

# Trigger BRFPlus from Workflow and Trigger Workflow from BRFPlus



## Applies to:

SAP R/3 ECC 6.0, SAP NetWeaver 7.0 Enhancement Package 1 and 7.1 EHP 1. For more information, visit the [ABAP homepage](#).

## Summary

The purpose of this document is to illustrate the steps and explain with an example to show –

- 1) Trigger BRF+ from Workflow
  - a. Using Business Object Method option
  - b. Using BRF+ Function option
- 2) Trigger Workflow from BRF+

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**Created on:** Feb 06, 2012

## Author Bio



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## Introduction

Business Rules Framework Plus (BRFPlus) is a Business rules System developed in ABAP. It provides a comprehensive application programming interface (API) and user interface (UI) for defining and processing business rules. BRFPlus supports features like simulation, trace, transport, XML export or import. Business Rulesets describe the operations, definitions and constraints that apply to an organization in achieving its goals. They enable an organization to achieve its goals by describing the operations, definitions and constraints. Business rules include basically everything that runs a business, for instance, business habits, manuals, policies, lines of computer code, and minds of experienced employees. Managing business rules, which are subject to frequent changes because of an agile environment, is the biggest challenge organizations face today. Hence, is the importance of BRF+ which is built on ABAP stack and has been effectively integrated with WebDynpro, ECC 6.0.

A similar functionality such as “Decision Tree” in HR Mini Master (PE03 transaction), “Validation and Substitution” in Finance module (OKC7 transaction), which gives flexibility through configuration. But limitation is this functionality is limited to specific modules.

## Audience

ABAP Technical consultants - Business Rule Framework Basis, Workflow Basics

## Purpose

Usage of Business Rule Framework Plus (BRF+), gives the flexibility to the update the rules without any need to integrate or modify the code and thereby directly deploy the changes.

The purpose of this document is to illustrate the steps and explain with an example to show –

- 1) Trigger BRF+ from Workflow
  - a. Using Business Object Method option
  - b. Using BRF+ Function option
- 2) Trigger Workflow from BRF+

## Limitations in Conventional approaches (apart from BRF+ Usage) -

There are many alternatives to the usage of BRF+, however these approaches don't give the flexibility and transparency to the end user. Most of the time, these approaches either involve coordination efforts between IT experts and business experts, or downtime in order to facilitate the code change, or costs in testing the new modified business rules.

- 1) Rules inside Database – Rules are often maintained as Routines, Procedures and Access sequence.
- 2) Rules inside Code – Rules are often incorporated in the code logic by using IF ENDIF or CASE statements.
- 3) Rules in Documents – Rules are often stored in excel sheet, or word document; however this option requires special attention to ensure versioning, archiving and compliance.

## Dependencies/Pre-requisites/Assumption

- 1) Basic understanding of Workflow, Object Oriented concepts and BRFPlus is required to understand the flow and usage.

## Technical Process

For demonstration purpose, I have used below scenario –

- 1) BRF+ is triggered from workflow through an activity
- 2) Workflow is integrated with BRF+ through Ruleset

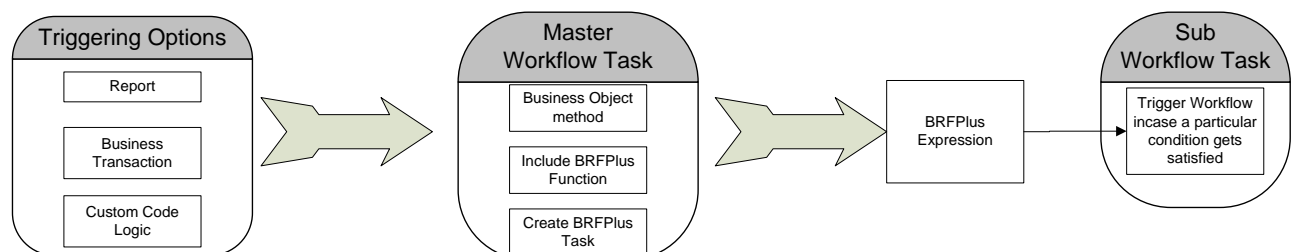
## Scenario Illustration

- 1) Variable payout of an employee is calculated based on his Current salary and Grade
- 2) Below is a scenario in which implementation of BRF+ is useful. For different grade of employee, final payout is calculated based on different formula. Further, incase an employee is of grade E, workflow needs to be triggered to his manager intimating about the same.

