Information Broadcasting Overview and Flexible Scheduling

Applies to:

Business Intelligence, Reporting and Query Analysis

For more information, visit the Business Intelligence homepage.

Summary

This document is intend to give a brief overview on information broadcasting and later delves with the scheduling of the broadcast setting. This document illustrates an enhancement to the standard scheduling method provided by SAP to enable flexible scheduling.

It specifies a business requirement and elaborates on how flexible scheduling helps unraveling the challenges in conventional scheduling.

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Information Broadcasting

What is Information Broadcasting?

Information broadcasting is automatic distribution of BI content to a wide spectrum of users. BI content includes objects developed using BEx tools – Queries, Workbooks, Web templates, Reports.

Broadcasting is done to optimize performance and auto refresh BI content for Business experts of your system and for system administration activities.

The BI objects configured for broadcasting are pre-calculated in the background as per their schedules and are distributed as mails or are published on the portal. The Business experts can then log on to the portal/ check their mails and analyze their information.

The traits of broadcasting include

Scope – availability to wide spectrum of users

Optimize performance – Pre-calculation / BI object run only once for all users.

Exception reporting – Can configured for distribution as per exception and Alerts

Query pre-calculation – Can be stored in cache for reusability on sub-sequent runs

Sending by email, publish to portal – SAP BEx add-in not required.

Historic/current data can be viewed – Documents/Online links

Utility for system administration – alerts, master data broadcast, multi-channel broadcasting, pre-calculation

Distribution Types

The distribution types available in broadcasting proffer different functions to Business experts and System administrators

Broadcasting by Email – Pre-calculated documents with historic data or online links with current data are sent to the users

Broadcasting to portal - Pre-calculated documents with historic data or online links with current data are published in KM in the Enterprise portal

Broadcasting to printer – Pre-calculated documents in PDF/PCL/PS format can be broadcasted to a printer

Broadcasting by Email (bursting) - Recipient determination based on user information in master data. Characteristic – attribute contains user name/mail id

Broadcast by exception (email/portal/alert) **-** Query and query views are checked in the background for exception. Alerts and alert category can be configured in

Broadcast over multiple channels – BI Objects can be broadcasted over emails, published to portal or broadcasted to a printer at the same time.

Pre-calculate Value sets – You can fill variables of the type Pre-calculated Value Set for characteristic values with values in the background. The pre-calculated value sets are then available as variable values in queries.

Filling OLAP and MDX cache(cache for crystal report) – BI object can be pre-calculated and the caches can be filled for faster retrieval of data during query processing.

Information broadcasting allows pre-calculation of BI objects with user specific settings ie – considering authorizations of data set, formats etc

Pre-calculation Server/Pre-calculation service:-

This is a separate installation, which can be installed on the server machine or on the client (recommended on the server) and is required fro pre-calculation of workbooks

Broadcasting of BI Objects

One Broadcast setting is defined for each BI object (workbook/query/template/report)

The broadcast setting defines: Object being broadcasted (queries/workbooks)

Distribution type (mail/portal/printer/cache)

Format (Online link/PDF/MS Excel)

Filters and navigations

Variable assignments (direct values/from variants)

Schedule (Schedule for broadcasting this setting)

Following three are conventional methods of scheduling of broadcast settings.

Execution with data change in info-provider.

Execution at preset time.

