How to Trigger SAP Business Workflows out of Brfplus

Applies to:
SAP Business Workflows can be triggered out of Business Rule Framework plus (BRFplus) since release 702 SP3 or release 730. Please notice that the SAP Business Workflow is not usable in Business ByDesign Systems. For more information, visit the Business Rules Management homepage.

Summary
This paper explains how to use the two action types that BRFplus offers to initiate a SAP Business Workflow. The “Start Workflow” action type triggers a workflow directly, whereas the “Raise Workflow Event” action type raises an event to which workflows can subscribe.

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Authors Bio
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**Definition of Action Types**

Action types are used for modeling the interactive part of BRFplus. They are special expression types with no output (except for the ID of the action performed) but can carry out different activities. Each action type allows for defining actions with an arbitrary number of follow-up actions to define an action chain.

Action types can use nested expressions and context data as input to accomplish their work. Usually, action types are more oriented to a particular business case than expression types. Hence, only a few generic action types are shipped with BRFplus.

**Action Type Start Workflow**

**Start Workflow Action**

With this action type, you can trigger an SAP Business Workflow using function module SAP_WAPI_START_WORKFLOW. A workflow (object type WS) as well as a standard task (object type TS) can be used for this kind of action.

*Workflow ID:* The ID of the workflow or standard task is mandatory. When the ID is entered and the 'Enter' key is pressed, the input parameters of the workflow container are automatically retrieved and displayed. The workflow container can also be retrieved by pressing the button 'Update Workflow Container' on the UI.

*Delay:* Without a delay, the workflow is triggered (asynchronously) when the BRFplus action is processed. Entering a delay lets you postpone this trigger to the desired point in time.

![Image of ID and delay maintenance](image1)

**Task Container and Workflow Container**

In the context of this action, you can fill the input parameters of the Business Workflow Container.

![Image of container details](image2)
The task container is a location for storing data from the task environment. It contains the control information in the form of constants and object references:

- Information for the execution of the object method (object reference of the object to be processed and actual agent of the work item)
- Information available after method processing

The task container contains some predefined workflow system elements. You can define more container elements in the task container, e.g., elements that are required for variable replacement in texts. It is also known as a work item container at runtime.

In the definition of the workflow container, you process the container elements required for the workflow execution. This may be data that you require for controlling the workflow execution directly, or data that you want to forward from one step execution to another. Every workflow container already contains workflow system elements. The flag 'Import' of a workflow container element is considered in the BRFplus action.

The following fields are shown in the BRFplus container section

Element: The name of the input parameter, as maintained in the Workflow template or in the standard task.

Mandatory: Indicates whether this element has to be filled or not

Multiline: Is true if the input parameter is a table

Object Type: Indicates what kind of object has to be maintained here. Examples are data objects (elements, structures, and tables), BOR objects, or ABAP classes. Except for ESI service objects, all object types which can be used in the workflow are allowed in a BRFplus workflow action as well.

ABAP / DDIC Object name: Object which is used to define the type of the input parameter in the business workflow container. Example: Structure SBOOK.

Data Object Name: When the workflow container is retrieved, BRFplus automatically generates one BRFplus data object per input parameter that fulfills the needs of this parameter. In other words: An expression that uses this data object as a result object is appropriate for providing values to the input parameter.

Data Source: Simple elements (like a number) can be entered directly into the input parameter. More complex input parameters have to be filled with the help of expressions or from context elements.

Data Input: Here, the input parameter is filled – either directly (for simple elements), with the help of an expression, or by accessing the context data. Please note that the context menu offers the option 'Get expression for direct data input'. This option creates a decision table with a result data object according to the data object in Data Object Name. The desired values can thus be entered directly into this table. The condition column of this decision table contains just the flag Active. Only those lines with Active set to true are considered as input for the container input parameter. Except for the data object in Data Object Name, this action type also accepts input of an alternative type for some dedicated object types:

- For BOR objects, input which is compatible to DDIC structure SIBFLPORB can be used.
- For Business Objects, input which is compatible to FDT_ESF_BO_NODE_REFERENCE can be used.
- For classes and XML messages, input which is compatible to SWF_LPORB can be used.
Responsible agents

The input of responsible agents is only necessary for single standard tasks, but not for workflows. The difference between these two is as follows:

- For a single standard task, the responsible agent assignment determines who gets the task.
- In workflows, the responsible agent assignment is maintained in the workflow builder.