Grade/ Level of Employee	Variable Payout	Additional conditions
A - C	Current salary * 2	
D - F	Current salary * 3	If Current Grade of employee is "E", workflow needs to be triggered from BRF+ to the manager intimating about the increased payout.
G – H	Current salary * 4	
I	Current Salary + 100	

- 3) The above BRF+ function would be triggered from custom workflow. Possible scenarios are -
  - a. Employee submits his yearly performance from a business transaction, and based on his current grade the "Master" workflow gets triggered to calculate the variable payout for that particular employee.
  - b. Yearly batch program/ report is executed for all the employees which in turn triggers "Master" workflow for various approval process from managers. Before sending notifications to managers, variable payout of the employee needs to be calculated.
  - c. Custom code logic may trigger the "Master" workflow based on specific requirement.

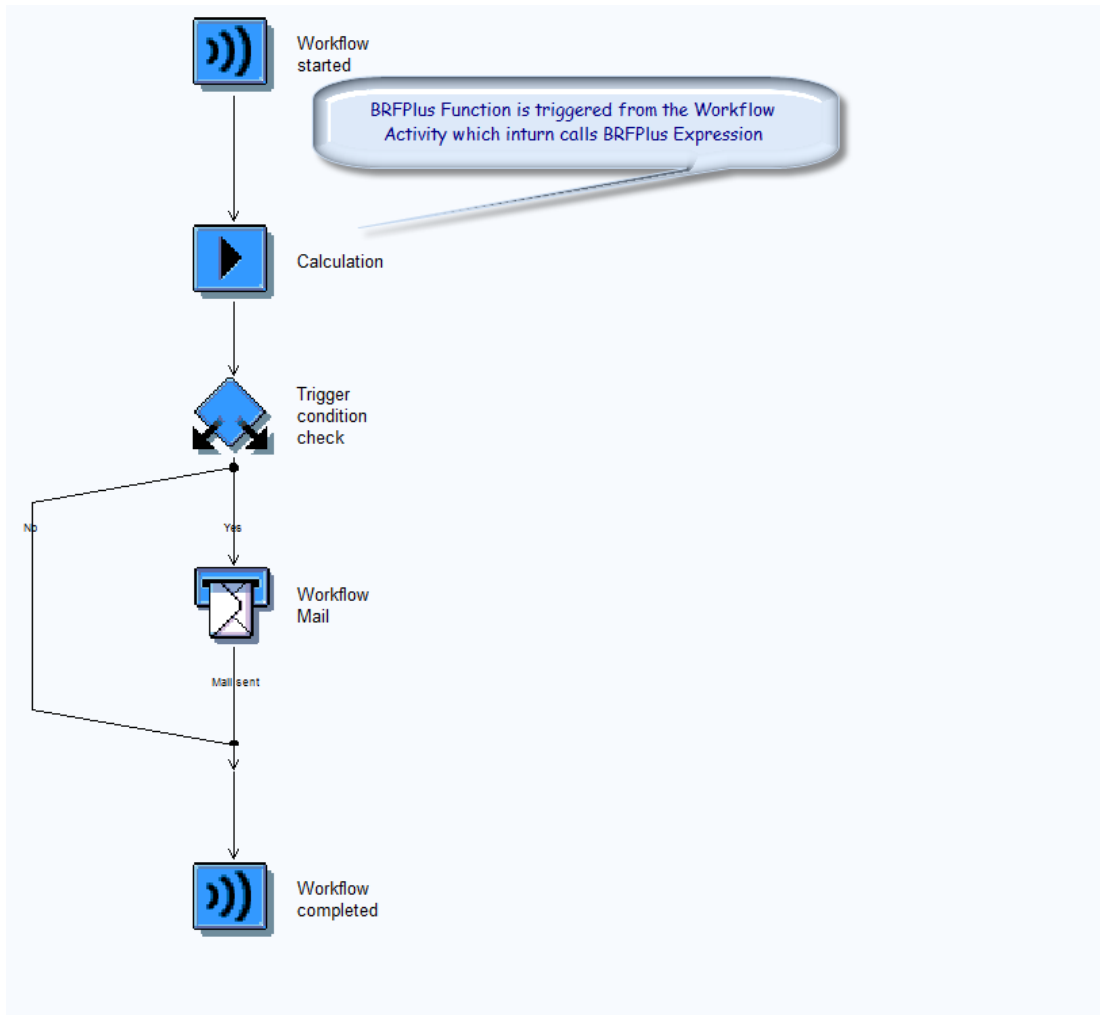
- 4) The flow logic is as below –



- 5) BRFPlus Expression is used to calculate Variable Payout based on Grade of employee and his current salary. Different formulas are used for each Grade.
- 6) SubWorkflow gets triggered from BRFPlus expression when a specific condition is satisfied.