Scheduling in SAP Background processing

Scheduling of broadcasting settings

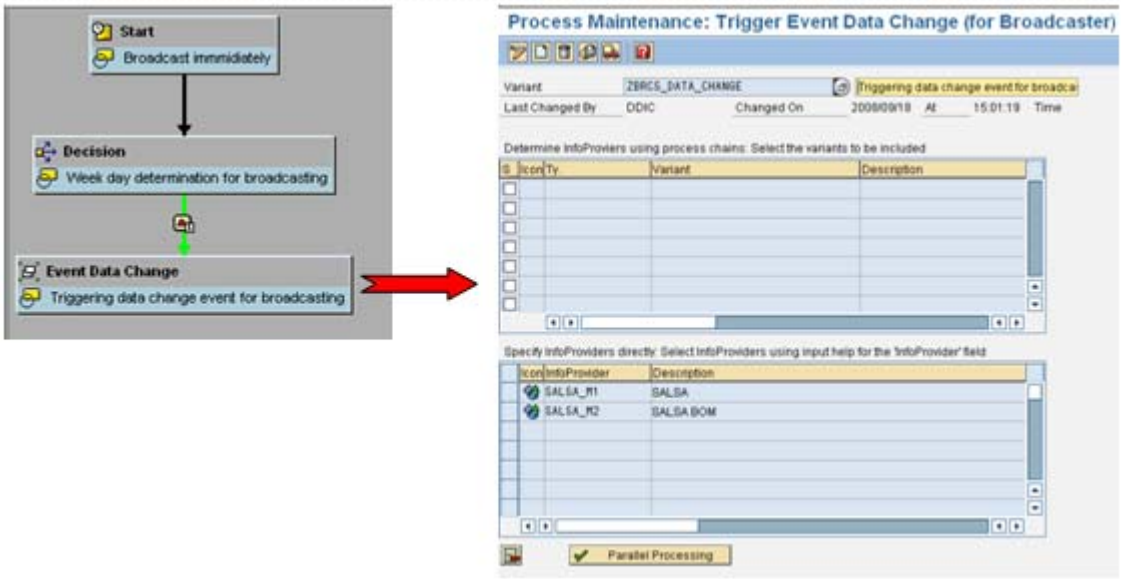
1. Execution with data change in infoprovider

Implemented with process chain which triggers data change event.

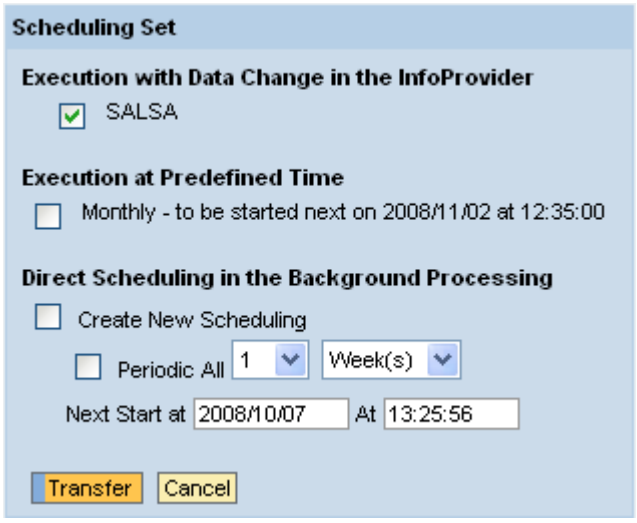
In this case the data change event is triggered in the process chain post loading of the inforproviders. The Broadcast setting is scheduled to execute on reception of this data change event.

This process chain is executed post loading process chain(not shown).

The process type here is configured to fire data change event for infoproviders SALSA and SALSA BOM.



The broadcast setting is scheduled to execute post reception of data change event for infoprovider SALSA.



Once the broadcast setting is executed, the correspoding BI object is broadcasted.

Limitation - All broadcast settings scheduled waiting for the data change event of this particular infoprovider would be executed at the same time.

Example – Consider the business have 6 queries defined over this infoprovider.

The requirement is 5 queries need to be broadcasted on 5 different weekdays after the data basis has changed(i.e. data in the underlying infoprovider has changed).

1 query needs to be broadcasted once in a month after the data basis has changed.

Assuming we schedule our 6 broadcast settings to execute with data change event. All of them would be executed simultaneously(daily).

This is thus not coinciding with the requirement.

