Benefits

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

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

- 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

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 then 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

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.

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 Editor you can formulate logical conditions.

Drag & drop and context sensitive help

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

- 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

- 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.”
BPEL 2.0 and BPEL4People

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
New Runtime Behavior of the BPE

- 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.
Delivery Mode

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

<table>
<thead>
<tr>
<th>With Buffering</th>
<th>Without Buffering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediate message storage if process instance does not provide an open receive step</td>
<td>Process instance has to provide an open receive step when message is handed over to BPE</td>
</tr>
<tr>
<td>All messages that fit to an active correlation are taken up by a running process instance</td>
<td></td>
</tr>
<tr>
<td>Message might be captured and stored but is never processed (long running processes, erroneous processes with active correlations)</td>
<td>If instance does not provide an open receive step, the process type specific queue (XBQO$PE_WS...) goes to status “SYSFAIL”</td>
</tr>
</tbody>
</table>

- 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”
Queue Assignment

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

- **Single Queue**
  - All messages dedicated to a specific process type are handled by a single queue
  - Works for all process definitions

- **Multiple Queues**
  - Using multiple queues per process type
    - Arbitrary distribution to queues: "Multiple Queues (Random)"
    - Distribution based on correlations: "Multiple Queues (Content-Specific)"
  - 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
  - The steps are executed synchronously
- Configurable DB sync points

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

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