<u>Using the Configurable</u> <u>Subscenario for Automated</u> <u>Monitoring in Process Control 10.0</u>



Applies to:

SAP® Process Control 10.0

Summary

This User Guide provides information about the Configurable subscenario's architecture, implementation requirements, configuration instructions, and use cases for the Automated Monitoring scenario of the process control application.

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Document History

Document Version	Description	
1.00	Initial release	
1.10	Included reference to Creating Connectors in PC10.0 document	
1.20	Added the definition of SCU3 Handler	
	Added notes emphasizing the significance of the 'valid from' date of data sources and business rules	
1.30	Redacted potentially sensitive data	

Typographic Conventions

Type Style	Description	
Example Text	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other	
	documentation	
Example text	Emphasized words or phrases in body text, graphic titles, and table titles	
Example text	File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.	
Example text	User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation.	
<example text=""></example>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.	
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.	

Icons

Icon	Description	
\triangle	Caution	
•	Note or Important	
~	Example	
1	Recommendation or Tip	

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1. Business Scenario

The Configurable Business Rule is one of the key features in the process control application; it enables users to monitor several database tables through Continuous Monitoring without working on a NetWeaver system. The configured structure is stored as a Data Source in Process Control; therefore, no additional effort is needed on the Engineering Change Case (ECC) system.

2. Background Information

The Configurable Data Source collects the table relationships from the plug-in (similar to the table view in the ABAP Data Dictionary) at the Data Source User Interface and then establishes, validates, and stores the relationship implementation data for the Configurable subscenario.

3. Prerequisites

The system requirements for the Configurable subscenario are as follows:

- Process Control 10.0
- SAP NetWeaver system (620 to 7.10) with SAP GRC 10.0 NW Plug-In installed

You have completed the following master data:

- You have created and configured Regulation(s)
- You have created Corporation and Organizational Units
- · You have created the Central Process, Subprocess, and Controls
- You have assigned proper Regulation(s) to the Control
- You have assigned Subprocesses or Controls to the appropriate Organizational Unit

May 2018



4. Step-by-Step Procedure

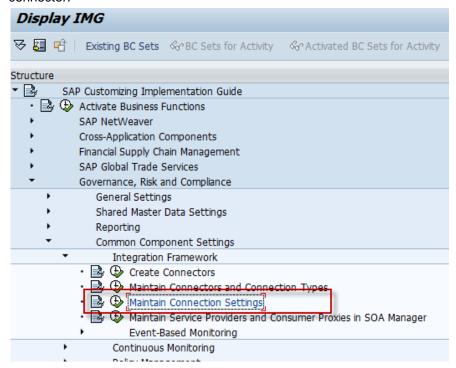
Process Overview

Component	Action	Comment	Optional/ Required
SAP NetWeaver	SAP GRC NW Plug-in SP01 and above.	Install the GRC 10.0 NW plug-in in the NetWeaver system to be monitored.	Required
Process Control	Configure the controls, the Data Source, and the Business Rule in the Process Control front end.	For more information, see the Configure Process Control Front End section. For more information about configuring the connectors in the IMG, refer to the Creating Connectors in PC10.0 document.	Required

4.1 Configuration Steps

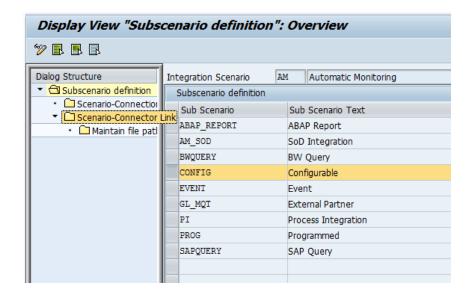
The following are post-installation steps:

- 1. Configure the system connectors.
 - a. In the NetWeaver plug-in system, enter transaction code SM59. Create a Type 3 connector.
 - b. In the Process Control (PC) system, enter transaction code **SM59**. Create a Type 3 connector.



c. Go to the IMG node Maintain Connection Settings. Select the Integration Scenario AM.



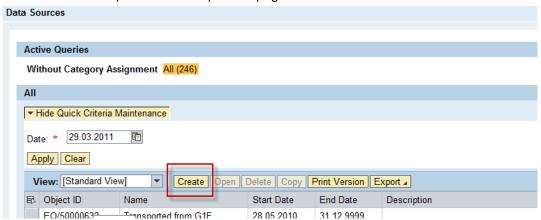


- d. Select the Configurable subscenario, and then choose Scenario-Connector Link.
- e. Add the connector that you created in step 2 into the table, and then choose Save.

4.2 Setup the Data Source

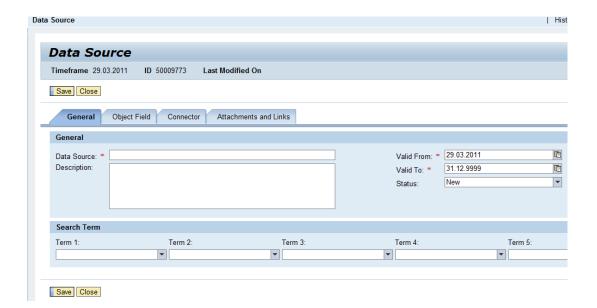
To setup the data source,

- 1. Log in to the GRC Suite via the NetWeaver Business Client (NWBC) or the Portal with the role Data Source Specialist assigned and go to *Rule Setup > Data Sources*.
- 2. Choose the Create pushbutton to open the page to create a new Data Source.

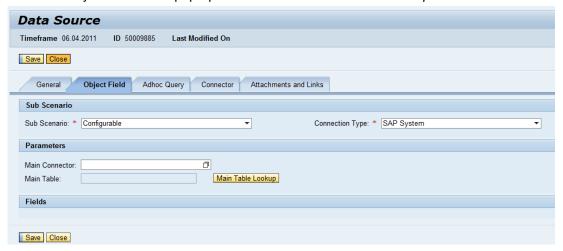


- 3. Enter a name for the Data Source and other required fields. Choose the *Object Field* tab to go to the next page.
 - NOTE: Ensure that the *Valid From* date is correct. We recommend that you set it as the 'valid from' date of the master data.



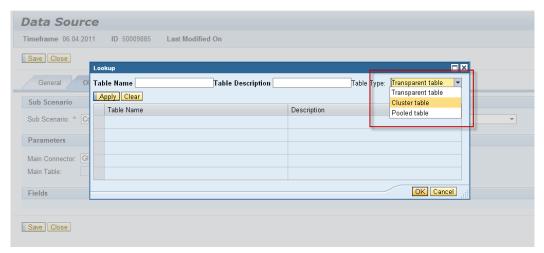


4. In the Subscenario field, select the *Configurable* subscenario from the dropdown list. In the Parameters section, select the Main Connector you defined in the IMG to connect to the NetWeaver system from the pop-up screen. Choose *Main Table Lookup*.

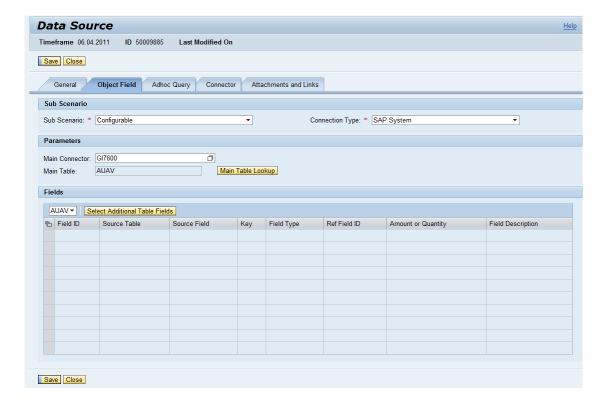


- 5. Select the *Table Type* to define the main table type for the Data Source. The configurable Data Source supports the following table types:
 - Transparent table
 - Cluster table
 - Pooled table
 - Cluster or pooled tables can support only one table in the Data Source. Join conditions and related tables are supported only for transparent tables.
- 6. Next, search for the table you seek by using the table name or a part of the table description. Both name and description search fields support wildcards, so you can search for tables even if you only remember a part of the name or description. Choose *Apply*, and the system looks up tables which match the name or description patterns you have entered.
 - If the search pattern you enter is not specific enough (for example, you enter "*" for the name), it may take the system a long time to respond—the more specific your search pattern, the faster the response.
- 7. Once the system responds with table names matching your search string(s), select the table you want and choose *OK*.



