Call an ABAP program from a BSP

Applies To:
SAP WebAS ABAP 6.20/NetWeaver’04 (6.40)

Article Summary
Call an ABAP program from a BSP is somehow impossible due to memory context handling for a web transaction like a BSP. If you try, it would lead to an ABAP dump. A workaround is needed because you cannot avoid such situation in some specific business cases!

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Context: why do I want to call a program within a BSP?
As mentioned in the introduction for this article, if you want to call an ABAP program from a BSP (by using the “event handler” mechanism), it leads to an ABAP error because you’re not allowed to perform such call. The technical explanation is somehow simple because it means the end-user would leave his current share memory context to execute a different program that will simply lead to a “destruction” of his current web transaction.
The problem

I discover this problem with this piece of code within the “onInputProcessing” event handler because I wanted to execute an ABAP program (in my case for user synchronization).

onInputProcessing (in a BSP page)

```abap
* event handler for checking and processing user input and
* for defining navigation
[~]
   CALL FUNCTION 'Z_BAPI_ASSIGNXXXX'
[~]
** End of event handler
```

And the corresponding BAPI I built was doing an ABAP call like this:

```abap
FUNCTION 'Z_BAPI_ASSIGNXXXX'
  SUBMIT ABAP_PROGRAM_IWANT_TO_EXECUTE WITH PARAMETER = MY_VARIABLE.
ENDFUNCTION.
```

It’s a standard call within a function module to an ABAP program using the “SUBMIT” function and by sending some parameters for this program with the function “WITH”.

And the ABAP dump occurs because even *wrap* in a function module you cannot leave the current BSP page to execute an existing program.

The solution

As you cannot call it from the BSP environment and you definitely still need to execute this function…you have to find a way!

There is a nice one. SAP core technology uses from a long time the “object approach”. Of course, it’s different from a native OO programming language as Java or MS.net but on the functional level, all the main SAP objects (master data) are designed in a OO fashion. Eg. a material (BUS1001) is an object with properties, attributes and methods associated.

The main benefit is to have in all SAP applications the power of “eventing” related to OO technology. It means when “something” happens in the process, the system can trigger an event and start…what you want. It could be function module, a complex workflow, another transaction, perform a web service call, a XI call…

We will use a derived functionality (not directly related to SAP functional objects) but exists for the classical job definition. A job (a program) can be started function of : time (regular or not), **event**…

We would need to create an event, after create a variant for the job in order to execute the program with the proper parameters and at last define a recurring job that should be started only when the event is encountered.

And finally we would assign in our BSP event handler environment, the necessary piece of code to generate the event.
Create the event

Log on to your SAP WebAS with the SAPGUI and launch the transaction: **SM62**.
Define your own event like 'ZBUSINESSOBJECT_MODIFIED'.

Create the variant for the program

Log on to your SAP WebAS with the SAPGUI and launch the transaction: **SE38**
Enter the name of your program and click on ‘Goto -> Variants’.
Create your own variant with the necessary parameters.

Define the job scheduling

Log on to your SAP WebAS with the SAPGUI and launch the transaction: **SM36**
Enter the job name (program name), the variant and the start conditions (periodic and start on-demand by using the event you just defined).

Enhance your own BAPI

Go back to your BAPI and modify it (transaction: **SE37**).
Put at the right place the trigger for the event like:

```java
FUNCTION 'Z_BAPI_ASSIGNXXXX'
[...
   CALL FUNCTION 'BP_EVENT_RAISE'
   EXPORTING
   EVENTID = 'ZBUSINESSOBJECT_MODIFIED'.
[...
ENDFUNCTION.
```

You’re done! The program can be executed even in a BSP context.
The main restriction concerns the need to launch the program with a DYNAMIC variant but it’s not part of this article.

Thank you for your attention.

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