2. Execution at preset time

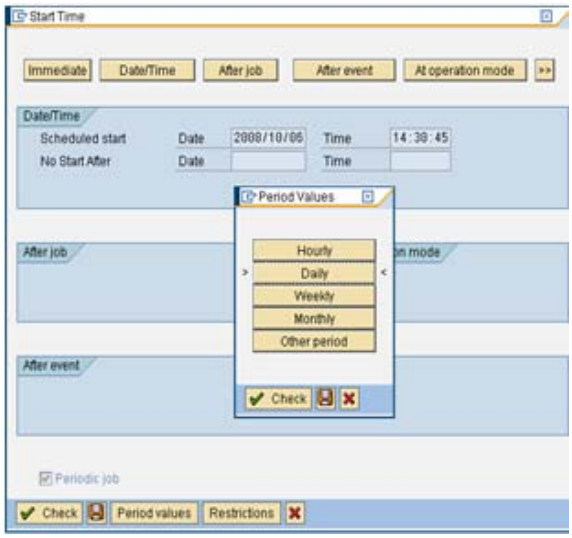
In this case one defines a background job and the broadcast setting is executed as per the start condition mentioned in the background job.

The prerequisite while defining the background job are as follows.

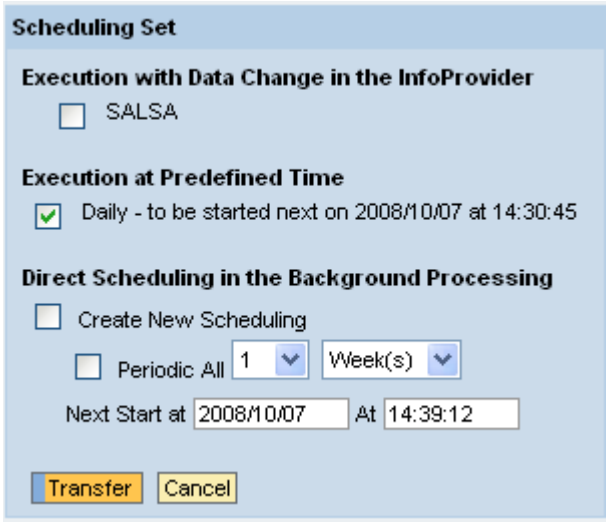
The prefix of the job name must be TP_BROADCAST_<.....>.

The start condition of the job must be daily or weekly or monthly.

The step must be an ABAP program step with program name RESRD_BROADCAST_FOR_TIMEPOINT.



No.	Program name/command	Prog. type	Spool list	Parameters	User	Lang.
1	RSRD_BROADCAST_FOR_TIMEPOINT	ABAP			DEHSUBH	EN



The broadcast seting is executed as per the start condition defined in the background job.

Limitation -

1.Considering we have X, Y and Z as broadcast settings which are scheduled to run when Job X, JobY and Job Z are run.

If JobX, JobY and JobZ are scheduled waiting for an event and if we trigger EventX on Monday, EventY on Tuesday and EventZ on Wednesday in our process chain then we would be able to broadcast X on Monday, Y on Tuesday...This meant we would have to create one job per broadcast setting) Unfortunately this did not work either

The minimum resolution for this background job start condition is Daily. Jobs which have start condition as after event and periodic create the second job immediately after the first job is executed.(hence is not supported)

2.The broadcast setting is executed at the scheduled time independent of change in data basis. This means if the data load process chain is delayed, the broadcasted data may miss the most current data that is being/ will be loaded.

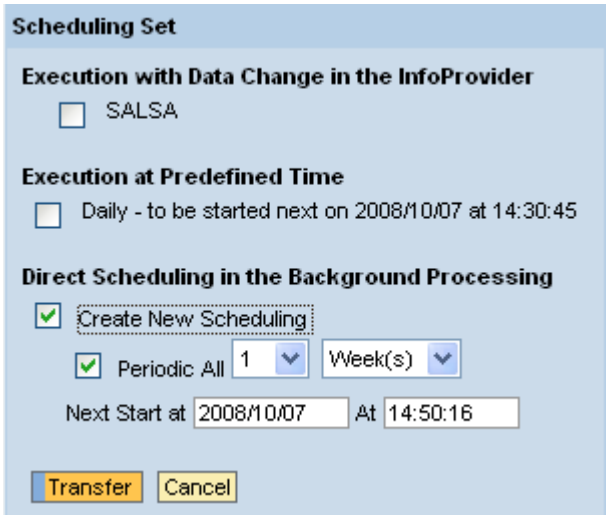
3.Logical determination of job scheduling is not possible.

