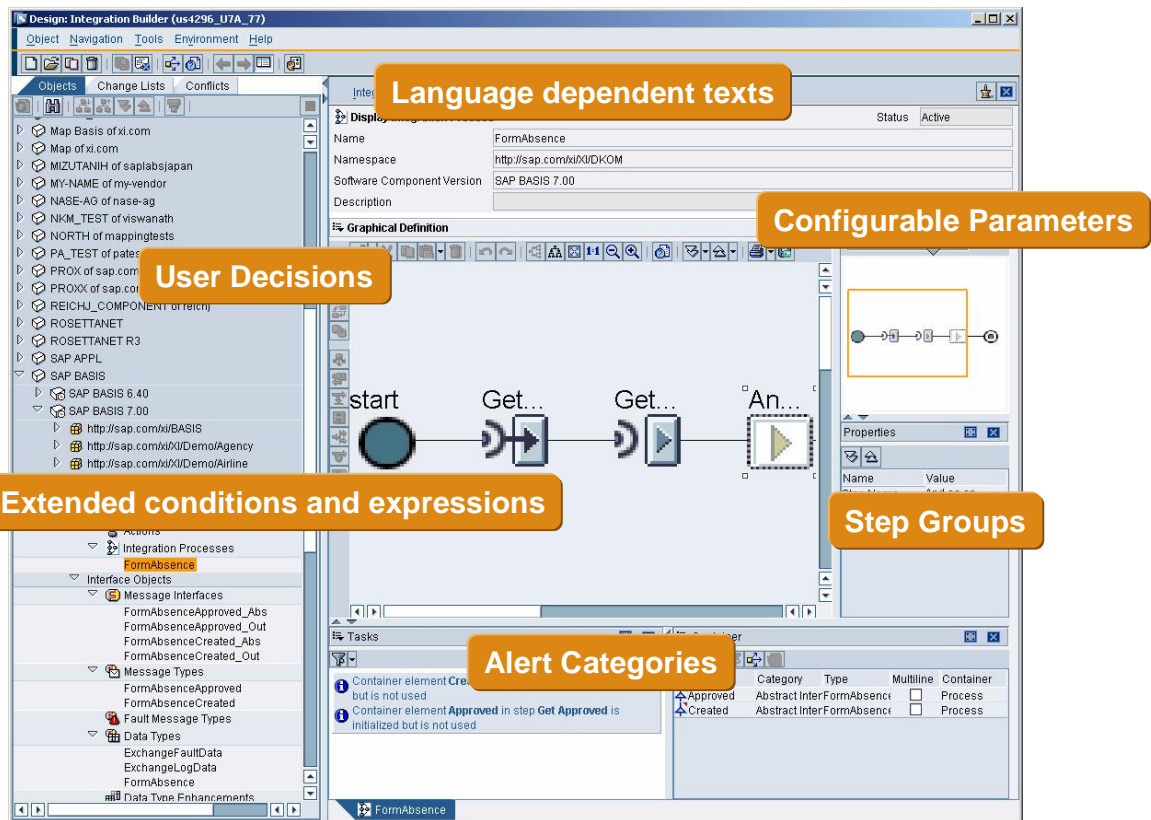


1. **Modeling Enhancements in ccBPM**
2. **New BPE Features in SAP NetWeaver PI**

Agenda



1. **Modeling Enhancements in ccBPM**
2. **New BPE Features in SAP NetWeaver PI**