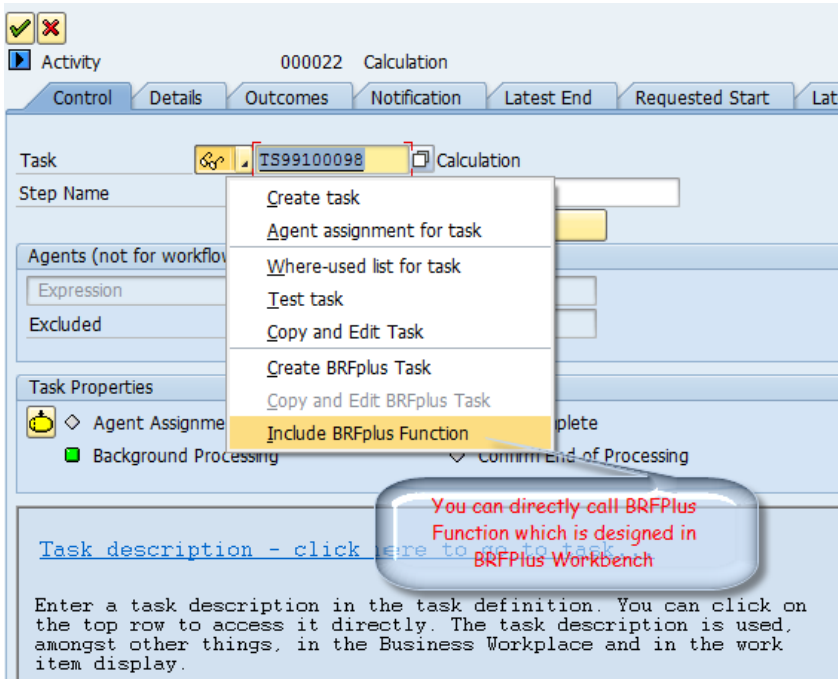
### Trigger BRFPlus from Workflow

A simple example is taken to illustrate the BRFPlus triggering from Workflow scenario. As mentioned, this "Master" workflow can be triggered from report or business transaction or custom code logic. This document concentrates more on linkage of workflow with BRFPlus. Refer to links mentioned in Appendix for illustration on how workflow can be triggered from events/ custom code.

