Rules in Workflow

Applies to:
SAP ECC 6.0 and upwards.

Summary
This document is prepared to give the beginners a brief idea about Rules in SAP Business Workflow. The document contains basics of Rules and also shows how and where rules can be applied in Workflow with necessary screenshots.

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**Definition:**
- Workflow rules allow us to define and enforce an issue handling process.
- Rules allow us to specify data at runtime according to a template defined at definition time.
- Together with e-mail notifications, workflow rules help us automate the tracking and management of issues.

**What is the difference between Rules and Roles?**

<table>
<thead>
<tr>
<th>Rule</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A Rule is a general way to 'define' your agents.</td>
<td>1. A Role is a general way to 'assign' your agents.</td>
</tr>
<tr>
<td>2. A rule is maintained with Transaction code <strong>PFAC</strong> and is used to programmatical define the agents.</td>
<td>2. A role is maintained with Transaction code <strong>PFCG</strong> and is usually assigned to a User (someone with a valid login).</td>
</tr>
<tr>
<td>For example, if you want a work item to go to all managers who worked for the company for 5 years or more, then you would have to create a rule that handles this custom scenario. Typically this is done by creating a custom function module that performs your selection logic and passes the results back to the rule.</td>
<td>For example, you can have the role of ABAP_DEVELOPER and assign this role to all users who are developers. This is a good method to use if you want ALL developers to receive a workflow work item.</td>
</tr>
<tr>
<td>3. You can define a container element that contains the object of Organizational Management at runtime or a rule for dynamic agent determination.</td>
<td>3. You can specify not only a system user, but also a role or an object of Organizational Management such as a position, a Job, an organizational unit or a work center.</td>
</tr>
</tbody>
</table>
Rule Basics

Transaction: PFAC_INS (Create).
PFAC_CHG (Change).
PFAC_DIS (Display).
PFAC_DEL (Delete).

Menu Path:
Tools → Business Workflow → Development → Definition tools → Rules for Agent Assignment → Create/Change/Display.

Maintain Rule

<table>
<thead>
<tr>
<th>Rule</th>
<th>99900003 ZRULE_TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>find superior of an employee</td>
</tr>
</tbody>
</table>

Note:
- Each rule gets a 8 digit generated by the system prefixed with AC
- Rules can be tested using PFAC or by function module 'RH_GET_ACTORS'.

Rule Container

- The rule container contains a rule’s parameters.
- Each rule has just one rule container.
- At runtime, the rule parameters contain the current, context-specific information that forms the basis of rule resolution. Therefore, the rule parameters constitute "input" for rule resolution.
- In SAP Business Workflow, binding feeds the rule parameters with values from the workflow container. If a task contains default rules, the system fills the rule container from the task container using binding.
- If a rule is used in a workflow to determine the responsible agent, the result of rule resolution is stored in the container element _RULE_RESULT and can be transferred to the workflow container by binding.
- The Rule container includes the following information depending on the Rule Category. The online help is here.
Standard Rules.

- A rule container is defined for each rule.
- The rule parameters determine which information is required for the rule resolution to be executed at runtime.
- If an error occurs during rule resolution, setting the termination indicator for the rule resolution determines how the workflow will continue:
  - Flag is selected - the workflow assumes an Error status and a notification is sent to the workflow administrator.
  - Indicator is not activated - the workflow forwards this work item to ALL possible agents.

Rule Resolution

Use

The following types of Rules can be resolved:

Agent determination rules

Agent determination rule is used in SAP Business Workflow for example, determine the responsible agents of a work item who have certain characteristics.

WebFlow Rules

WebFlow rules are used within a workflow in the basic data and in the Web activity step type.

Using a WebFlow rule you can individually execute the following parts of a Web activity:

- Determination of URL
- Preparation of the XML document
- Determination of the authentication data
- Execution of the send procedure
- Determination of transfer format

For more help click here
Defining Rules Using Function to Be Executed

Use

You use function modules for defining agent determination rules when very complex selection criteria, which cannot be depicted by other rule categories, are required for agent determination.

Note:

- You have decided what you want the workflow to do. Depending on that, you decide whether you want to use a function module delivered by SAP or a function module of your own that suits your requirements exactly.
- The function module must enable the following process:
  a) The rule container transferred as the table parameter AC_CONTAINER is read using the macro commands SWC_GET_ELEMENT and SWC_GET_TABLE. Note: If you want to have the macro commands available, you must integrate the Include <CNTN01> as a sub-report for shared use. <CNTN01> mainly contains the macro command definitions for creating and processing a container instance.
  b) The rule parameters are used to determine the responsible agent(s). At its simplest, this sub-program consists of a loop on a (Customizing) table, from which the agent is selected.
  c) The table ACTOR_TAB is filled.
Procedure:
How to create custom rules in SAP Workflow?