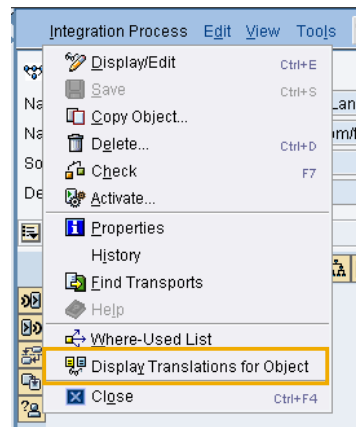
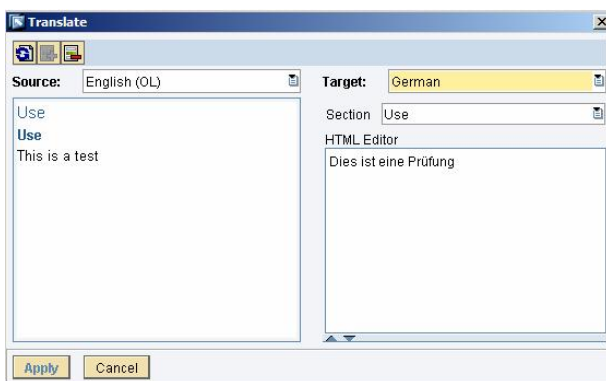
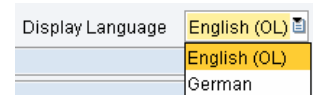


- With SAP NetWeaver Process Integration 7.1 a lot of new modeling concepts are introduced to ccBPM (cross-component Business Process Management)
- Basic extensions
 - Besides the Integration Process new Process Types are offered to allow fine granular check services depending on the Process Type (Integration, Monitoring, ...)
 - Language dependent text for all modeling elements allow better documentation for all SAP delivered processes
 - Configurable Parameters allow new concepts such as parameterization in general (see conditions) and user decision
- Step Groups for speeding up process modeling
- User Interaction
 - User Decisions
 - Alert Categories
- Conditions and expressions
 - Extended capabilities
 - Advanced User Interface

Language Dependent Texts



- Definition of language-specific texts in Integration Processes
- Define alerts or describe steps and translate these texts



- Language dependent texts supports describing processes in native language.
- Define the original language in the software component version and also the target language for the translations.
- After designing the process, change the display language and get the description of process elements in the defined language.

Configurable Parameters



- Configure the value of a parameter
- No need to change the process definition if value must be changed later
- Enables multiple processes using the same process definition, but with different parameters

The screenshot displays the SAP NetWeaver Process Integration interface. It features several windows and panels:

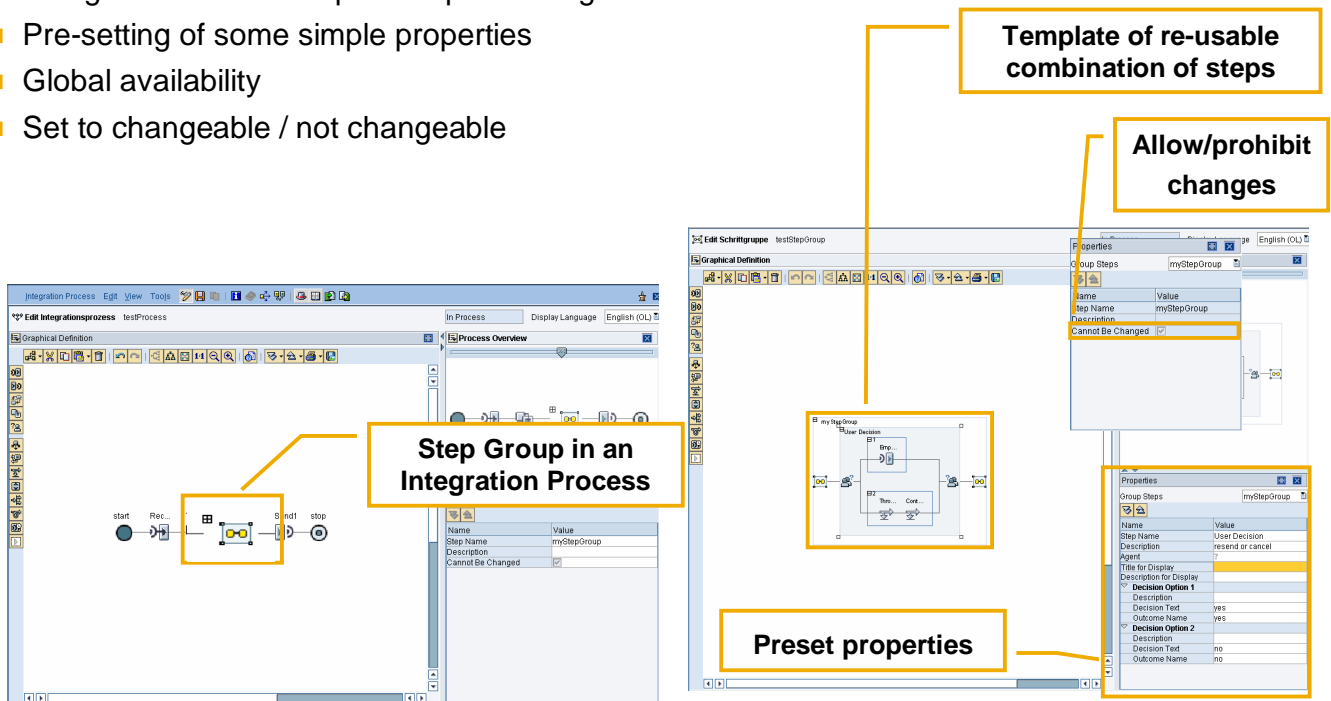
- Integration Process Parameters:** A table listing parameters for the 'testProcess' integration process.