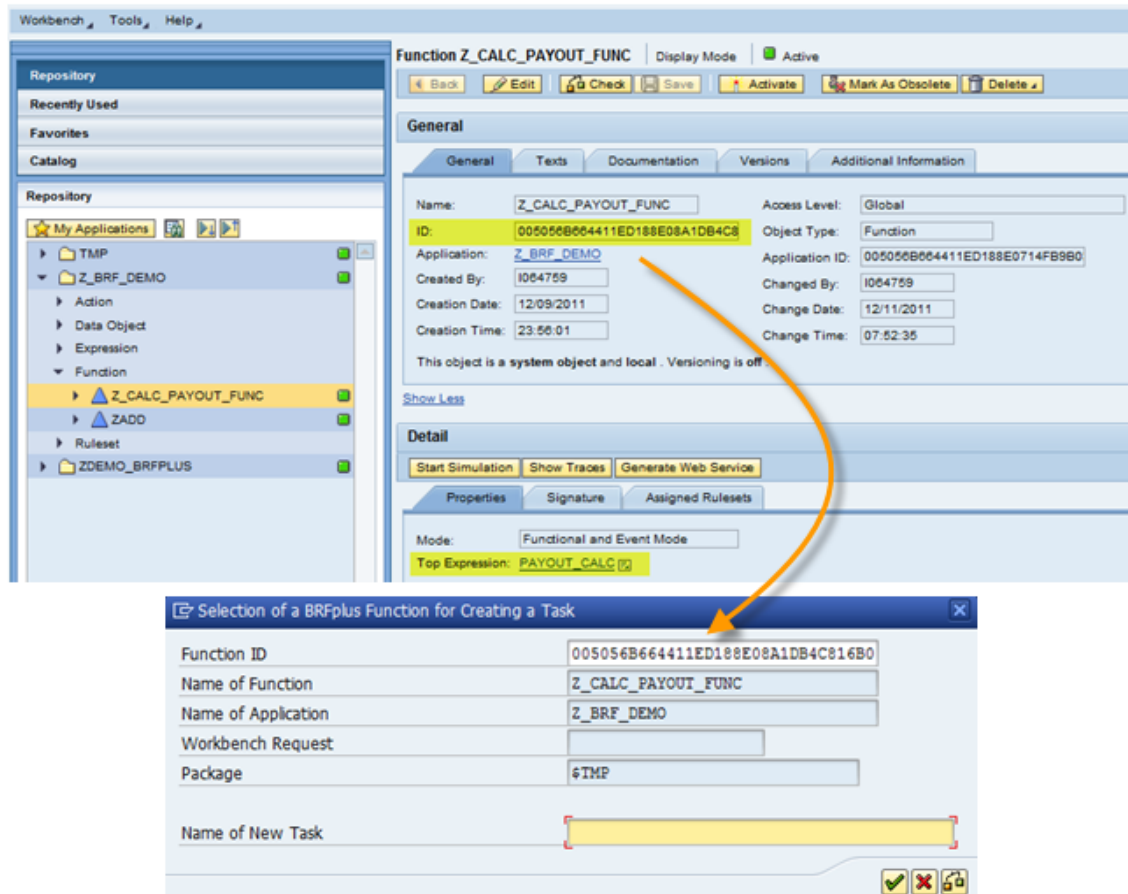


### Include BRFPlus Function

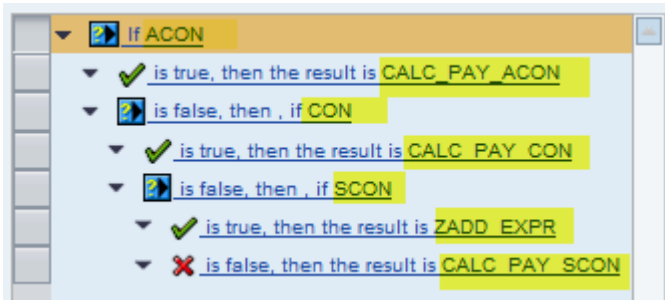
a) In the Activity, we have option to create/ link Task.



b) If “Include BRFPlus function” option is selected, provide same Function ID as the one available in BRFPlus Workbench. BRFPlus Application can have multiple functions and each function is identified by a unique ID.



- c) This BRFPlus Function contains the BRFPlus expression designed as per requirement. Refer to links mentioned in Appendix for illustration on how expressions need to be created.

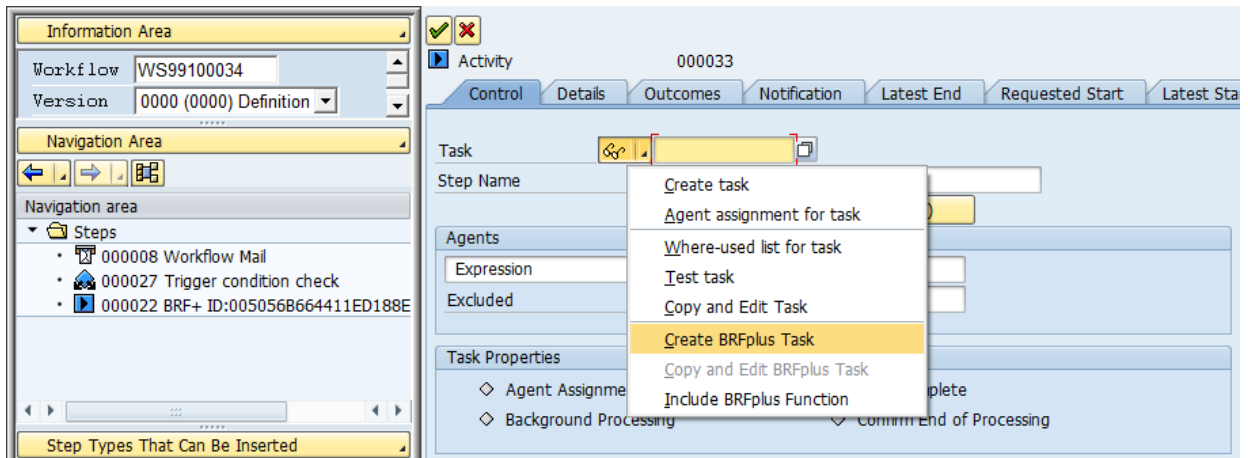


- d) Binding is done at Workflow level to ensure correct data flow between Activity container and BRFPlus container.