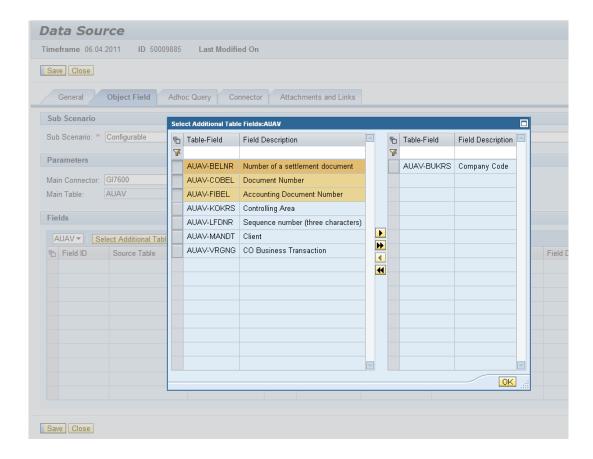


8. In the *Fields* section, select the fields you want to include, from all the fields available in the table to be queried. Choose *Select Additional Table Fields* to add fields for the Data Source.

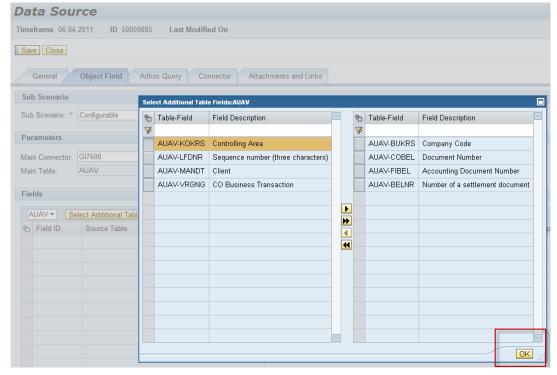


i.





9. Select the required fields and move them from the left column to the right column. The Single/Multiple and Select All functions are available in the field-selection page.



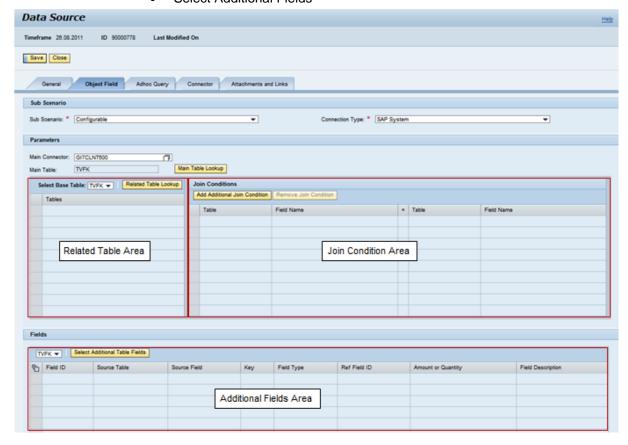
10. After you have completed the field selection, choose OK.



It is recommended that all available fields of one table be added into a single data source. This will improve the reusability of the Data Source without impacting performance.

To create a data source querying a transparent table,

- i. Select the required main table (of type "Transparent"), and then click OK.
- ii. The following areas appear after you have selected a main table:
 - Related Table Lookup
 - Join Conditions
 - Select Additional Fields



- iii. Enter the base table first. Any related tables will become available for selection. By default, the base table is the main table.
- iv. Related tables can be created by choosing the *Related Table Lookup* or *Add Additional Join Condition* pushbuttons.
- v. The table list for related table lookup is retrieved from the relations of the check tables defined in the data dictionary (DDIC) of the Netweaver system used in the main connector.
- vi. There are two types of related tables according to the DDIC:
 - Reference tables
 - Dependent tables



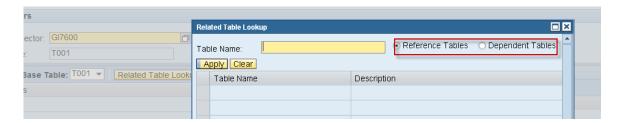
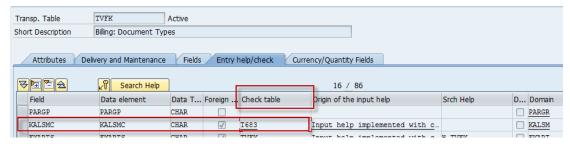
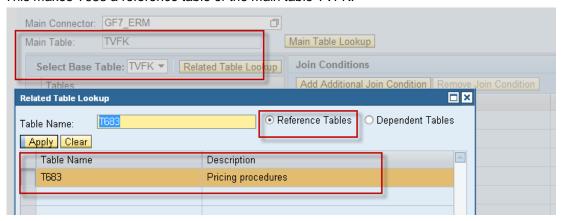


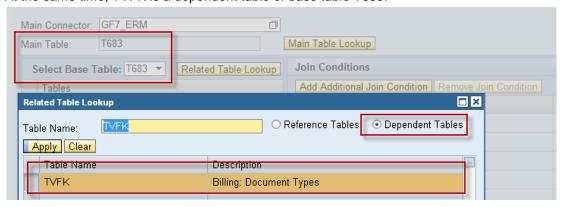
Table TVFK has a check table T683 on field KALSMC in the DDIC definition.



This makes T683 a reference table of the main table TVFK.

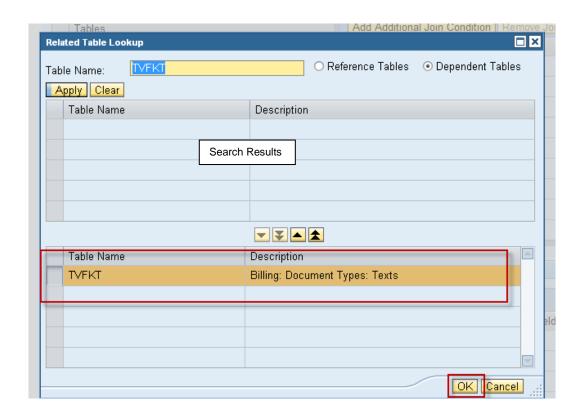


At the same time, TVFK is a dependent table of base table T683.

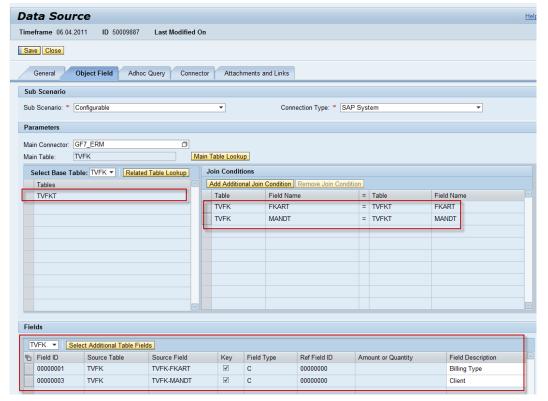


vii. Related Table Lookup has a search function. Enter a table name, and then choose *OK*. The search results will appear.