One cannot schedule the job as per working day or calendar day.

Jobs scheduled as per calendar day or working day are not supported in broadcasting.

3. Scheduling in SAP Background processing

In this case one can define a preset time and periodicity of executing broadcast schedules.eg - every Monday at 12:30 etc.(No process chain required)



Limitation –

Independent of data basis

The broadcasting result will not get the latest refresh if the loading to the data provider is later that the scheduled time of broadcasting.

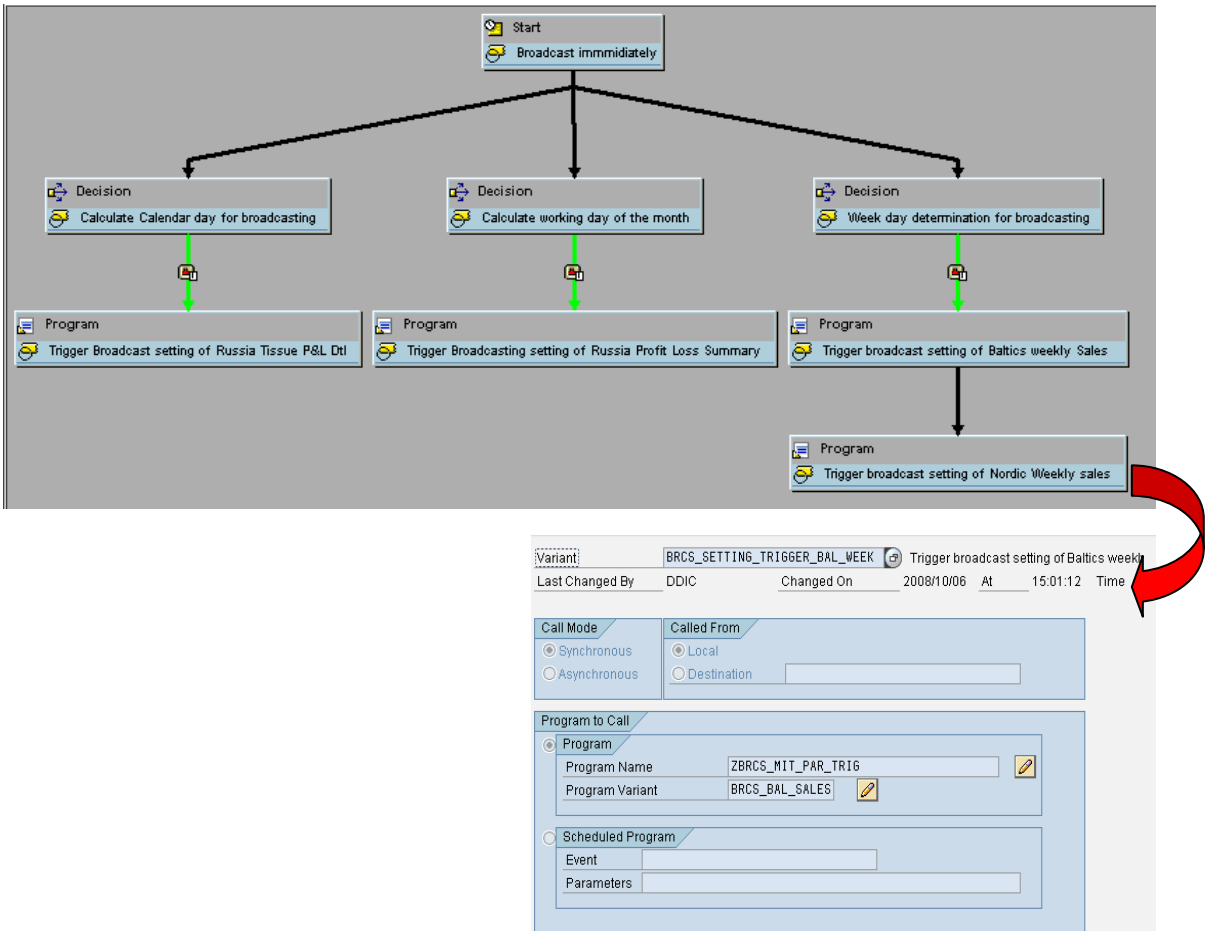
4. Flexible Scheduling of broadcast setting

This is an extension and customization of scheduling type execution at preset time.