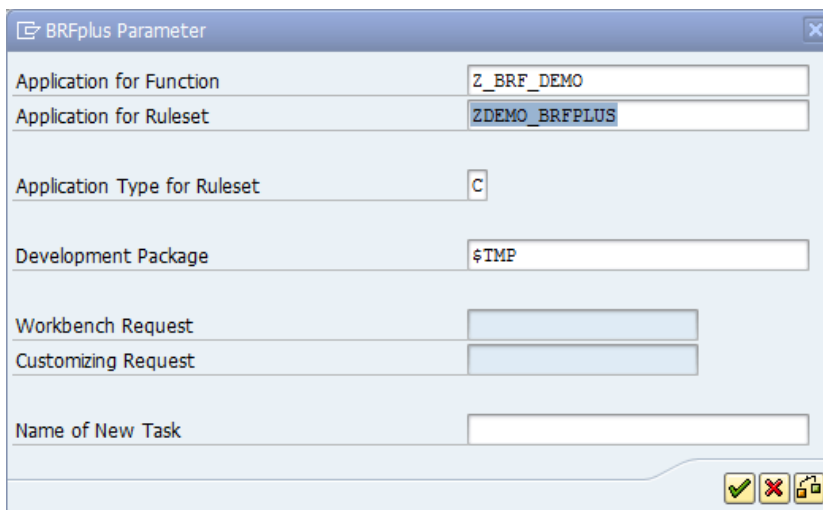
You may navigate to BRFPlus workbench using the “BRFPlus” icon.

### Create BRFPlus Task

- a) Other option to link BRFPlus with workflow is to use RuleSet. This option can be used with “Create BRFPlus Task” option.



- b) Mention the Ruleset value



- c) Appropriate binding needs to be done between Workflow container and BRFPlus Task container.



## Test BRFPlus triggering from Workflow

On executing the workflow directly, it inturn calls the BRFPlus expression.

- 1) If BRFPlus Function is directly executed, below is the output based on the condition (mentioned on page 3). For Grade A employees, the variable payout will be (“Current Salary” \* 2)

Selected Function: Z\_CALC\_PAYOUT\_FUNC Select Other Function

---

**Context Values** Import Test Data

Current Salary:

Grade of Employee:  No classification

---

**Simulation Mode**

Show only Result

Show also Results of Intermediate Steps

Run Simulation

Back to Workbench

---

System: ER1 / 000 User: I064759 / E Mode: Simple Mode

---

**Result**

Final Payout:

---

**Process**

Step	Type	Status	Value
Trace for Z_CALC_PAYOUT_FUNC started on 12/19/2011 04:02:50 by user I064759	Trace		
<b>Z_CALC_PAYOUT_FUNC</b>	Function	STARTED	
Functional Processing			
Context			
CASHPAY	Data Object		1,000
GRADE	Data Object		A
PAYOUT_CALC	Decision Tree	STARTED	
Evaluating Condition Node Associate Consultant			
ACON	Value Range	STARTED	
Evaluating Include Conditions with test parameter Grade of Employee (GRADE)			
Grade of Employee (GRADE) value A is less than D			
Range Conditions are evaluated: result is true			
ACON	Value Range	FINISHED	true
Evaluating Leaf Node Bonus for Associate Cons			
CALC_PAY_ACON	Formula	STARTED	
Constant evaluated to 2			
Multiplication: ( 1000 * 2 ) = 2000			
CALC_PAY_ACON	Formula	FINISHED	2,000
PAYOUT_CALC	Decision Tree	FINISHED	2,000
Event Processing			2,000

Back to Workbench

---

System: ER1 / 000 User: I064759 / E Mode: Simple Mode

2) If Workflow is executed, we would validate that same output is calculated –

**Test Workflow**

Refresh Organizational Environment Workflow Log Business Workplace Display Task

Workflow: WS99100034 Mail  
 Type: Workflow template  
 Name: Mail  
 Validity: 01/01/1900 To 12/31/9999

Input Data Ad Hoc Agents DeadlineData Outcome

Test Data Load Save Initial Data

Expression	M	Values
• □ _Wf_Initiator		USI064759
• □ _Wf_Priority		5
▶ ☉ _Wi_Group_ID		< No Instance >
• □ GRADE		A
• □ CASHPAY		1,000
• □ VARPAY		0

Transaction SW11 would show all the tasks that got executed and also the container values.