Name	Value
Administrator	USMYSELF
decisionText	'yes or no?'
lookupChannel	* BS_Training_MSSQL_DB JDBC_Receiver_MSSQL
- Configurable Parameters Table:** A table defining parameters in the Enterprise Services Repository.

Name	Category	Type	Default Value	Description
Administrator	Agent			
decisionText	Simple Type	xsd:string	yes or no	
lookupChannel	Adapter	JDBC		
- Integration Directory:** A panel showing the configuration for the 'testProcess' integration process, including the 'lookupChannel' parameter.
- Navigation Menu:** A sidebar menu with options like 'Processing Log', 'Tasks', 'Search Result', 'Configurable Parameters' (highlighted), 'Properties', 'Process Overview', 'Dependent Objects', and 'Process Outline'.

- Configurable Parameters enable the configuring of the values of a parameter in the Integration Process component and in the Integration Directory.
- Thereby, if the value must be changed later on, the process definition has not to be changed
- Also it is possible to create multiple configurations for one process and define different values for a configurable parameter in each process.

- Step groups enable creation of reusable templates
- Design time artifact – speeds up modeling
- Pre-setting of some simple properties
- Global availability
- Set to changeable / not changeable



The image displays two screenshots from the SAP NetWeaver Process Integration tool. The left screenshot shows an integration process with a 'Step Group' highlighted in a yellow box, labeled 'Step Group in an Integration Process'. The right screenshot shows the 'Edit Schrittgruppe' (Edit Step Group) dialog, with several callouts: 'Template of re-usable combination of steps' pointing to the graphical definition, 'Allow/prohibit changes' pointing to the 'Cannot Be Changed' checkbox, and 'Preset properties' pointing to the 'Properties' table.

Name	Value
Group Steps	myStepGroup
Name	myStepGroup
Step Name	myStepGroup
Description	
Cannot Be Changed	<input checked="" type="checkbox"/>

Name	Value
Group Steps	myStepGroup
Name	myStepGroup
Step Name	User Decision
Description	resend or cancel
Agent	
Title for Display	
Description for Display	
Decision Option 1	
Description	
Decision Text	yes
Outcome Name	yes
Decision Option 2	
Description	
Decision Text	no
Outcome Name	no

- Steps groups speed up process modeling, as it is possible to define templates or typical process patterns which can be reused at design time.
- While defining a step group some simple properties can be predefined and than later on adapted to the current process design.
- The change of the properties can also be prohibited if necessary and only the preset properties can be used in the process.
- An advantage of the step groups is their global availability. Which means that once defined, a step group can be used in the whole repository.
- When using a defined step group at process design the group itself can be expanded or collapsed.