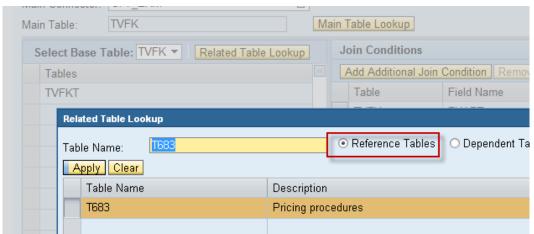


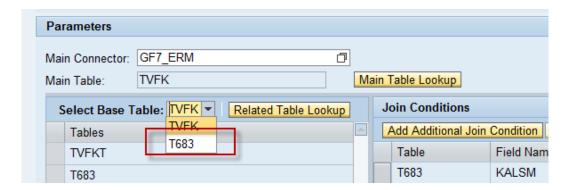
viii. The newly added related table will be listed in the Related Table column and the join conditions will be automatically generated in the Join Condition column. The fields used in the join condition will also be automatically be added into the field list in the Field column. Those fields cannot be removed unless the join condition is removed first.



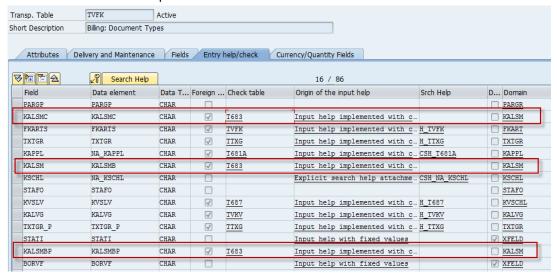


ix. If the newly added related table is a Reference Table, it will also be added into the reference table list.

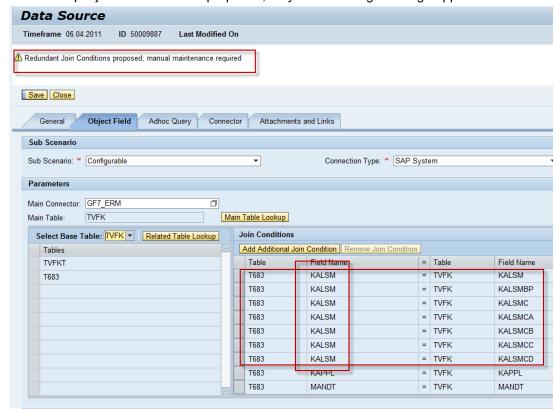




- x. However the main table definition might have multiple fields with check table relations, and multiple fields with the same check table relations. In this case, multiple relations will be proposed from several fields to one single field. Since this type of join condition cannot work, the system will ask the user to do manual maintenance of the join conditions. Otherwise, only one of the join conditions may be saved when Data Source is saved.
- Table TVFK has multiple fields linked to check table T683 field KALSM in the DDIC.







When multiple join conditions are proposed, a system warning message appears.

- xi. Selecting the join condition enables the *Remove Join Condition* pushbutton and users can now do manual maintenance to the join conditions.
- If all the join conditions from one related table to the base table are removed, the related table will be removed from the related table list. All of its fields are also removed.
- Only tables from *Related Table Lookup* can be removed in Related Table Lookup popup; any tables from *Add Additional Join Condition* cannot be found in the Related Table Lookup popup.
 - xii. If the base table does not have any check table relationships with another table, use the *Add Additional Join Condition* function to add that table as a related table of the base table.

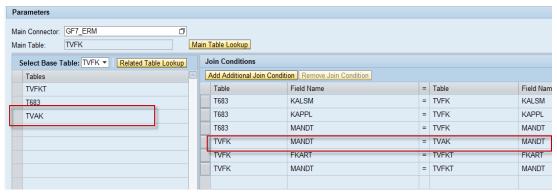


xiii. The left-side table value range includes all tables already selected. Use the right-side table to input the related table. It can be any table from the connected NetWeaver system (except the base table selected in the left). The system will automatically check if the two fields match.

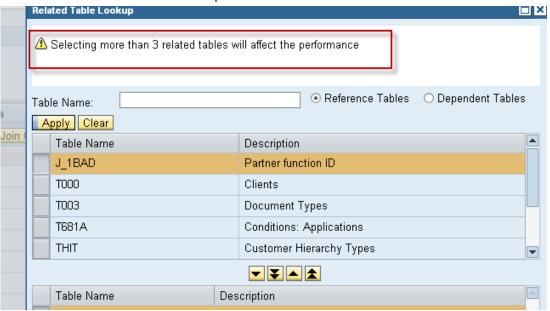




- xiv. The new table added with the *Add Additional Join Condition* function will also be shown as a related table.
- All input fields in the *Add Additional Join Condition* function can be also searched using wildcards.

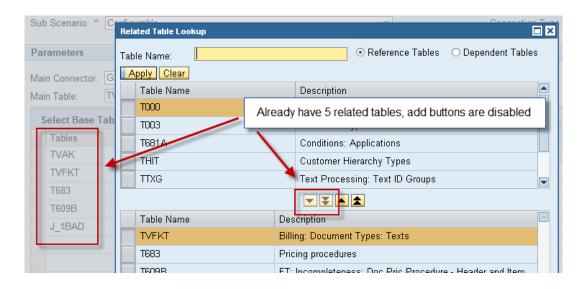


xv. When adding three or more tables, either as related tables or additional tables, the system will return the warning message "Selecting more than 3 related tables will affect the performance".

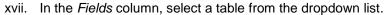


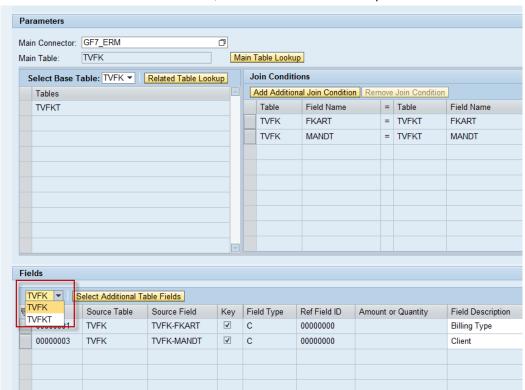
xvi. The configurable data source currently supports up to five related tables. Adding more than five tables is not allowed.





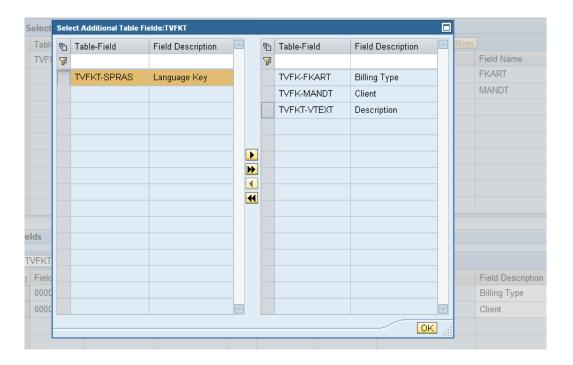
Only transparent tables are listed in the *Related Table Lookup* and *Add Additional Join Condition* columns.



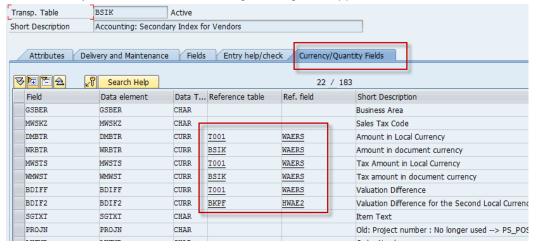


xviii. Choose the Select Additional Table Fields pushbutton to open the pop up and then select the table fields.

