Setting up a Simple Application with SAP Business Rule Framework plus

Business Driven, Simple, Robust, Flexible, Transparent

Wolfgang Schaper
BRFplus, SAP AG
June 17, 2010
Disclaimer

This presentation outlines our general product direction and should not be relied on in making a purchase decision. This presentation is not subject to your license agreement or any other agreement with SAP. SAP has no obligation to pursue any course of business outlined in this presentation or to develop or release any functionality mentioned in this presentation. This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice. 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. SAP assumes no responsibility for errors or omissions in this document, except if such damages were caused by SAP intentionally or grossly negligent.
What are Business Rules?

Business Rules

A set of decisions / calculation mechanisms applied to a business process:
- Optimized process output
- Adherence to regulations/policies
- Process automation

RFx can be created manually or by a predecessor document. RFx specific information (e.g., submission deadline, suppliers) is maintained.

RFx is sent to the selected suppliers to obtain a bid.

Bids are received and can be evaluated according to different criteria (e.g., best price).

Best source of supply is selected and notification of acceptance is sent to the supplier. Rejection is sent to other suppliers.
Business User Empowerment

Facilitates cooperation of Business and IT

Explore  Change  Manage  Test

Find

BRFplus
Use Case Hotel Room Rate

- For given check-in and check-out dates the total rate for a specific room type is being calculated
- A check for check-out date later than check-in date is included
- A notification mail with the relevant data is triggered
Creating an Application

- To access BRFplus Workbench, call transaction BRFPLUS
- BRFplus applications are assigned to a Development Package, an Application Component, a Software Component
- BRFplus is fully integrated with SAP ABAP server, including SAP Dynpro, transport management, DDIC, …
Creating an Application

- The Object Tree at the left contains all comprised objects, and allows for direct access.
- The Documentation (available for all objects) describes the application.
Functions – Business Rules Service

- A Function is the executable entity that finally runs the business rules
- It serves as an entry point that calls assigned Rulesets
- It can be run directly in the BRFplus Workbench (Button “Start Simulation”) or be called programmatically from any application locally (ABAP) or remote (RFC, web service)
Functions – Business Rules Service

- One or more Rulesets can be assigned to a Function
- These Rulesets are processed according to their priority
Signature of a Function

- In the Signature, the Context is a list of all Data Objects that can be used as input parameters.
- Additionally, an output parameter can be defined.
- In that case we define check-in date, check-out date and room type as input parameters, and the total rate as output parameter.
Simulating a Function

- When simulating the Function, you can enter respective input parameters. In this case it is the check-in and check-out date, and the respective room type.

- The simulation is triggered by the button “Run Simulation” at the lower left of the screen.
Simulating a Function

- You get the result (total room rate in this case) to be seen on the upper left, as well as a trace of all intermediate steps.
Simulating a Function

- You get the result (total room rate in this case) to be seen on the upper left, as well as a trace of all intermediate steps.
- You can expand or collapse all nodes.
- You can see triggering the notification Email.
Rulesets are buckets full of rules to be processed in the given order.

Rules may have conditions (“IF”). If it is fulfilled, the “THEN”-branch is processed, otherwise the “ELSE”-branch.

E.g. performing an operation only if the duration is greater than 0.

Rules can be defined as processing an expression like decision tables, decision trees, boolean statements, formulas, loops, table operations, or calling an action, or as assigning a value to a Data Object, or executing another Rule.
Rulesets are buckets full of rules to be processed in the given order.

Rules may have conditions (“IF”). If it is fulfilled, the “THEN”-branch is processed, otherwise the “ELSE”-branch.

E.g. performing an operation only if the duration is greater 0.

Rules can be defined as processing an expression like decision tables, decision trees, boolean statements, formulas, loops, table operations, or calling an action, or as assigning some value to a Data Object, or executing another Rule.

You can extend the business vocabulary by defining variables for saving intermediate results.
Rules and Expressions

- You can define a start and end date, when the rule is valid. It will only be processed within that timeframe.

  That feature can be used for temporarily discounts for instance.

- There are many predefined types of Expressions available, like

  Loops
  Decision Tables
  Formulas
  Procedure Calls
  Table Operations
  and many more

  Additional custom expression types can be implemented.
The rate of a room can be derived with a Decision Table. Each line contains the room type and the respective rate.

When invoking a Decision Table for some room type, it returns its rate.

Besides single values you can as well define lines for sets of values, intervals, values that fulfil some condition, ...

Decision tables can be exported to and imported from MS Excel files.
Example of an Expression: Decision Table

- In the Table Settings the condition columns and the result columns are defined.
- So it is known which values to take as input and output parameters.
Example of an Expression: Formula

- To calculate the number of days between check-in date and check-out date, we use a Formula
- You can define terms to be derived, using various operations (mathematical, text based, date and time functions, table functions, ...), expressions (like other Formulas or Decision Tables), and all available variables and data objects from the Context
Data Objects

- **Data Objects** are entities to store values.
- In our example, the input parameter `CHECK_IN_DATE` implemented as a Timepoint.
- Other examples for Data Objects are Tables, Structures, or basic Elements like Texts, Numbers, Quantities, Amounts, Timepoints, Booleans.
Data Objects

- The Element ROOM TYPE, used in our example has type Text.
- It allows for storing text of defined length.
- Data Objects can be bound to the Data Dictionary of the SAP Backend System.
The Element ROOM TYPE, used in our example has type Text.

- It allows for storing text of defined length.

- Data Objects can be bound to the Data Dictionary of the SAP Backend System.

- You can define specific Domain Values, which are constants that can be bound to DDIC.

  By doing so, metadata and value help is taken over from DDIC.

  There is no need for manual redefinition.

- In our example it is the room types available.
Element ROOM_RATE, used as the return parameter of our function, is defined as a Number.

You can define attributes like number of digits and decimal places, or restrict to positive values only.
Example of an Action: Send Email

- In addition to calculating the total room rate, our example should trigger a notification mail to the manager.
- In the Ruleset we have seen the call of that action.
- We can now define the recipients, the subject, and the body of the mail.
- Placeholders can be used to fill in dynamic values from Variables.
- Other actions like calling a procedure, writing a message log, or raising a business event are available as well.
For all objects of an Application you can access the information on where that object is used, and which object uses it.
- For better overview of the most important or for some user group relevant objects, you can define Catalogs.

- Catalogs contain a filtered view on the items of one or many BRFplus Applications.
For better overview of the most important or for some user group relevant objects, you can define Catalogs.

Catalogs contain a filtered view on the items of one or many BRFplus Applications.

By using Catalogs you allow users to focus on a collection of objects from one or many applications that are relevant for them, and prevent them to access other objects.

For instance a hotel employee is supposed to maintain room rates, but should not change the business logic of rate calculation.
**Calling Functions from Backend Applications**

- Calling Functions from backend applications can be done quite easily.
- In this simple sample we get a handle to the BRFplus engine and respectively to our function `CALCULATE_HOTEL_ROOM_RATE`. We fill the context and call the function.
Calling Functions from Backend Applications

- Calling Functions from backend applications can be done quite easily.
- In this simple sample we get a handle to the BRFplus engine and respectively to our function `CALCULATE_HOTEL_ROOM_RATE`. We fill the context and call the function.
- As a result we get the total room rate, as in the simulation before.
- The notification Email was triggered as well.
- For performance optimization, calling a function the first time automatically generates code that then is executed for this and all further calls.