Concepts:
The rules can be created or changed using the standard SAP transaction PFAC. Once the rules are created you can call these rules in any workflow via the rule container.

Scenario:
Create a rule which will find the superior for any user/agent.

Design:
1. Create a custom table ZTEST_USERS which will contain the names, positions of each user along with their superiors’ name.

   ![ZTEST_USERS Table]

   **Custom table containing the user names and their superior’s names.**

<table>
<thead>
<tr>
<th>Field</th>
<th>Key</th>
<th>Init</th>
<th>Data element</th>
<th>Data Ty</th>
<th>Length</th>
<th>Decim</th>
<th>Short Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME1</td>
<td></td>
<td></td>
<td>NAME1</td>
<td>CLINT</td>
<td>3</td>
<td>0</td>
<td>Client</td>
</tr>
<tr>
<td>BNAME</td>
<td></td>
<td></td>
<td>XUSERNAME</td>
<td>CHAR</td>
<td>12</td>
<td></td>
<td>User Name in User Master Record</td>
</tr>
<tr>
<td>NAME1</td>
<td></td>
<td></td>
<td>XNAME1</td>
<td>CHAR</td>
<td>30</td>
<td></td>
<td>Name of user within the company</td>
</tr>
<tr>
<td>NAME2</td>
<td></td>
<td></td>
<td>XUSERNAME1</td>
<td>CHAR</td>
<td>30</td>
<td></td>
<td>Name of user within the company</td>
</tr>
<tr>
<td>ZPOSITION</td>
<td></td>
<td></td>
<td>ZPOS</td>
<td>CHAR</td>
<td>40</td>
<td></td>
<td>position</td>
</tr>
<tr>
<td>ZSUPERIOR</td>
<td></td>
<td></td>
<td>ZSUPERIOR</td>
<td>CHAR</td>
<td>12</td>
<td></td>
<td>superior names</td>
</tr>
</tbody>
</table>

2. Create a custom function module ZTEST_FIND_SUPERIOR which will return back the table containing all the superior information for a particular user/agent.

Note: This custom function module created should have the same interface as that of the SAP standard function module RH_GET_ACTORS.

   The following table’s parameters have to exist in the custom function module.

   ![Function Module Table]

   **Function module ZTEST_FIND_SUPERIOR**

   **ACTOR_TAB STRUCTURE SWHACTOR**

   **AC_CONTAINER STRUCTURE SWCONT**

   **Source Code**

   ```
   FUNCTION ZTEST_FIND_SUPERIOR.
   
   """Local Interface:
   """ TABLES
   """ ACTOR_TAB STRUCTURE SWHACTOR
   ```
INCLUDE <cntn01>.
TYPES : BEGIN OF ty_users.
  INCLUDE STRUCTURE ztest_users.
TYPES : END OF ty_users.

DATA: org_agent LIKE wfsyst-agent,
  lt_holders TYPE STANDARD TABLE OF swhactor,
  lwa_holders TYPE swhactor,
  lt_users TYPE STANDARD TABLE OF ty_users,
  lwa_users TYPE ty_users,
  v_len TYPE i,
  v_bname LIKE ztest_users-bname,
  num_lines TYPE i.

*Read values assigned to the rule criteria
swc_get_element ac_container 'org_agent' org_agent.

*Get the superior
SELECT SINGLE * FROM ztest_users INTO CORRESPONDING FIELDS OF lwa_users
WHERE bname = org_agent.

IF NOT lwa_users IS INITIAL.
  REFRESH lt_holders[].
  lwa_holders-otype = 'US'.
  lwa_holders-objid = lwa_users-zsuperior.
  APPEND lwa_holders TO lt_holders.
  APPEND LINES OF lt_holders TO actor_tab.
ENDIF.

DESCRIBE TABLE actor_tab LINES num_lines.
IF num_lines IS INITIAL.
  RAISE nobody_found.
ENDIF.
ENDFUNCTION.

Exception- Goto the exception tab of the Custom Function Module and enter the exceptions as required. Here we have added the Exception NOBODY_FOUND.
3. Now we have created the Function module **ZTEST_FIND_SUPERIOR**. We will now assign this Function module on the Rule.

4. Go to transaction **PFAC** to create rule. Create rule **ZRULE_TEST**.

In the Rule Definition tab select the **Agent Determination: Function to be Executed** in the Category field and provide the name of the Function module created (**ZTEST_FIND_SUPERIOR**).

Go to the Container tab and create a container element for the agent/user which will be passed to the function module by clicking the **Create** Button and enter the values as shown.
5. The rule is now created and we can test this rule in the PFAC transaction by clicking the "Simulation" button on the application toolbar. Enter the user name in the Container Element value section and press enter.
6. It displays the name of the superior for the agent/user and the Agent Found is displayed in Green color.