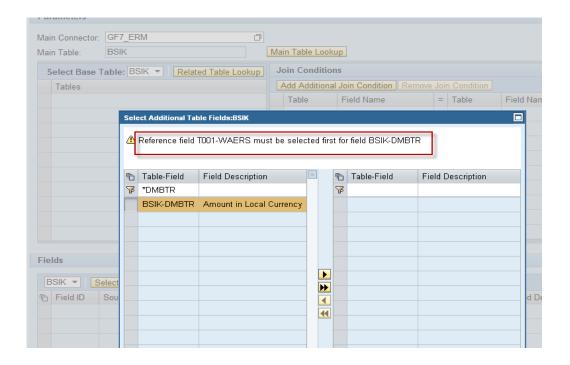




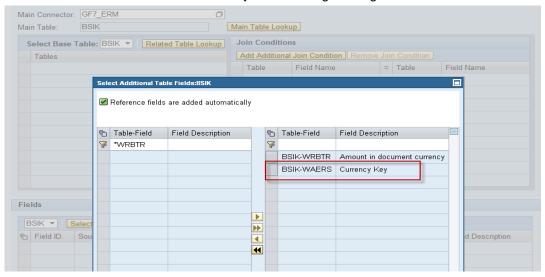
If any currency/quantity fields are selected, the corresponding currency key or unit of measure field must be added to be consisent with the table definition in the connected NetWeaver system; otherwise, a warning message will appear.







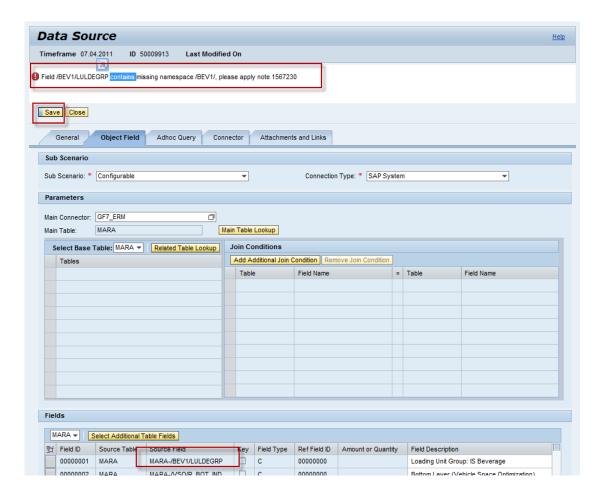
If the reference field already exists in the selected table (for example, the BSIK table), the reference field will be added automatically when adding the original field.



It is recommended that all available fields of one table be added into a single data source. This will improve the reusability of the data source without impacting performance.

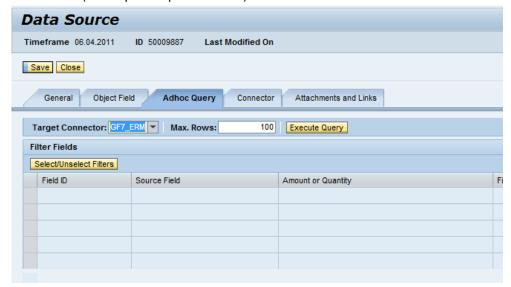
The selected fields from the connected NetWeaver system might contain the namespace as a prefix. If the namespace is not installed in current system, warning messages will appear, to advise the user to install the required namespace first when saving the data source or executing an ad hoc query.





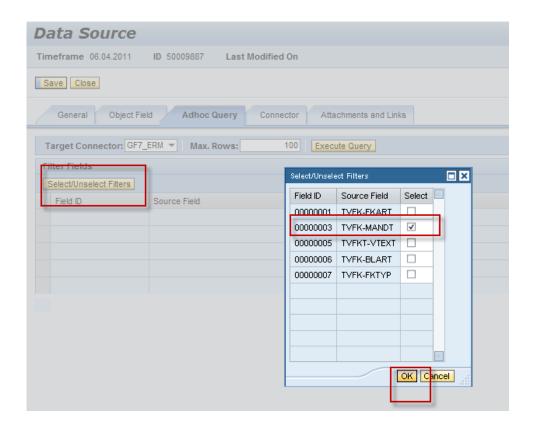
Detailed instructions for installing a namespace can be found in SAP note 1567230.

- 6. After Object Field tab maintenance is finished, you can test the Data Source by selecting the *Ad hoc Query* tab.
 - a. Select the Target Connector and enter the maximum number of resulting rows to retrieve (this improves performance).

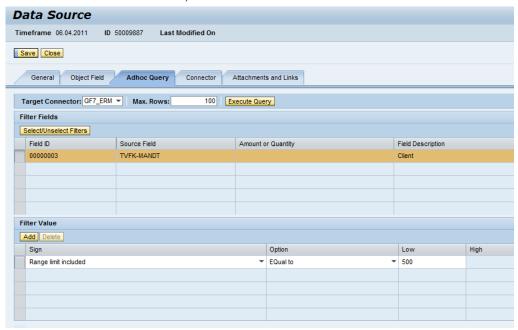


b. Choose the Select/Unselect Filters pushbutton to select fields as filters.



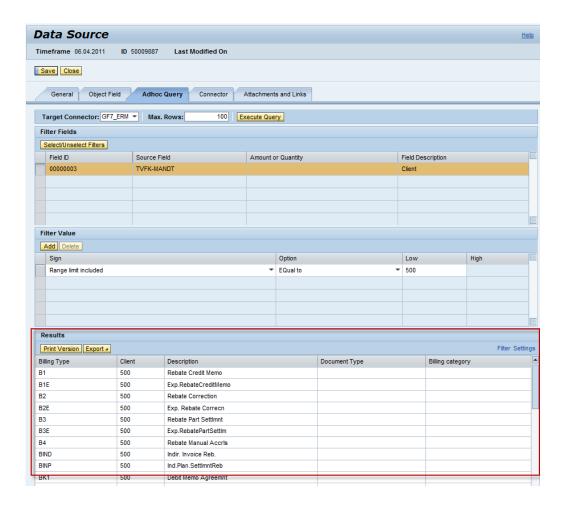


c. Select the filter in the table, and then set a filter value for it.



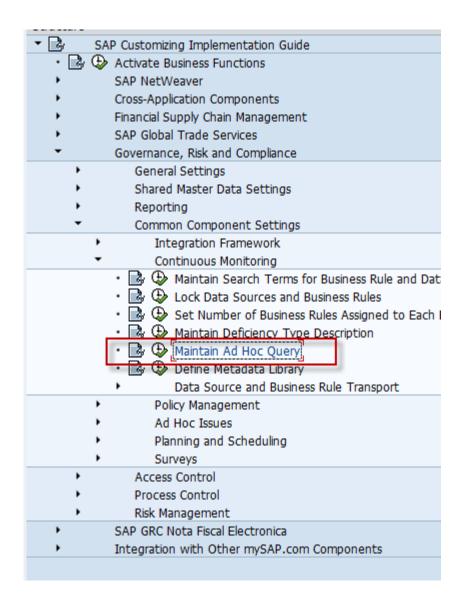
d. Choose the Execute Query pushbutton and check the results from the target system.





The Customizing activity *Maintain Ad Hoc Query* in the Implementation Guide (IMG) displays the *Ad Hoc Query* tab. This can be useful, for example, if you would like to allow users to review the data or prevent them from doing so.



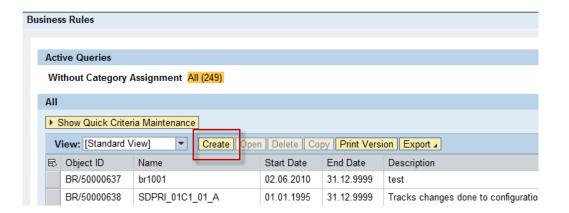


- 7. After all information fields are filled for the Data Source, set the Data Source status to *In Review*, and then save the Data Source.
- 8. In order to be used by a Business Rule, the Data Source status must be set to *Active*. A newly-created data source can only be saved with the status *New* or *In Review*; you will have to save and then re-open a newly created data source to change its status to Active, and then save again.
- 9. Limitations on creating Configurable Data Source include:
 - a. Related tables are not supported for pool or cluster tables. That is, no join conditions can be computed on a pooled or cluster table.
 - b. Reference fields with pool or cluster tables are not supported.
 - c. The maximum number of related tables is 5.
 - d. The suggested join conditions may need further maintenance.
 - e. NetWeaver version 46C is not supported for configurable plug-in systems.