In this case the jobs are periodically scheduled to execute at the preset time but are cancelled as per logical determination.

A custom check table, two ABAP programs and a process chain is created which assist in determining whether the broadcast setting needs to be executed / cancelled.

Process chain – Assists in logical determination of the execution of broadcast setting. Logical determination is done through (Decision step /ABAP process type)



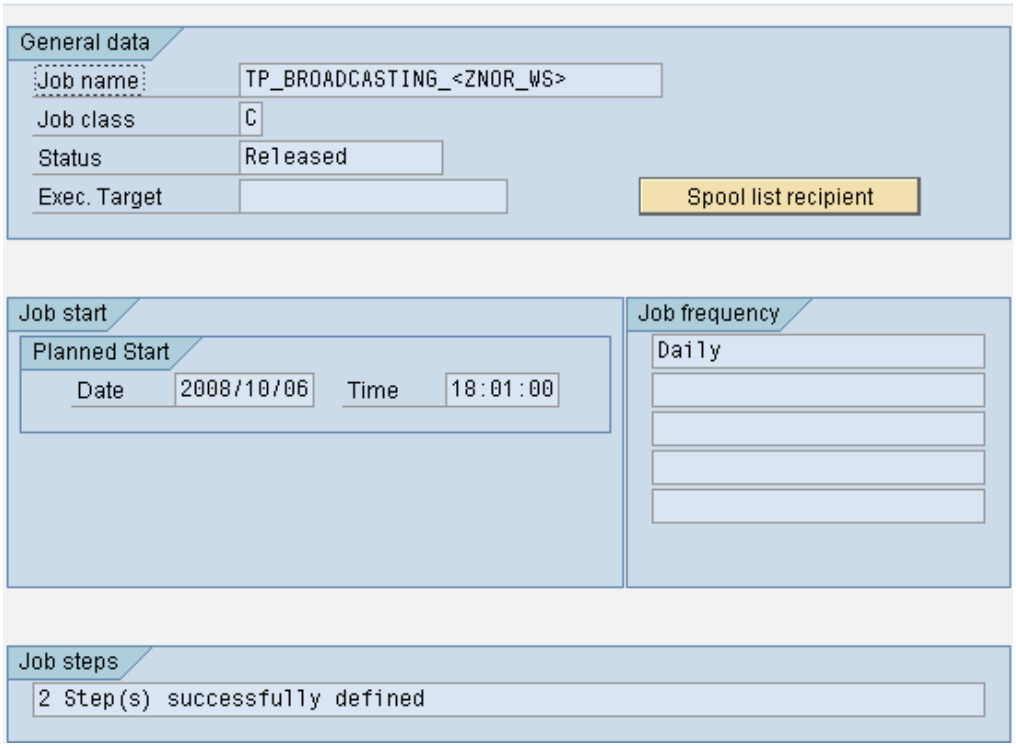
ZBRCS_MIT_PAR_TRIG – Included in the process chain as an ABAP process step with variant. The variant here determines the broadcast setting id whose flag is to be set. The flag of the corresponding broadcast setting is set in the custom table ZBRCS_FLAG with the time stamp when it was set/reset.

