Enhancement Technique: How to Use Substitutions

**Applies to:**
SAP 4.6C and higher

**Summary**
This article provides a step-by-step guide on the usage of substitutions, an enhancement technique in the Financial Accounting Module of the SAP R/3 system.

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What are Substitutions

Substitution allows you to define your own conditions for substituting specific fields. A substitution consists of two parts: Prerequisite and Substitution. If the prerequisite is met (if it is TRUE), the substitution is carried out.

A substitution consists of two parts:
- Prerequisite
- Substitution

If the prerequisite is met (if it is TRUE), the substitution is carried out.

Basic Steps in Configuring Substitutions

You must complete the following steps to create a substitution:

1. Enter the application area in which the substitution is called up.
2. Select the correct Callup point for the substitution.
3. Define the substitution.
4. Assign your substitution to an organizational unit (for example, company code for FI, company code or global company for FI-SL, controlling area for CO).
5. Activate the Substitution. The fields that can be used in your substitution are determined from the application area and the Callup point. When you define your rules for the prerequisite and check Statements, you can choose the fields that you want to use.

Call Up Point:

Callup Point 1
- The Callup point tells you when the substitution is performed.
- Callup point 1 checks the fields in a document header.

Callup Point 2
- Callup point 2 is used to check the fields in a document line for a G/L account posting or a FI-SL.
- The fields that are available at Callup point 1 are also available for cross-checks.

Operands and Operators

The following elements are used to create rules for prerequisite statements in substitutions.

- Operands: Logical operators (Boolean logic) and Comparison operators.

User Exits in Substitutions

- User exits are form routines programmed by the user.
- If you want to use your own rule, you can use user exits to define prerequisites or checks for validating or substituting fields.
- Exit routines are created in a report. Each client has its own report. The form pools for the report are stored in table T80D.
  - User exits are user-defined FORM routines that are used to calculate and/or replace values within a validation, substitution, or rule.
  - User exits have the following format: U (for a user-defined user exit) or S (for a standard user exit)

The user exit number (three digits)
- For example, U123 is a user-defined user exit.
- You can configure the form pool name of the user exits and must store it in the table for client-dependent user exits (T80D) in Customizing. Table T80D contains the form pool
names for the user exits used in validations, substitutions, and rules. Each validation/substitution form pool is client-dependent. (For more information, refer to the Maintain Client-Dependent User Exits activity in the Implementation Guide (IMG) for Special Purpose Ledger.)

• Example form pools RGGBS000 and RGGBR000 for client 000 are delivered with the SAP R/3 System. You must copy these form pools and configure them in T80D. The new form pool name should conform to the customer naming convention (beginning with the letter Z) so that is not overwritten when the next SAP upgrade is installed (for example, ZGGBR000).

• Example FORM routine for substitution exit 001 (U001).

```plaintext
TABLES: COBL.
FORM U001.
COBL-KOSTL = COBL-BUKRS.
ENDFORM.
```

• Tables and structures should not be declared in the FORM routines so that the contents can be used together with the calling transaction.

• SAP exits are FORM routines that have been programmed by SAP. The name of the form pool for SAP exits is SAPFGBEB.

The following table shows the types of user exits that can be used in substitutions.

<table>
<thead>
<tr>
<th>User exit type</th>
<th>Description</th>
<th>Application</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No parameters are defined for the user exit.</td>
<td>Rules, validations, and substitutions (prerequisite)</td>
<td>See form pool RGGBR000, parameter type C_EXIT_PARAMNONE</td>
</tr>
<tr>
<td>2</td>
<td>Same as user exit type 1, except one parameter (the field to be substituted) is defined in the user exit. For example, you can create a substitution routine that analyzes the cost center irrespective of the used field.</td>
<td>Substitutions</td>
<td>See form pool RGGBS000, parameter type C_EXIT_PARAMFIELD</td>
</tr>
<tr>
<td>3</td>
<td>All data is passed as one parameter; this exit type can only be used in matrix validations and substitutions.</td>
<td>Rules, validations, and substitutions (prerequisite)</td>
<td>See form pool RGGBR000, parameter type C_EXIT_PARAMCLASS</td>
</tr>
</tbody>
</table>

For substitutions, you can also create user exits that accept a field as one parameter and then return the changed value in this parameter. This allows you to create a user exit that can be used independently of the field and table name. This type of user exit cannot be used as an entry in the *Exit only* field in the list of values to be substituted; you can only use this exit type in conjunction with a field name. An example of this user exit type is in form pool RGGBS000.