Alert Categories



- Creating of alert categories directly in the Integration Process
- Design of Integration Process and alert at the same time

The screenshot displays the SAP NetWeaver IDE interface. On the left, the 'Create Object' dialog shows the 'Alert Category' configuration with fields for Name (myAlert), Namespace (http://sap.com/test/ggating), and Software Component Version (i007112). The main workspace is split into two views: 'Alert Category bearbeiten' and 'Monitoring-Prozess bearbeiten'. The 'Alert Category' view shows the 'Alert Definition' (Priority: Very High, Maximum Number of Deliveries: 3, Expiry Time: 60) and a 'Short Text' describing a PO total value exceeded. The 'Monitoring-Prozess' view shows a graphical definition with a flowchart and a 'Properties' table.

Use Alerts in Control Steps (Callout pointing to the flowchart in the Monitoring-Prozess view)

Define alert at design of Integration Process (Callout pointing to the Alert Definition fields)

Having full access to the container-elements of the alert category (Callout pointing to the Container table in the Alert Category view)

Name	Type	Default Value	Descript
PONR	xsd:integer		
TV	xsd:integer		

Name	Category	Type	Multiline	Descript.	Scope
Purchase	XSD Sim...	xsd:integer			Global
TotalValue	XSD Sim...	xsd:integer			Global

- Another new feature is the creation of alert categories directly in the Integration Process.
- Previously it was necessary to use transaction code ALRTCATDEF and define the alert, then use this definition in the Integration Process.
- Now create an object of type “Alert Category” and use this in the Integration Process. After creating the alert, recipients are determined in ALRTCATDEF.

Extended Conditions and Expressions



- Define conditions to control processing depending on the result of the condition
- The condition editor supports the definition of the condition
- Insert comments to ensure that conditions remain clear and easy to understand

Drag & drop and context sensitive help

Condition Editor provides all back-end functionality and is re-usable by all ESR components

Properties

Name	Value
Step Name	Switch1
Description	
Branch 1	
Description	
Outcome Name	
Condition	

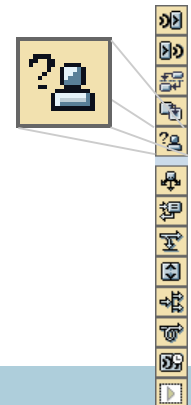
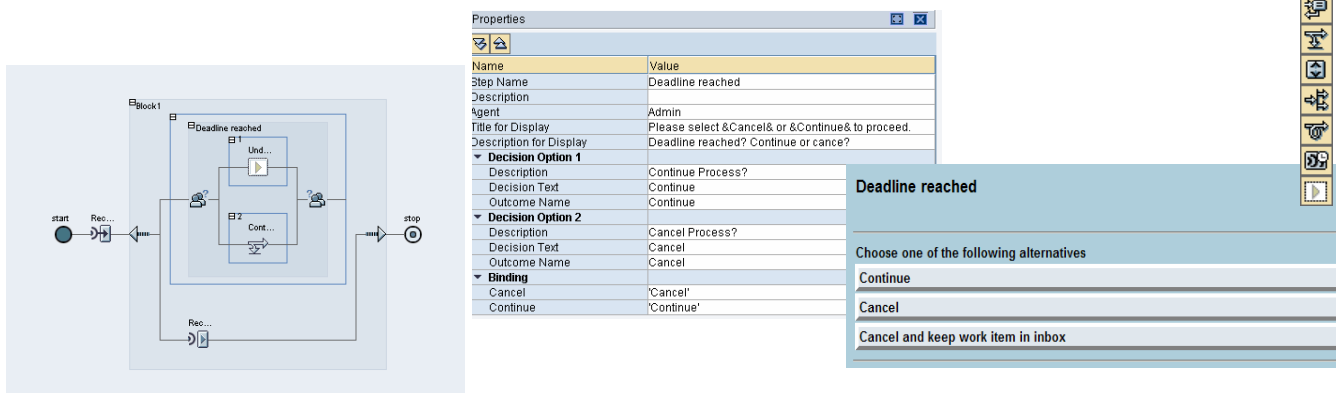
```

<Parenthesis><Operator> <Variable>
/*Conditions can also contain comments and formatting*/
(variable_2 < 531) | EX variable_3
    
```