Table for broadcast flag check

Table: ZBRCS_FLAG
Displayed Fields: 4 of 4 Fixed Columns: 1 List Width 0250

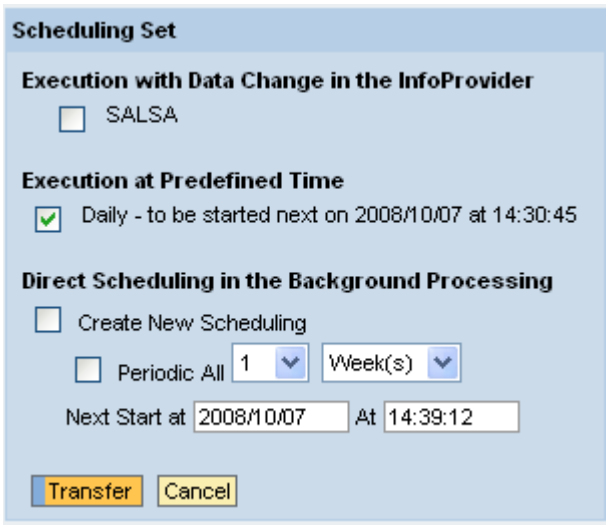
SETTING_ID	FLAG	FLAGDATE	FLAGTIME
BRCS_RU_PANDL_SUM_OGLEV		0000/00/00	00:00:00
ZBRCS_BAL_WEEKLY_SALES	X	2008/10/06	16:04:29
ZBRCS_NOR_WEEKLY_SALES	X	2008/10/06	16:04:29
ZBRCS_TISS_PL_DTL_RU		0000/00/00	00:00:00

ZBRCS_MIT_PAR_CHECK – Included as a step1 in the background job on which the broadcast setting is hinged along with the ABAP program required to execute the broadcast setting as step2.



No.	Program name/command	Prog. type	Spool list	Parameters	User	Lang.
1	ZBRCS_MIT_PAR_CHECK	ABAP		ZBRCS_NOR_WS	DEHSUBH	EN
2	RSRD_BROADCAST_FOR_TIMEPOINT	ABAP			DEHSUBH	EN

The broadcast setting is scheduled to execute as per the background job.



Logic –

The Process chain is scheduled to run post the loading process chain. This thus ensures that the broadcast setting executes post data basis change.

Based on the conditions in the decision process type (decision process type – helps ascertaining if today is work day 10, calendar day 15, weekday – Monday etc) the program ZBRCS_MIT_PAR_TRIG is executed with the variant. The variant determines which broadcast setting id in the table ZBRCS_FLAG has its flag set.

The Background job TP_BROADCASTING_<...> has two steps.

The first step is an ABAP program ZBRCS_MIT_PAR_CHECK with variant which determines if the broadcast settings flag has been set.

If the flag is set, the program ZBRCS_MIT_PAR_CHECK allows the second step in job TP_BROADCASTING_<...> to execute, which in turn executes the broadcast setting.

If the flag is not set, the program ZBRCS_MIT_PAR_CHECK raises an exception thus terminating the current job.