For each Substitution step:

• Data is entered into the SAP R/3 System.
• Data is sent to the FI-SL Integration Manager and to substitutions.
• Substitutions are part of the Integration Manager along with validations, ledger selection rules, and summation rules.
• Data is then checked against a prerequisite statement.
• If the prerequisite statement is true, the system performs the substitution. If the prerequisite statement is false, then there is no substitution.
• If there are additional steps in the substitution, the system accesses the next step for substituting the data until all substitution steps have been processed.
• When you are substituting values from outside the FI-SL application component, the dimension being substituted must be defined for the Boolean class for which you are substituting data.
**Maintenance:**
- A substitution can also contain up to 999 steps.
- A substitution step consists of a prerequisite and substitution

**Activation:**
- A substitution is activated for each of the following:
  - an ORGANIZATIONAL UNIT (in FI-SL: Company code or global company)
  - a CALLUP POINT (in FI-SL: 0001 (document header) or 0002 (document line))
  - A substitution can be valid for several company codes / global companies at the same time.
Example Business Scenario for Substitutions

Company A would like to create a substitution to replace the FI Document header text (BKPF-BKTXT) and the Ref key field (BKPF-XBLNR) at the Document Header when posting an accounting document using the tcode FB01.

Steps:

Go to the transaction code GGB1. The screen looks like below:

Create a Substitution in the Financial Accounting module. Keep the cursor on the Financial Accounting and click on the Substitution Button

Give some description to the substitution and press enter key.
Next click on the step button on the application toolbar, a popup with the substitutable fields will come. Select the field for which we have to substitute:

Enter the substitution method from the screen. In this example we will use the constant value
After this a step gets created. You can create multiple numbers of steps depending on your requirement. Give a meaningful description to the Step.

If you want to give any prerequisite you can give. It by double clicking on the empty screen under the Prerequisite:

A screen with the formula editor will come. It will have tree tabs Table fields, rules and exits.
Select the table fields from the tables available for which you want to use a prerequisite. In our example we will use the company code. Say if the company code is 1000 then only this substitution should trigger.

If you click on the highlighted button, then the technical names of the tables and fields will be displayed. If you click on the required fields, field will be copied to the prerequisite area.
Using the formula editor and enter the constant value:

![Diagram showing the formula editor with a constant value entered.](image-url)
Then click on the substitution tree under the Substitution YTEST:

Give the constant value as ‘Test - Replace Doc Header’

After this click on the Save button, Code will be generated automatically:
After you assign the Prerequisite and the substitution the screen looks like below:

After this we have to assign the substitution we have created to the company code and activate it using the tcode OBBH and create a new entry:
It will ask for the Transport request number. Give it and save the entry.

After that go to FB01 and create an Accounting Document:
Save the Accounting Document

Go to FB03, and check whether the Values given in the substitution are reflected or not:
For Using the User exit in substitution, copy the program RGGBS000 into Z or Y Program.

Give the development class and lock in a transport request. After copying the program, modify the program to create an exit say ‘UTST’.

An entry with the desired name has to be created in the Form GRT_EXIT_TITLES, otherwise the user exit will not be identified.
Write the required logic depending on the business requirement. In our example since we are passing a constant to the XBLNR fields write the following code:
Activate the code. After this an entry has to be maintained in the table T80D to reflect the exit we have defined in the substitution.

Create an entry in the table T80D using the view V_T80D using the Tcode SM30. Note: If already there is program existing for the application we can create an exit in the same program. Since the application area is the key field in table T80D it will allow only one program per application area.

Save the entry and Lock it in a transport request.

After that you can create a substitution or create another step in the above created Substitution.

For our example we will use the same substitution we have created above and create another Step
In this case select the Exit radio button,

Press F4 on the user exit field and pick the User exit created above.
Create a prerequisite for the company code to restrict the triggering of the substitution for our example.

Save the Substitution, System generates the code.
Make sure the Substitution is active again by going to the transaction OBBH.
Create an Accounting Document and check in FB03:
Related Transaction Codes

OBBH : C FI Maintain Table T001Q (Document)
GGB1 : Substitution Maintenance
SM30 : Call View Maintenance
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