Declare condition variables in the Condition Variables view and assign values in the Bindings view. For input assistance when defining a condition, press CTRL + SPACEBAR. Below is an example of a valid condition:*/ (variable_1 = "abc") & /*Conditions can also contain comments and formatting*/ (variable_2 < 531) | EX variable_3

- With the help of conditions you are able to control the flow of a process. Depending on the result of the defined condition, the process will be executed in the defined way.
- Use the step type “Switch” and use “Condition” in the properties.
- In the integrated Condition Objects Editor you can formulate logical conditions.

- Generic user decision during the execution of an Integration Process
 - Deadline occurs, or an alert is thrown, option needed to directly interact
 - Provides decision gateway and outcomes of the user decision, and uses the Integration Directory for responsibility determination
 - Uses container elements type “agent” from the configurable parameters
 - Language dependent texts for end-user display enriched with variables

Name	Value
Step Name	Deadline reached
Description	
Agent	Admin
Title for Display	Please select &Cancel& or &Continue& to proceed.
Description for Display	Deadline reached? Continue or cancel?
Decision Option 1	
Description	Continue Process?
Decision Text	Continue
Outcome Name	Continue
Decision Option 2	
Description	Cancel Process?
Decision Text	Cancel
Outcome Name	Cancel
Binding	
Cancel	'Cancel'
Continue	'Continue'

- Use the new step type “User Decision” to enable a user to decide which branch of a process flow should be executed.
- For each decision option a branch is entered.
- At runtime the user will be notified by a dialog work item in the workflow inbox.
- To define the text, which will be displayed for the user, it is possible to use local variables. At runtime these variables will be replaced with the current data from the process.
- Within “User Decision” you will use the introduced “Configurable Parameters” to determine which user should be notified at runtime. Therefore you use the configurable parameter type “Agent”.



Standard Support

- BPEL4WS 1.1 (specification / already adopted)
- WS-BPEL 2.0 (specification / preview / implementation)
- Plans to support BPEL4People

SAP is

- A leader in BPEL-Standard adoption
- A driver of the BPEL-Standard
 - SAP was one of the proposers of the OASIS WS-BPEL Technical Committee
 - SAP works together with IBM on BPEL standard extensions

- SAP joined the BPEL initiative in March 2003 and it is
 - Co-author of the BPEL4WS 1.1 specification
 - Early adopter of BPEL4WS 1.1
 - SAP NetWeaver customers are live and in production with BPEL4WS 1.1
 - Co-author of the WS-BPEL 2.0 proposal
- SAP was one of the proposers of the OASIS WS-BPEL Technical Committee
- SAP actively participates in the OASIS WS-BPEL Technical Committee
- SAP works together with IBM on two significant BPEL Extensions :
 - How people interacts with BPEL processes (people interaction patterns go beyond simple Web services calls)
 - Modularization and reuse in WS-BPEL

