ABAP: Dynamic Variant Processing with STVARV

Applies to:
This document applies to SAP ECC 6.0, SAP Netweaver 2004s. For more information, visit the ABAP homepage.

Summary
This article contains the procedure to manipulate Variants dynamically using the table TVARVC. The particular requirement is to fetch employees between a particular ‘from date’ and ‘to date’ in a variant. The next time this same variant is used, the previously used ‘to date’ should appear in the current ‘From Date’. This can be done by using the table TVARVC.

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Introduction

The Table TVARVC is a standard table that stores the values of variables corresponding to a variant. This is particularly useful in background processing.

Any change, however in a value of TVARVC will affect all the Variants in which the variable is used.

Current Scenario for use of Dynamic Variants

The Particular scenario is such that the selection screen will contain 2 particular fields:

1. From Date , and
2. To Date.

A variant will be saved and executed with a particular ‘From’ and ‘To’ date. The next time this same selection screen is executed with the variant previously used, the From Date will contain the previously entered ‘To date’, and the ‘To date’ needs to be updated with the Current Date.

This is useful in background processing, as employees selected between 2 dates needs to be skipped for the next execution. The step by step process will be explained in detail below.

Steps for Dynamic Variant Execution.

1. Create the entries in TVARVC table using tcode: STVARV.
2. Save a variant and link the entries in TVARVC to the selection screen parameter or select-option.
3. Implement the logic in the code to update the corresponding entry in TVARVC table.
4. Execute the Program with the Variant saved earlier.
5. Populate the Selection screen with the same Variant.
Step by Step Process

Step 1:
Create the entries in TVARVC table using tcode: STVARV.
Go to Tcode STVARV.

Add the required entries. In this case we will be monitoring 2 entries:

a. ZHPA_ULTIMUS_OUT-FROM_DATE, and
b. ZHPA_ULTIMUS_OUT-TO_DATE

We need not be bothered about the other entries for this particular scenario.

Step 2:
Save a variant and link the entries in TVARVC to the selection screen parameter or select-option.
In this case, the Variables in question are 2 Parameters. The selection screen is as shown below:
The ‘From Date’ and ‘To Date’ fields currently have no values upon generation of selection screen.

We are saving a Variant: Variant_Test.

While saving a variant, maintain entries against the two fields highlighted below in the diagram.

We need to map the ‘From Date’ against the Entry (ZHPA_ULTIMUS_OUT-FROM_DATE) maintained in the TVARVC Table.

For the variable ‘From Date’ the Type of Selection, will be T (Table Variable from TVARVC).

For Variable Name, The Search Help will show the list of entries from TVARVC Table. Select the entry ZHPA_ULTIMUS_OUT-FROM_DATE which is to be mapped for ‘From Date’.
In the same manner, for the Variable: ‘To Date’, the Type of Selection will be: D (Dynamic date calculation).

For Variable name, we will select Current Date, because as per the requirement, we will need the ‘To Date’ to always show the current date (sy-datum).

The Variant Attributes screen will look like this after selecting the entries as above.

Save the Variant.
**Step 3:**

Implement the logic in the code to update the corresponding entry in TVARVC table.

The Logic is to update the ‘FROM Date’ variable in the TVARVC table (ZHPA_ULTIMUS_OUT-FROM_DATE) with the date entered in the Selection Screen parameter of ‘To Date’.

The selection screen parameter names are as follows:

- c. From Date : p_fdate
- d. To Date : p_tdate

The code is as follows:

```abap
DATA: lx_tvarvc TYPE tvarvc.
CONSTANTS: c_p TYPE rsscr_kind VALUE 'P'.
lx_tvarvc-name = 'ZHPA_ULTIMUS_OUT-FROM_DATE'.
lx_tvarvc-type = c_p.
lx_tvarvc-numb = space.
lx_tvarvc-low = p_tdate.

CALL FUNCTION 'ENQUEUE_E_LOCK_TVARVC'
EXPORTING
  MODE_TVARVC = 'E'
  MANDT = SY-MANDT
EXCEPTIONS
  FOREIGN_LOCK = 1
  SYSTEM_FAILURE = 2
  OTHERS = 3.

IF sy-subrc <> 0.
  MESSAGE ID SY-MSGID TYPE SY-MSGTY NUMBER SY-MSGNO
  WITH SY-MSGV1 SY-MSGV2 SY-MSGV3 SY-MSGV4.
ELSE.
  UPDATE tvarvc FROM lx_tvarvc.
  FREE: lx_tvarvc.
ENDIF.

CALL FUNCTION 'DEQUEUE_E_LOCK_TVARVC'
EXPORTING
  MODE_TVARVC = 'E'
  MANDT = SY-MANDT.
```

The TVARVC table will update the ZHPA_ULTIMUS_OUT-FROM_DATE from the selection screen entry for ‘To date’ (p_tdate).
Step 4:
Execute the Program with the Variant saved earlier.

We will execute the Program with the Variant: Variant_test which we have saved earlier.

On selecting the variant, the ‘From Date’ is filled with sy-datum according to the mapping in the variant. (We have mapped D to the To Date field in the Variant and Current Date)

Upon Execution, the program logic takes its course and the variant is updated as per the logic.

Step 5:
Populate the Selection screen with the same Variant.

Once we take the selection screen again and select the Same Variant, the ‘From Date’ is updated automatically from the TVARVC Table.

Before checking the selection screen, we’ll check the STVARV Entry against the value of parameter name: ZHPA_ULTIMUS_OUT-FROM_DATE.
The Above entry in Value field corresponding to ZHPA_ULTIMUS_OUT-FROM_DATE means the update statement in the Program logic worked.

On selecting the same variant for the selection screen, the To date is updated as follows:

**Before Selecting Variant**

**After Selecting Variant:** Variant_test.
The From Date is updated with the value 12/31/2010 which was entered in the To Date of the previous selection screen.
Related Content

- Maintaining Entries in Table TVARVC
- Use of TVARVC Tables
- Creating Table Variables from TVARVC

For more information, visit the [ABAP homepage](https://www.sap.com).
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