4.3 Setup the Business Rule

- 1. Log in to GRC Suite via NWBC or the Portal with the role Business Rule Specialist assigned.
- 2. Go to Rule Setup > Business Rule.
- 3. Choose the Create pushbutton to open a new page for creating the Business Rule.



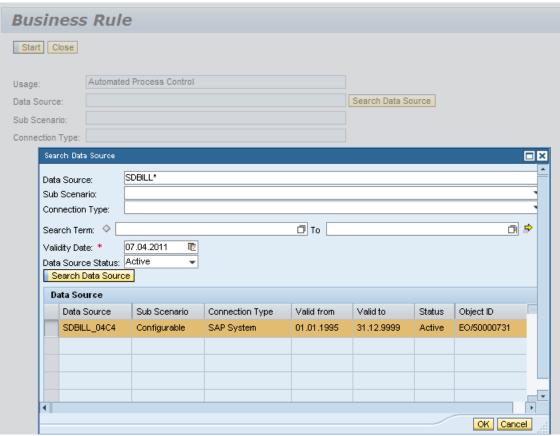


4. Choose the Search Data Source pushbutton in the initial screen.

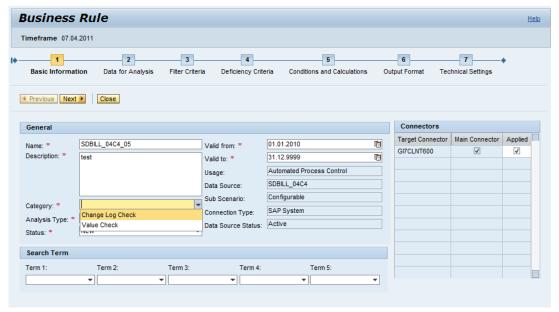


5. Clicking the Search Data Source pushbutton brings up the data source search screen, which allows you to search for data sources using various attributes. Clicking the Search Data Source pushbutton then brings up a list of matching data sources. Choose one from the displayed list, and choose *OK*.





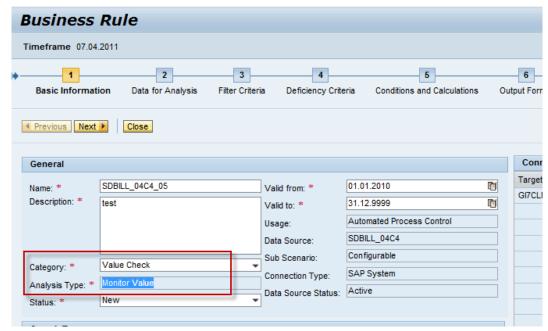
- 6. Choose the *Start* pushbutton to start Business Rule creation. Fill in the required fields in the general page, and then choose *Next*.
 - NOTE: Ensure that the *Valid From* date is correct. We recommend that you set it as the 'valid from' date of the master data.



- a. For the Category field, there are two choices:
 - i. Change Log Check Monitoring changes from change log
 - ii. Value Check Monitoring data value from the database table

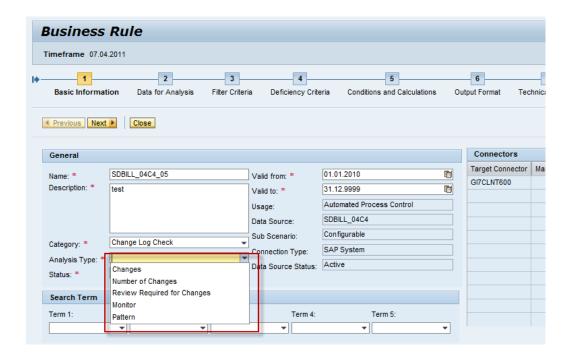


- b. Analysis Type defines the method of determining deficiency. This value depends on the Business Rule Category selected.
 - i. If the Business Rule category is Value Check, the Analysis Type would be Monitoring Value. This category monitors the value of the fields in question in the database at the time the rule is executed.



- ii. Change Log Checks are based on the changes found in the change log; if the entries are not found. It reads the values from database table and restructures it into change log format without showing the old values. If Change Log Check is selected from the Category dropdown list, multiple Analysis Types are available for selection. Analysis types include:
 - 1. Changes Monitoring changes on the selected field from change log
 - 2. Number of Changes Monitor the number of changes made on any particular field
 - 3. Review Required for Changes No specific fields, the entire result is routed for review if any changes are found
 - 4. Monitor Monitor the specified field's values in change log
 - 5. Pattern Monitor data value pattern of change log across multiple fields at a specific date/time





Category and Analysis Type combinations include

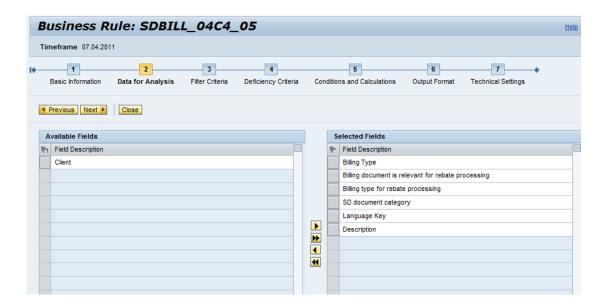
Category	Analysis Type
Change Log Check	Changes
Change Log Check	Number of Changes
Change Log Check	Review Required for Changes
Change Log Check	Monitor
Change Log Check	Pattern
Value Check	Monitoring Value

- Change Log Types used in Automated Monitoring include:
 - SAP Change Document (Master Data)
 - Defined in transaction **SCDO**
 - Configuration Data
 - SAP standard Table Change Log when system-wide logging is on, refer to SAP standard document for System Profile settings
 - Table logging is enabled in DDIC technical settings
 - Changes can be viewed by entering transaction SCU3
 - GRC Change log

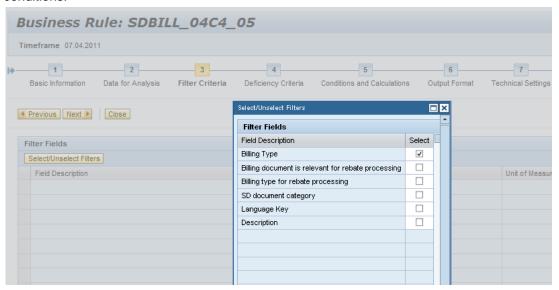
When system logging is not on, the GRC change log can be turned on by scheduling a background job.

7. After you have completed all entries on the *General* tab, choose *Next* to go to the *Data for Analysis* screen. You can select fields from the Data Source for monitoring. Choose *Next*.



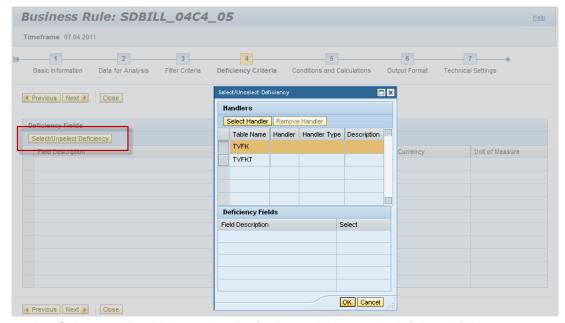


Select the fields whose values you want to filter from the Business Rule and define the filter conditions.