Agenda



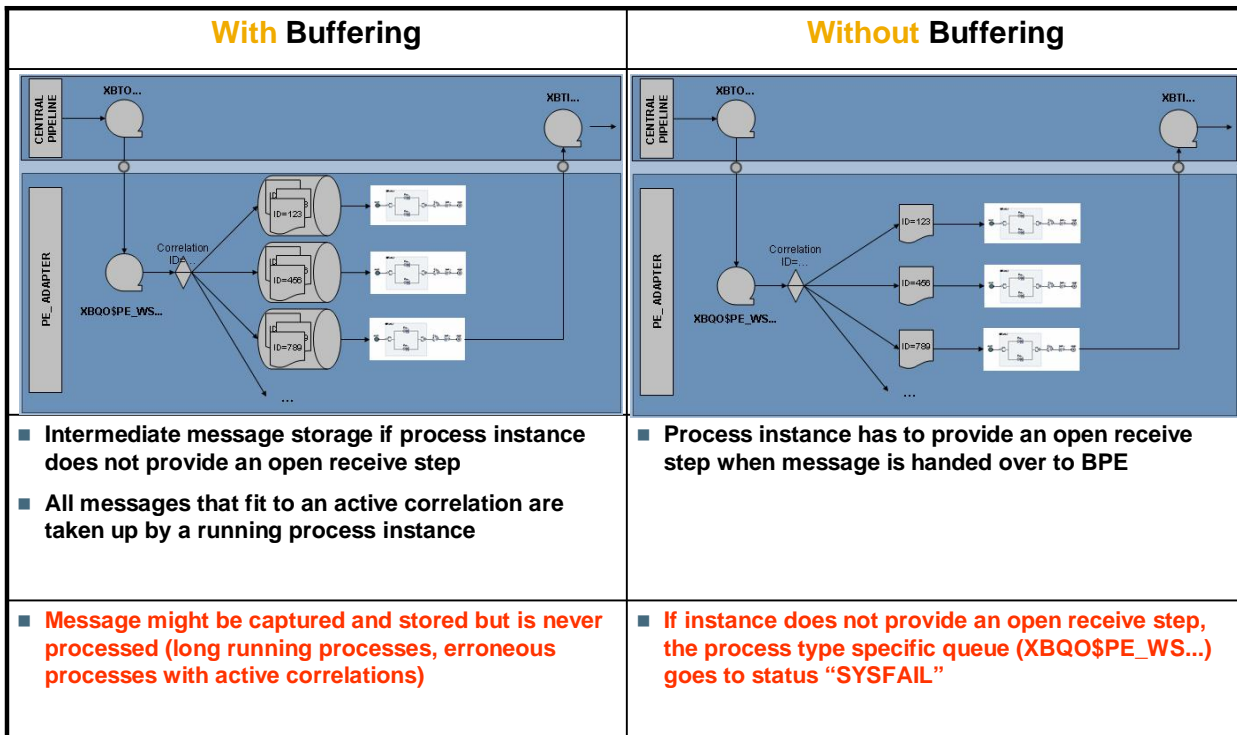
1. **Modeling Enhancements in ccBPM**
2. **New BPE Features in SAP NetWeaver PI**



- **Delivery Mode**
 - **Delivery of messages to receive steps to running process instances**
- **Queue Assignment**
 - **Parallelization of process execution**
- **Flexible Hibernation / Transaction Handling**
 - **Block-oriented handling of persistency within the transactional concept**
- **BPE Message Bulking**

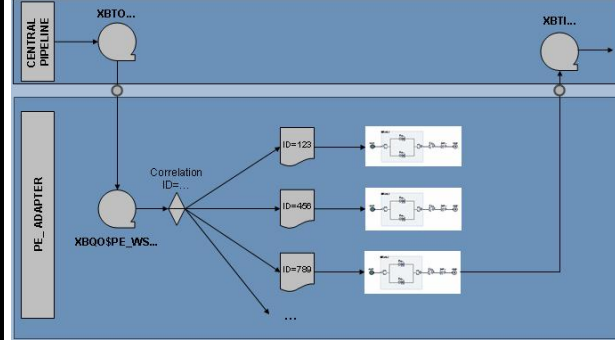
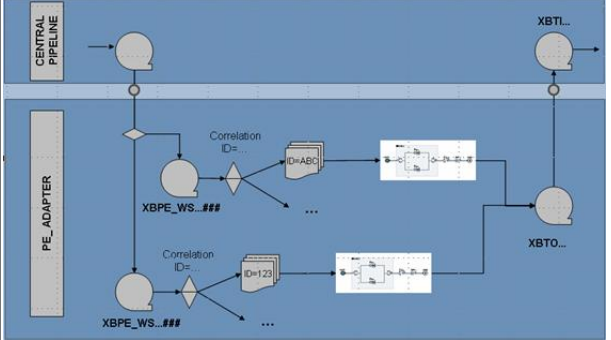
- **Following parameters to configure the BPE runtime behavior have been introduced:**
 - Delivery Mode: governs the delivery of messages to receive steps to running process instances
 - Queue Assignment: permits a parallelization of process execution
 - Transaction Handling: defines the sync-points with the database
 - BPE Message Bulking: provides a mass delivery of messages to receive steps
- **Those parameters and their impact on the process design and the process runtime (BPE) will be discussed in detail.**