Code

1. Report ZBRCS_MIT_PAR_CHECK

```
REPORT  ZBRCS_MIT_PAR_CHECK.
TABLES :rsrd_s_admin_setting, varid, zbrcs_flag, rsparams, rsrd_settingt.
DATA : it_varid TYPE TABLE OF varid WITH HEADER LINE,
       it_zbrcs_flag TYPE TABLE OF zbrcs_flag WITH HEADER LINE,
       it_zbrcs_flag_ins TYPE TABLE OF zbrcs_flag WITH HEADER LINE,
       it_zbrcs_flag_check TYPE TABLE OF zbrcs_flag WITH HEADER LINE,
       it_rsparams TYPE TABLE OF rsparams WITH HEADER LINE,
       w_setting TYPE  rsrd_s_admin_setting-setting_id,
       it_rsrd_settingt TYPE TABLE OF rsrd_settingt WITH HEADER LINE,
       it_ddshf4ctrl TYPE ddshf4ctrl,
       it_shlp TYPE SHLP_DESCR,
       it_ddshretval TYPE TABLE OF ddshretval WITH HEADER LINE,
       BEGIN OF it_varvar.
       INCLUDE STRUCTURE it_varid.
DATA:  setid TYPE rsrd_s_admin_setting-setting_id,
       end of it_varvar.
PARAMETERS : w_set TYPE rsrd_s_admin_setting-setting_id MATCHCODE OBJECT
RSRD_SETTING_ID.
AT SELECTION-SCREEN ON w_set.

REFRESH: it_zbrcs_flag_ins, it_varid, it_zbrcs_flag.

SELECT * FROM RSRD_SETTINGT
INTO TABLE it_rsrd_settingt.

READ TABLE it_rsrd_settingt WITH KEY setting_id = w_set.

IF sy-subrc NE 0.

MESSAGE E000(ZBRCS) WITH w_set.

ENDIF.

*case sy-ucomm.
*
*WHEN 'SPOS'.

  SELECT * FROM varid
  INTO CORRESPONDING FIELDS OF TABLE it_varid
  WHERE report = sy-repid.

  SELECT * FROM zbrcs_flag
  INTO CORRESPONDING FIELDS OF TABLE it_zbrcs_flag.

  LOOP AT it_varid.
  REFRESH it_rsparams.
  CALL FUNCTION 'RS_VARIANT_CONTENTS'
    EXPORTING
      REPORT                      = sy-repid
      VARIANT                     = it_varid-variant
*     MOVE_OR_WRITE               = 'W'
```

```
*      NO_IMPORT                  = ' '
*      EXECUTE_DIRECT             = ' '
*    IMPORTING
*      SP                         =
     TABLES
*      L_PARAMS                   =
*      L_PARAMS_NONV              =
*      L_SELOP                    =
*      L_SELOP_NONV               =
       VALUTAB                    = it_rsparams.
*      OBJECTS                    =
*      FREE_SELECTIONS_DESC       =
*      FREE_SELECTIONS_VALUE      =
*    EXCEPTIONS
*      VARIANT_NON_EXISTENT       = 1
*      VARIANT_OBSOLETE           = 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.
  ENDIF.

     CLEAR it_zbrcs_flag.

    LOOP AT it_rsparams.

    READ TABLE it_zbrcs_flag WITH KEY setting_id = it_rsparams-low.

    IF sy-subrc NE 0.
      it_zbrcs_flag_ins-setting_id = it_rsparams-low.
      APPEND it_zbrcs_flag_ins.
    ENDIF.

    ENDLOOP.

  ENDLOOP.

  CLEAR it_zbrcs_flag.

  READ TABLE it_zbrcs_flag WITH KEY setting_id = w_set.

   IF sy-subrc NE 0.
    it_zbrcs_flag_ins-setting_id = w_set.
    APPEND it_zbrcs_flag_ins.
   ENDIF.

  INSERT zbrcs_flag FROM TABLE it_zbrcs_flag_ins.

  COMMIT WORK.

*ENDCASE.


START-OF-SELECTION.
```

```
SELECT * FROM zbrcs_flag
INTO CORRESPONDING FIELDS OF TABLE it_zbrcs_flag_check.


READ TABLE it_zbrcs_flag_check WITH KEY setting_id = w_set.

IF NOT it_zbrcs_flag_check-flag = 'X'.
RAISE EXCEPTION.
ELSE.
it_zbrcs_flag_check-flag = ' '.
it_zbrcs_flag_check-flagdate = sy-datum.
it_zbrcs_flag_check-flagtime = sy-uzeit.
UPDATE zbrcs_flag FROM it_zbrcs_flag_check.
ENDIF.
```