**Workflow log (View with technical details)**

Hide Details ActiveX version log

Tree View

Steps	Created By	Wor...	Nod...	Task Id	Creation Date/Time	Execution Time
• Mail	Debs Sarkar	396275	1	WS99100034	12/19/2011 - 04:35:19	3s
• Calling a BRFplus Function	Debs Sarkar	396276	22	TS99100101	12/19/2011 - 04:35:19	1s
• Trigger condition check				27	12/19/2011 - 04:35:21	
• Workflow Mail - Flag = 1	Workflow System	396277	8	TS99100097	12/19/2011 - 04:35:21	2s

Details Step History Deadlines Task Description Container Message

Definition

Expression	Values
▶ Adhoc_Objects	< Not Set >
▶ Attach_Objects	< Not Set >
• □ _Wi_Actual_Agent	< Not Set >
▶ ☉ _Wi_Group_ID	< No Instance >
▶ ☉ _Workitem	WORKINGWI:000000396276
▶ ☉ _Rule_Result	< No Instance >
▶ ☉ _Wi_Object_ID	ZCLBRF_0050568664411ED188_0002:0050568664411ED188E08A1D...
• □ CASHPAY	1,000
• □ GRADE	A
• □ VARPAY	2,000

## Trigger Workflow from BRFPlus

- 1) Workflows can be triggered from BRFPlus using "RuleSet" type.

The screenshot shows the configuration for a RuleSet in SAP BRFPlus. The 'General' tab is active, showing the Name as 'Z\_BRF\_DEMO' and Short Text as 'BRF+ Appl'. The 'Detail' tab is also visible, showing the 'Application Administration' section with tabs for Properties, Default Settings, Contained Objects, and Miscellaneous. The 'Type' is set to 'Ruleset'. A table below shows the RuleSet configuration:

Name	Text	Type
WFRULESET	Workflow RuleSet	Ruleset

- 2) Multiple Rules can be assigned to Ruleset.

The screenshot shows the configuration for a RuleSet in SAP BRFPlus. The 'General' tab is active, showing the Name as 'WFRULESET' and Short Text as an empty field. The 'Detail' tab is also visible, showing the 'Context Overview' section. The RuleSet is enabled and contains 1 rule(s) and 0 variable(s). The RuleSet will be triggered if 'Z\_CALC\_PAYOUT\_FUNC' is processed. The 'Rules' section shows a single rule: '(1) Rule: Workflow Rule - Validity: 12/09/2011 - 12/09/2012'. The rule is defined as:

If **GRADE** is equal to E

Then (1) Perform Action **Z\_TRIG\_WF**

A callout box points to the action, stating: "Workflow can be maintained as Action".

Binding between Workflow container and BRFPlus Rule container can be done at BRFPlus Workbench level.

**General**

Name:  Short Text:

Application:  Access Level:

[Show More](#)

**Action** **Followup Actions**

---

**Detail**

[Context Overview](#)

**Basic Data**

Workflow ID:

Delay:  days,  hours,  minutes,  seconds

**Container**

[Update Workflow Container](#)

Element	Short Text	Mandatory	Multiline	Object Type	ABAP / DDIC Object Name	Data Object Name	Data Source	Data Input
_ATTACH_OBJECTS	Attachments of Workflow Instance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BOR Object Type	SOFM	<a href="#">FDT_T_BO_SOFM</a>	Parameter	<input type="text" value="..."/>
_WF_PRIORITY	Priority of Workflow Instance	<input type="checkbox"/>	<input type="checkbox"/>	Element	SWFCN_TYPE_PRIORITY	<a href="#">FDT_E_SWFCN_TYPE_PRIORITY</a>	Direct Input	5

### Test Workflow triggering from BRFPlus

- 1) For illustration, we are directly executing the BRFPlus function. We are considering the scenario in which Employee is of Grade E, hence, "Sub" workflow would get triggered from BRFPlus.