Defines whether messages are handed over to process instance directly or with intermediate buffering



- The parameter Delivery Mode governs the delivery of messages to receive steps to running process instances
- The parameter can take two values "With Buffering" and "Without Buffering"
- Setting With Buffering
 - Additional storage of messages: if message to be delivered to running process cannot be taken up by a receive step, it is buffered
 - Following receive step will take up buffered message
 - Drawback: If no further receive step will be available, message is captured by the process and might get lost
- Setting Without Buffering
 - Message is delivered directly of waiting receive step
 - Developer has to guarantee, that each for each delivered message there will be an open receive step
 - Drawback: If instance does not provide an open receive step, the process type specific queue (XBQO\$PE_WS...) goes to status "SYSFAIL"

Defines whether messages are handed over to process instance using single or multiple queues

Single Queue	Multiple Queues
	
<ul style="list-style-type: none"> ■ All messages dedicated to a specific process type are handled by a single queue 	<ul style="list-style-type: none"> ■ Using multiple queues per process type <ul style="list-style-type: none"> - Arbitrary distribution to queues: "Multiple Queues (Random)" - Distribution based on correlations: "Multiple Queues (Content-Specific)"
<ul style="list-style-type: none"> ■ Works for all process definitions 	<ul style="list-style-type: none"> ■ Might conflict with correlation handling

- Queue Assignment: permits a parallelization of process execution
- Technically spoken, it defines whether messages are handed over to process instance using single or multiple queues.
- Multiple queues may either use
 - Arbitrary distribution to queues (and hence process instances). Mainly used for split processes.
 Or
 - Content-based distribution (required for all process types using correlations). Mainly used for collect processes.



Adjustable transaction handling

So far:

- Pessimistic assumption regarding transactional behavior
- Required numerous creation of workitems and execution DB actions

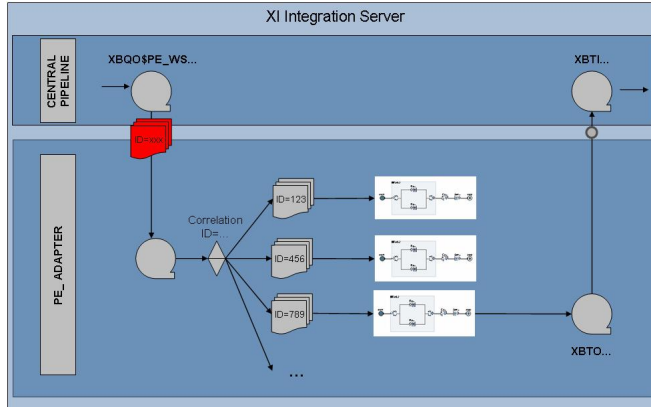
Now:

- Developer decides whether
 - a step creates new transaction
- or
 - The steps are executed synchronously
- Configurable DB sync points

Name	Value
Step Name	Send_no_TA
Description	
Mode	Asynchronous
Create New Transaction	<input checked="" type="checkbox"/>
Message	no
Acknowledgment	None
Receiver From	Send Context
Send Context	
Conversation ID	
Queue Name (EOIO)	
▼ Exceptions	
System Error	
Activate Correlations	

- Developer decides whether
 - a step creates new transaction
- or
 - The steps are executed synchronously
- Configurable DB sync points

Delivery of message bulks to BPE inbound processing



Advantages

- Delivery of multiple messages to process instance in a single transaction
- Raises message throughput (but: latency of single message may increase)
- Reduces persistence effort
- Reduces occupied DB space

- Delivery of message bulks to BPE inbound processing in order to increase message **throughput**



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