### Figure 3: Agent evaluation and assignment

Responsible agents for single standard tasks can be entered directly, via an expression or by accessing the context data. The input via expression or context must be compatible to DDIC structure SWRAGENT (the AGENT_TABLE shown above as an example is bound to DDIC). If agents have not only been entered directly but have also been determined via an expression or the context data, then both sources are taken into account. In the agent table, the following object types are possible: role, position, user, person, work center, job, and organization unit (similar to possible agents for standard tasks in Business Workflow).

The workflow system resolves the rule for the recipient type agent at runtime and determines the responsible agents for the task. All responsible agents who are also possible agents become recipients of the relevant work item.

**Output**

BRFplus actions do not have individual results. However, when executed successfully, the action displays a message to inform the user about which work item was created. This information is also stored in the lean trace. The status of this work item can be displayed, for example, by using transaction SWI1.

**Worth knowing**

When you use Start Workflow actions, the following aspects are worth knowing:

- The workflow is always triggered asynchronously. Therefore, there is no guarantee that follow-up actions are executed only after the workflow is finished.
- BRFplus itself currently never performs a database commit. However, the workflow does. You have to keep this in mind if you want to roll back changes that have been triggered by the BRFplus function.
- Code generation is performed for this action type.
- Code generation can be carried out such that at runtime, log data is written to the lean trace. Among other pieces of information, the lean trace contains the ID of the triggered work item. This is important to know because there is no other place in BRFplus where you can access the work item ID.

**Technical restrictions:**

- Since this is all about an action type, the work item ID cannot be used as a result. It is available only in trace.
- Ad-hoc objects known in the Business Workflow environment are currently not supported by BRFplus.
**Action Type Raise Workflow Event**

**Raise Workflow Event Action**

This action type raises an event, to which for example a workflow can subscribe.

Each event defined for a BOR Object or a class that has been designed for workflow access can be used as the triggering event for the workflow or for a standard task (or for other linked receivers).

To ensure that the workflow or the standard task has been started successfully, you must activate the link between the triggering event and the workflow acting as the receiver of the event. You do this in Customizing for SAP Business Workflow.

The following fields describe the event to be raised.

- Object Category
- Object Type
- Event Name
- Object Instance ID

![Figure 4: Fields to describe the event](image)

For this kind of events, the following limitations apply:

- Events can be raised by ABAP Classes, Business Classes, and BOR objects.

Only classes that include the IF_WORKFLOW interface can be used.

The input parameters of the event must have a DDIC type assigned. It is not possible to use types defined in the class itself or to type an input parameter using the 'LIKE' or the 'TYPE REF TO' statement.

The input of the Object Instance ID has to be provided via an expression. Similar to the functionality of filling the container fields, a decision table expression with an appropriate result structure can be created via the context menu 'Get expression for direct data input'.
Event Container

The event container in this action type behaves exactly as described for the Start Workflow action type (see page 3 ff.).

Figure 5: Event Container in BRFplus

Output

BRFplus actions do not have individual results. However, when executed successfully, this action displays a message to inform the user which event was raised. This information is also stored in the lean trace.

Worth knowing

When using this action type, the following aspects are worth knowing:

- Code generation is performed for this action type.
- Code generation can be carried out such that at runtime, log data is written to the lean trace. Among other pieces of information, the lean trace contains the ID of the triggered work item. This is important to know because there is no other place in BRFplus where you can access the work item ID.
Related Content

- **BRFplus – The Very Basics**
- **Using BRFplus with Third-Party Rules Engine**
- For more information, visit the Business Rules Management homepage.
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