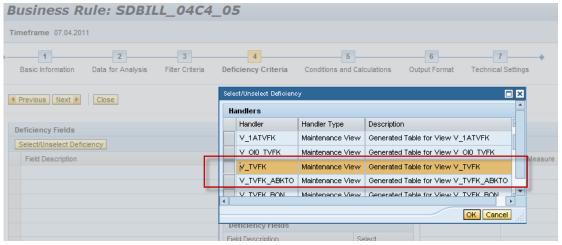


- 9. In the *Deficiency Criteria* screen, choose the *Select/Unselect Deficiency* pushbutton to open the screen for setting deficiency conditions.
 - a. The deficiency fields are inherited from table handlers.



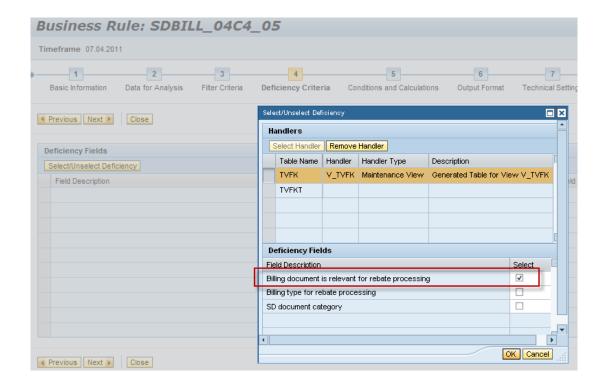


b. Select a table which contains the field you wish to use in defining deficiency conditions, and then choose the *Select Handler* pushbutton to select a handler from the list that appears.

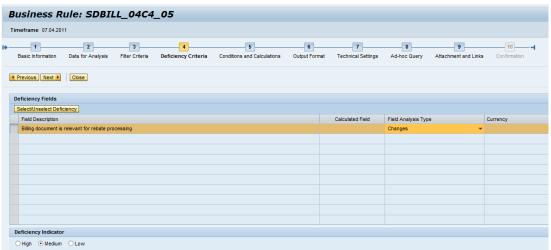


c. Select the deficiency field, and then choose \emph{OK} .





d. Set the field analysis type from the dropdown list.



Change Log Handler definition

The Handler defines the way in which the data is changed. There are three types of handlers:

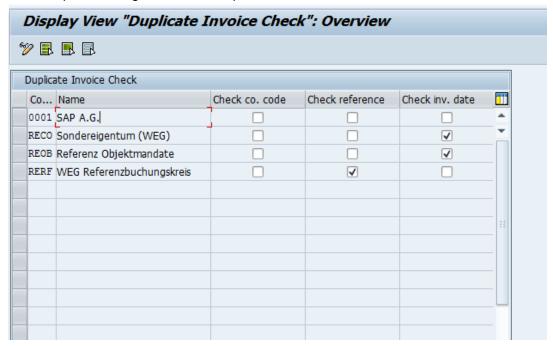
- a. Maintenance View
 - i. Indicates the changes made through which maintenance view.
 - The maintenance views are mostly encapsulated in one transaction, one IMG node, and so on.
 - iii. Only those changes made through this maintenance view for the selected source table will be considered.
- b. Table
 - i. Indicates those changes made directly through the table; the table name and the maintenance view often share the same name.
- c. Object Class



- i. It is aligned to the *Change Document Object* function in any connected NetWeaver systems.
 - See the SAP standard document about using Change Document Objects at http://help.sap.com/saphelp_470/helpdata/EN/2a/fa015b493111d182b70000 e829fbfe/frameset.htm.
- ii. Objects and tables are defined with transaction code **SCDO**.
- iii. One source table can have multiple Change Document Objects defined. The monitored fields are different.

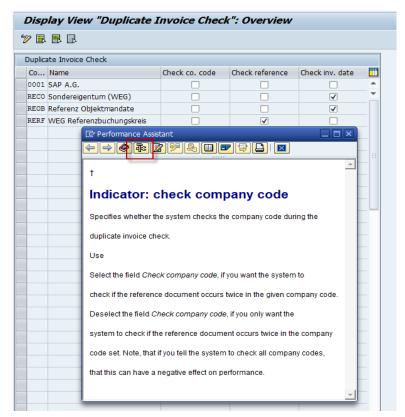
d. SCU3

- i. This handler captures all types of changes as in *SCU3*, which is a backend transaction used to view Table Change Logs.
- ii. Use this handler if you fail to retrieve fields with above handlers.
- Find the Maintenance View handler through the transaction code **SM30** in the system For example, to change data in the *Duplicate Invoice Check* view.

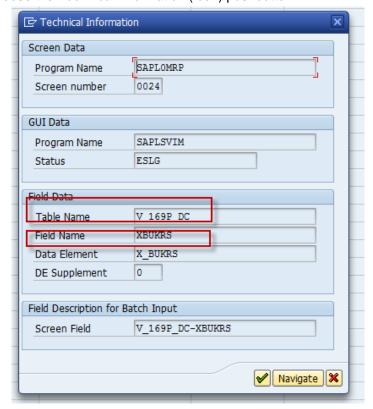


Put the cursor on the field to be monitored, and then press F1.





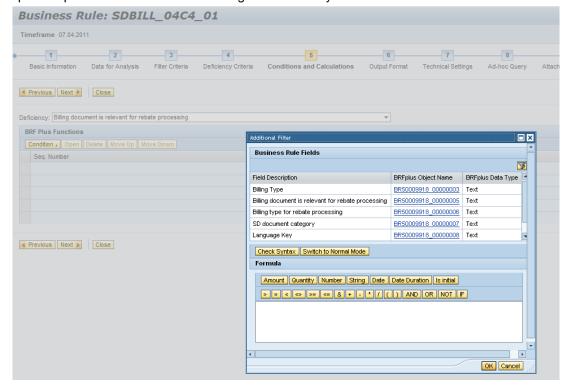
Choose the Technical Information (Icon) pushbutton.



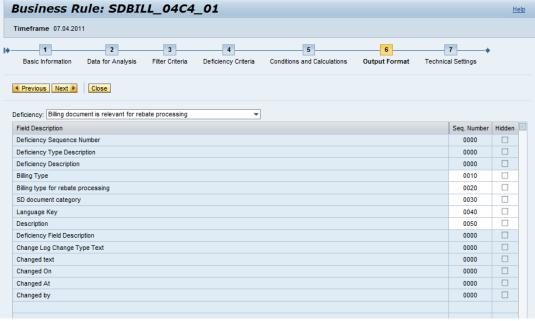
The table name V_169P_DC will be the handler, and XBUKRS will be the deficiency field.



9. From the *Condition and Calculations* screen, you can choose the *Condition* pushbutton to add additional filters for the rule. You can create calculation logic by choosing mathematical operator pushbuttons before calculating the Deficiency.



10. You can change the sequence of output fields by using the Output Format screen.



- 11. Choose Next to go to the Technical Setting screen.
 - Select Calculate Deficiency Remotely to have the deficiency calculation processed in
 the NetWeaver plug-in system. Select Locally to have the data passed back to the
 GRC system, and the deficiency calculation done with the GRC system. The choice is
 usually between imposing a greater processing burden on the monitored system,
 versus transferring more data over the network to be processed on the GRC system.
 This is dependent upon the subscenario.



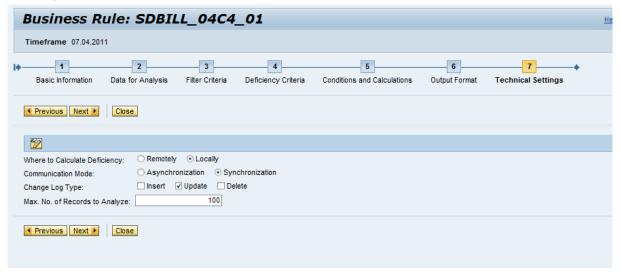
- Communication Mode sets the way monitoring program is executed:
 - i. Asynchronization When the corresponding jobs trigger the remote function call (RFC) to the monitored NetWeaver system, the call completes without waiting for the results. Once execution completes on the monitored system, the results are sent back to the GRC system by a separate call initiated by the GRC plug-in on the monitored system.
 - ii. Synchronization When the corresponding jobs trigger the remote function call (RFC) to the monitored NetWeaver systems, the call returns with results after processing completes.