2. Report ZBRCS_MIT_PAR_TRIG

```
REPORT  ZBRCS_MIT_PAR_TRIG.

TABLES :rsrd_s_admin_setting, varid, zbrcs_flag, rsparams, rsrd_settingt.

DATA : it_varid TYPE TABLE OF varid WITH HEADER LINE,
       it_zbrcs_flag TYPE TABLE OF zbrcs_flag WITH HEADER LINE,
       it_zbrcs_flag_ins TYPE TABLE OF zbrcs_flag WITH HEADER LINE,
       it_zbrcs_flag_check TYPE TABLE OF zbrcs_flag WITH HEADER LINE,
       it_rsparams TYPE TABLE OF rsparams WITH HEADER LINE,
       w_setting TYPE  rsrd_s_admin_setting-setting_id,
       it_rsrd_settingt TYPE TABLE OF rsrd_settingt WITH HEADER LINE,
       it_ddshf4ctrl TYPE ddshf4ctrl,
       it_shlp TYPE SHLP_DESCR,
       it_ddshretval TYPE TABLE OF ddshretval WITH HEADER LINE,

       BEGIN OF it_varvar.
       INCLUDE STRUCTURE it_varid.
DATA:  setid TYPE rsrd_s_admin_setting-setting_id,
       end of it_varvar.

PARAMETERS : w_set TYPE rsrd_s_admin_setting-setting_id MATCHCODE OBJECT RSRD_SETTING_ID.

AT SELECTION-SCREEN ON w_set.

REFRESH: it_zbrcs_flag_ins, it_varid, it_zbrcs_flag.

SELECT * FROM RSRD_SETTINGT
INTO TABLE it_rsrd_settingt.

READ TABLE it_rsrd_settingt WITH KEY setting_id = w_set.

IF sy-subrc NE 0.

MESSAGE E000(ZBRCS) WITH w_set.

ENDIF.

*case sy-ucomm.
*
*WHEN 'SPOS'.

  SELECT * FROM varid
  INTO CORRESPONDING FIELDS OF TABLE it_varid
  WHERE report = sy-repid.

  SELECT * FROM zbrcs_flag
  INTO CORRESPONDING FIELDS OF TABLE it_zbrcs_flag.


  LOOP AT it_varid.

  REFRESH it_rsparams.

  CALL FUNCTION 'RS_VARIANT_CONTENTS'
    EXPORTING
      REPORT                      = sy-repid
      VARIANT                     = it_varid-variant
*     MOVE_OR_WRITE               = 'W'
*     NO_IMPORT                   = ' '
*     EXECUTE_DIRECT              = ' '
*   IMPORTING
*     SP                          =
```

```
    TABLES
*     L_PARAMS                  =
*     L_PARAMS_NONV             =
*     L_SELOP                   =
*     L_SELOP_NONV              =
      VALUTAB                   = it_rsparams.
*     OBJECTS                   =
*     FREE_SELECTIONS_DESC      =
*     FREE_SELECTIONS_VALUE     =
*   EXCEPTIONS
*     VARIANT_NON_EXISTENT      = 1
*     VARIANT_OBSOLETE          = 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.
  ENDIF.

     CLEAR it_zbrcs_flag.

    LOOP AT it_rsparams.

    READ TABLE it_zbrcs_flag WITH KEY setting_id = it_rsparams-low.

    IF sy-subrc NE 0.
      it_zbrcs_flag_ins-setting_id = it_rsparams-low.
      APPEND it_zbrcs_flag_ins.
    ENDIF.

    ENDLOOP.

  ENDLOOP.

  CLEAR it_zbrcs_flag.

  READ TABLE it_zbrcs_flag WITH KEY setting_id = w_set.

   IF sy-subrc NE 0.
    it_zbrcs_flag_ins-setting_id = w_set.
    APPEND it_zbrcs_flag_ins.
   ENDIF.

  INSERT zbrcs_flag FROM TABLE it_zbrcs_flag_ins.

  COMMIT WORK.

*ENDCASE.


START-OF-SELECTION.

  it_zbrcs_flag_check-setting_id = w_set.
  it_zbrcs_flag_check-flag = 'X'.
  it_zbrcs_flag_check-flagdate = sy-datum.
  it_zbrcs_flag_check-flagtime = sy-uzeit.
  UPDATE zbrcs_flag FROM it_zbrcs_flag_check.
  COMMIT WORK.
```

Related Content

SAP Help on Information Broadcasting

http://help.sap.com/saphelp_nw04/helpdata/en/a5/359840dfa5a160e10000000a1550b0/frameset.htm

SAP Help on Scheduling broadcast setting

http://help.sap.com/saphelp_nw04/helpdata/en/a5/359840dfa5a160e10000000a1550b0/frameset.htm

FAQ on Information broadcasting

https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/0bfcac90-0201-0010-52a3-d5b270b86ef3

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