Selected Function:  [Select Other Function](#)

**Context Values** [Import Test Data](#)

Current Salary:

Grade of Employee:  Delivery order correction

**Simulation Mode**

Show only Result

Show also Results of Intermediate Steps

[Run Simulation](#)

[Back to Workbench](#)

System: ER1 / 600 User: I064759 / E Mode: Simple Mode

**Result**  
Final Payout: 3,000

**Process**

Step	Type	Status	Value
Trace for Z_CALC_PAYOUT_FUNC started on 12/19/2011 05:36:27 by user 1054759	Trace		
Z_CALC_PAYOUT_FUNC	Function	STARTED	
Functional Processing			
Context			
CASHPAY	Data Object		1,000
GRADE	Data Object		E
PAYOUT_CALC	Decision Tree	STARTED	
Evaluating Condition Node Associate Consultant			
ACON	Value Range	STARTED	
Evaluating Include Conditions with test parameter Grade of Employee (GRADE)			
Grade of Employee (GRADE) value E is greater than or equal to D			
Range Conditions are evaluated; result is false			
ACON	Value Range	FINISHED	false
Evaluating Condition Node Consultant			
CON	Value Range	STARTED	
Evaluating Include Conditions with test parameter Grade of Employee (GRADE)			
Grade of Employee (GRADE) value E is between D and F			
Range Conditions are evaluated; result is true			
CON	Value Range	FINISHED	true
Evaluating Leaf Node Bonus for Consultant			
CALC_PAY_CON	Formula	STARTED	
Constant evaluated to 3			
Multiplication: ( 1000 * 3 ) = 3000			
CALC_PAY_CON	Formula	FINISHED	3,000
PAYOUT_CALC	Decision Tree	FINISHED	3,000
Event Processing			
WFRULESET	Ruleset	STARTED	
Rule processing: Workflow Rule (position 000001)			
Workflow Rule	Rule	STARTED	
Evaluating Include Conditions with test parameter Grade of Employee (GRADE)			
Grade of Employee (GRADE) value E is equal to E			
Condition fulfilled, triggering True action(s)			
Z_TRIG_WF	Start Workflow (Act)	STARTED	
Workflow execution 000000396279 initiated, status Waiting			
Z_TRIG_WF	Start Workflow (Act)	FINISHED	
Workflow Rule	Rule	FINISHED	
WFRULESET	Ruleset	FINISHED	
Z_CALC_PAYOUT_FUNC	Function	FINISHED	

Back to Workbench

System: ER1 / 000 User: 1054759 / E Mode: Simple

2) Go to SWI1 transaction to check the activity steps and check in the Inbox for email notification.

**Work Item Selection (7 Entries)**

ID	Work Item Type	Language	Work item text
396284	Background Step	English	Triggered from BRFPlus

**Business Workplace of Debs Sarkar**

New message Find folder Find document Appointment calendar Distribution lists

Workplace: Debs Sarkar

Inbox

- Unread Documents 1
- Documents 6
- Workflow 4
- Overdue entries 1
- Deadline Messages 0
- Incorrect entries 0

Outbox Resubmission Private folders Shared folders Folders subscribed to Trash Shared trash

**Unread Documents 1**

M...	Ty...	Title	At...	Author	Date rece...	Co...	Re...	Reci...
		Triggered from BRFPlus		Workflow System	12/19/2011			1

Triggered from BRFPlus

Mail Triggered from BRFPlus....

## Benefits

- 1) Using BRFPlus, we are segregating the business logic from code logic.
- 2) BRFPlus maintenance is easy for end user. New conditions can be added, existing conditions can be changed without much effort.

## Conclusion

- 1) Workflow usually tends to have dynamic approval hierarchy. Usually, HR Mini Master or custom tables are used to implement such dynamic scenarios. BRFPlus gives flexibility across all the modules with least maintenance requirement.
- 2) Workflow and BRFPlus are coherently integrated in SAP NetWeaver 7.0 Enhancement Package 1 and 7.1 EHP 1.

## Related Content

[Getting started in BRF+](#)

[BRFPlus Integration](#)

[About BRF and BRFPlus](#)

For more information, visit the [ABAP homepage](#).

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