The default setting for configurable Business Rules is Synchronization.

- There are three types of changes recognized for Change Log analysis:
 - Insert monitors the creation of value for the field in question, where none existed before.
 - ii. Update monitors for a change in the value of the field.
 - iii. Delete monitors the deletion of a value for the field.

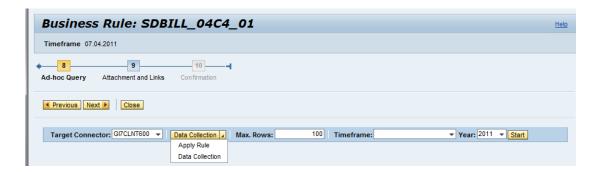
The default setting is Update.

 Enter the Max. No. of Records to Analyze to limit the size of data to be monitored in the monitored NetWeaver system. You can also use this setting to maximize the performance.

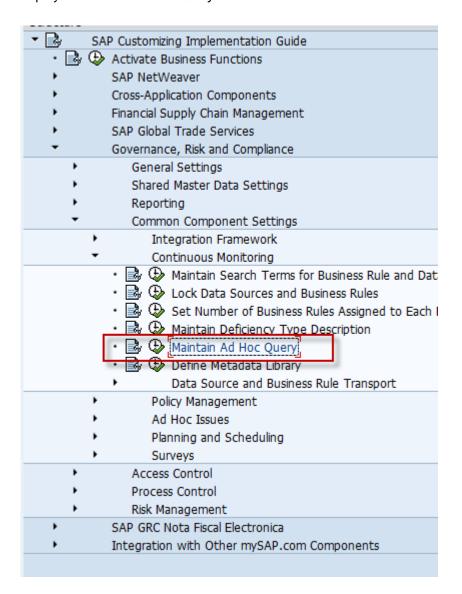


- 12. The Business Rule can be tested with an Ad hoc query before you actually schedule a job.
 - Select the Target connector.
 - Select the guery type. Query types include:
 - "Data Collection" extracts the data from selected target connectors, filtered by any conditions you define.
 - ii. "Apply Rule" not only extracts the data as as in Data Collection mode, but also applies any deficiency calculations you have defined.
 - Set Max. Rows to limit the number of records to be returned.
 - Select the Timeframe and Year for the Ad hoc Query test period from the dropdown list. This is required for monitoring the change log.
 - Choose Start to run the guery.





Use the Customizing activity *Maintain Ad Hoc Query* in the Implementation Guide (IMG) to display or hide the *Ad Hoc Query* tab.

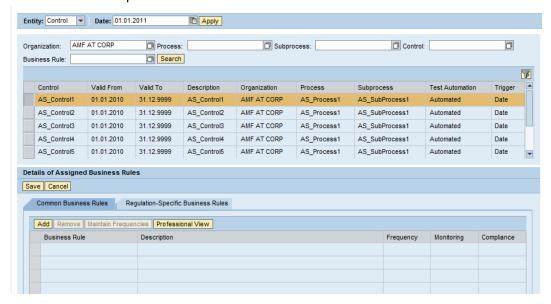


- 13. Add the attachment if needed.
- 14. After the setup is finished, choose Save. The current page closes.
- 15. The Business Rule status must be set to Active and it can be used to control Business Rule assignment. As with data sources, note that newly-created business rules can only be saved in *New* or *In Review* status. For a newly-created rule, you will have to save and re-open it to activate it.

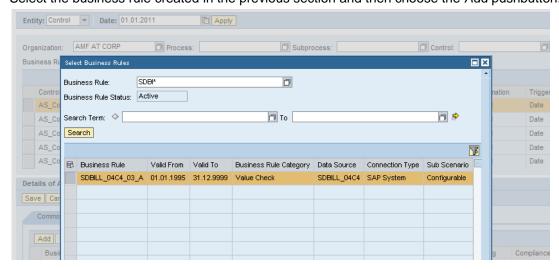


4.4 Assign the Business Rule to the Control

- 1. Navigate to Rule Setup → Continuous Monitoring → Business Rule Assignment.
- 2. Use the dropdown lists to select criteria to search for date-triggered automated or semiautomated controls.
- 3. Choose the Search pushbutton.

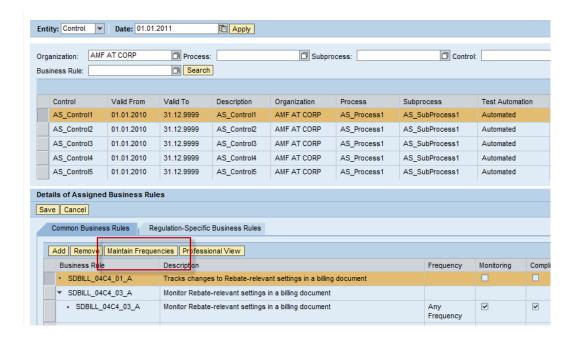


- 4. Choose the controls to which you want to assign Business Rules.
- Choose the *Modify* pushbutton.
 You can edit details of the Assigned Business Rules section.
- 6. Select the business rule created in the previous section and then choose the *Add* pushbutton.

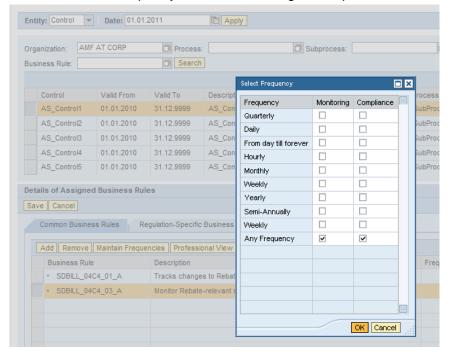


 Choose the Maintain Frequencies pushbutton. A maximum of 10 business rules can be assigned to a control. Once the control is executed, business rules cannot be removed from the control.



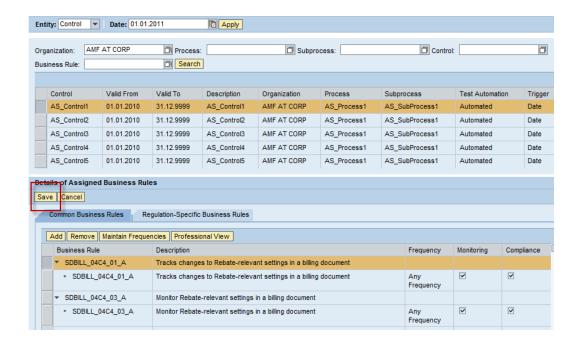


8. Select the desired frequency from the Monitoring or Compliance columns.



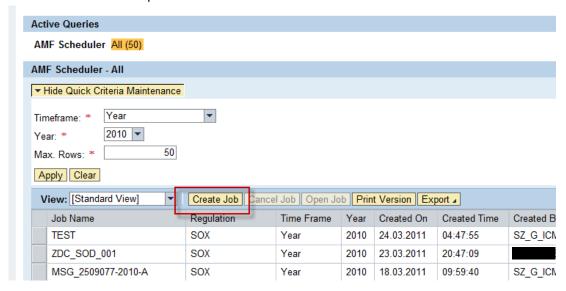
9. Choose the Save pushbutton.





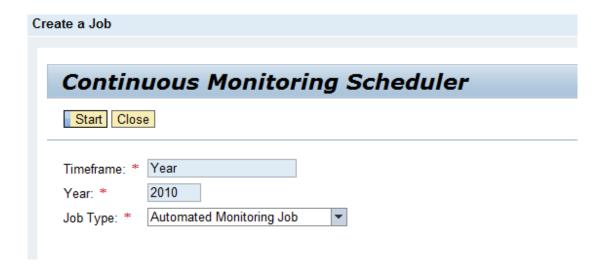
4.5 Create a Job in Automated Monitoring

- 1. Navigate to Rule Setup > Scheduling > Automated Monitoring.
- 2. Choose the Create Job pushbutton.



- 3. Select Automated Monitoring Job from the Job Type dropdown list.
- 4. Choose the Start pushbutton.





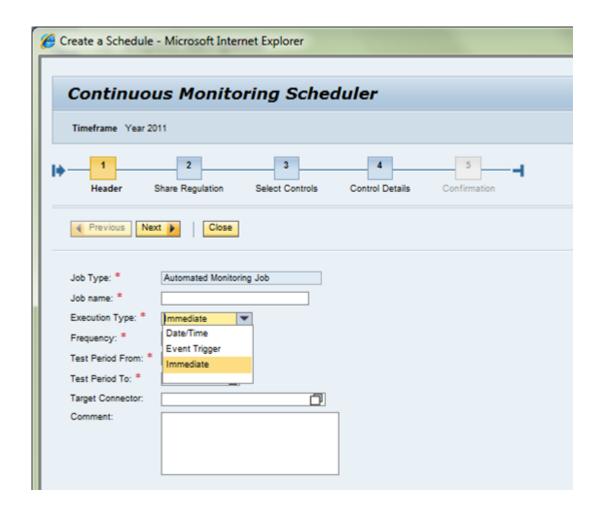
5. Enter the *Job name*, and then select the *Execution Type*, *Frequency*, *Test Period From* and *Test Period To* from the dropdown lists.

Consider the following when specifying the Execution Type:

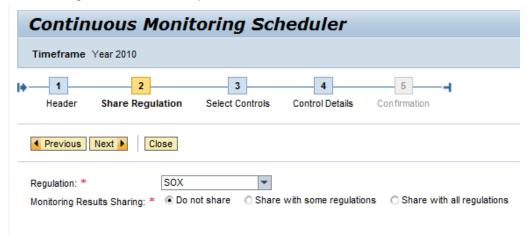
- Immediate means the jobs you scheduled will be executed immediately according to the dates in the *Test Period From* and *Test Period To* fields.
- Date/Time means the jobs will be executed according to the dates in the *Test Period From* and *Test Period To* fields plus the days and time you specified. If you selected *After* plus 1 day at 02:00, the job will be executed at 02:00 on the day you specified in the *Test Period To* field + 1 day. For example, if the end of period is 2011/07/31, the job will be executed at 02:00 on 2011/08/01.
- Event trigger not applicable for the Configurable subscenario.

Regardless of the execution type, if the starting date of the test period is in the past, the job will be executed immediately. For example, if you specify Monthly M08 and the current date is 15 September, the job will be executed immediately. In order to avoid such cases, jobs should be scheduled with a starting date in the future.



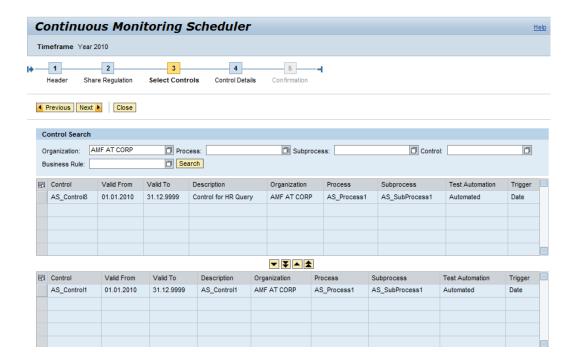


6. Select a Regulation from the dropdown list.

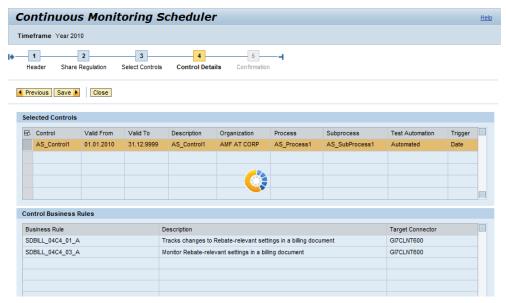


7. Search for and then select the controls which have Business Rules assigned.



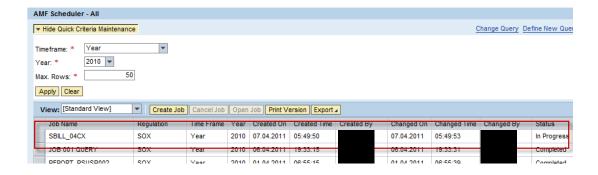


8. Choose the Save pushbutton.



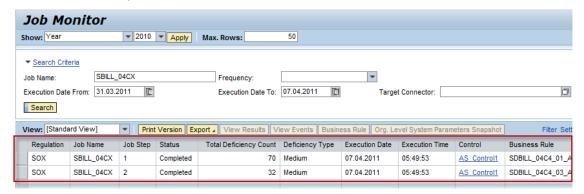
 After choosing the Save pushbutton, the newly created Job Name appears in the Automated Monitoring Jobs Overview screen. Choose the Open Job pushbutton to see job execution details in the Job Step screen. Once a control is selected, all assigned business rules will be executed.



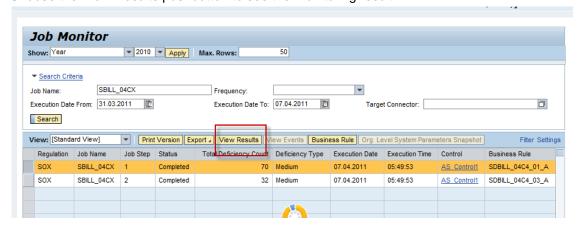


4.6 View the Job Result in Job Monitor

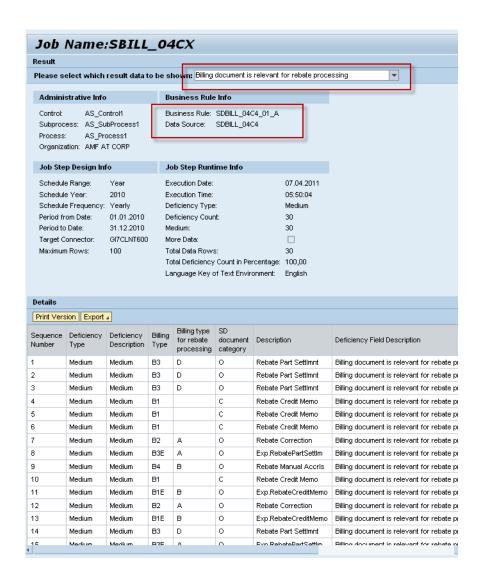
- 1. Navigate to Rule Setup > Scheduling > Job Monitor.
- 2. Enter search criteria such as the Job Name.
- 3. Select the *Frequency*, *Execution Date From* and the *Execution Date To* from the dropdown lists.
- 4. Choose the Search pushbutton.



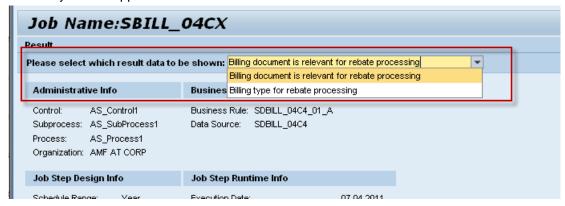
5. Choose the View Results pushbutton to see the monitoring result.







6. If there is more than one deficiency field, use the dropdown list on top to select which deficiency results appear.





5. Comments and Feedback

Your feedback is very valuable and will enable us to improve our documents. Please take a few moments to complete our feedback form. Any information you submit will be kept confidential.

You can access the feedback form at:

http://www.surveymonkey.com/s.aspx?sm=stdoYUlaABrbKUBpE95Y9g 3d 3d



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