7. Now we can use this rule in any of your workflow definition as required.
Definition of an Agent Determination Rule

Use:
You use this function if you want to define more rules in addition to the agent determination rules delivered by SAP.

Features:
The following things should be specified while defining an Agent Determination Rule:

- Which information must be available so that rule resolution can be performed when the workflow is executed? — This information constitutes the rule parameters. They are defined as elements of the rule container.
- The regulations in rule resolution that are used to determine the appropriate employees. The rule resolution procedure is specified by the rule category.

Rule Category Agent Determination: Responsibilities

Use:
With this rule category you can select agents based on values from the workflow or the task. To do this, you transfer container elements from the task or workflow container to the rule container using binding. In the rule you define responsibilities that relate Organizational Management objects (job, position, organizational unit, user, and so on) with possible values from container elements in the rule container.

- A responsibility is itself an organizational object that requires no Customizing settings and no ABAP source text.
- Defined Value ranges are assigned to Agents.
- Data is filled from workflow container at runtime.

Procedure:
1. Go to PFAC_INS/PFAC_CHG transaction for create/change rule.
2. On the Rule Definition tab page, choose the category Agent Determination: Responsibilities, and assign an abbreviation and a name for the rule.
3. Create Rule Container
The Rule Container must contain the container elements whose values you want the system to check when the rule is executed. At runtime, binding fills the rule container with data from the task or
workflow container. To create the rule container, you therefore need to know the definition of the task or workflow container.

a) Go to the Container tab and Choose \( \text{Create} \).

b) The Create container element dialog box appears. Make entries in the Element, Name, and Short Description fields.

Create either an object reference or an ABAP dictionary reference for the container element.

As a guide, you can use the data type reference of the container element of the workflow or task container from which the container will be filled at runtime.

c) On the Properties tab page, set, if required, the Obligatory and/or Multiline indicators.
Repeat steps 1 to 4 until you have defined all the necessary elements for the rule container.

4. Creating a Responsibility

With a responsibility you define the container element values that you want to trigger processing by the same users. In the responsibility, you define values or value ranges for the container elements of the rule container. If you wish, you can assign a priority to each responsibility.

a) Go to the Responsibilities tab.

Choose □.

b) The Create Responsibility dialog box appears.

Enter an abbreviation, a name, and the validity period of the responsibility and confirm your entries.
Enter a single value or a value range for the container elements whose content you want the system to check during rule resolution. If you want to check several single values or value ranges for one container element, you can create new entry rows.

Position the cursor in a row with the container element for which you need a new row, and choose.

Note:

- If you do not want to check a container element for a particular responsibility, leave this line blank. The status of the responsibility is set to Responsibility incomplete, in order to draw your attention to unchecked container elements.
- If you wish, give the responsibility a priority.
- The responsibilities with the highest priority are evaluated first. Responsibilities with lower priorities are only evaluated if this is defined in the rule definition.
5. Assigning Users or Organizational Objects to the Responsibility

You assign Organizational Management objects to a responsibility. These are then returned as the result of the rule, if the responsibility check is positive.

a) **In the Responsibility tab** select the responsibility to which you want to assign an Organizational Management object, and choose **Add**.

The Selection dialog box appears.

<table>
<thead>
<tr>
<th>Name</th>
<th>Priority</th>
<th>Status</th>
<th>Code</th>
<th>Assigned as</th>
<th>Assigned until</th>
</tr>
</thead>
<tbody>
<tr>
<td>agent determination</td>
<td></td>
<td></td>
<td></td>
<td>Res. ZTEST_RULE2</td>
<td></td>
</tr>
</tbody>
</table>
b) Select an object type that you want to assign as an agent and choose Continue.

c) The system asks you to enter a search term and to create the relationship between the responsibility and the selected object. Confirm your entries.

In the Overall View, you can also specify a validity period for the relationship.
Rule Resolution Based on Evaluation Paths

Definition:
- A chain of relationships between objects in a hierarchical structure.
- Evaluation path describes how to find one or more organizational objects based on an initial organizational units.
- The organizational situation of employees within an enterprise is depicted in the organizational plan. Using this existing information, you can perform rule resolution starting from one particular employee to determine one other employee, or several other employees, along specific relationships in the organizational plan.

Example: The evaluation path O-S-P describes the relationship chain:
Organizational unit -> position -> person ->.

Use:
Evaluation paths are used for the selection of objects in evaluations.
You select an evaluation path and the system evaluates the structure along this evaluation path. The report only takes into account the objects that it finds using the specified evaluation path.

Maintain Evaluation path:
Transaction: OOAW

Procedure
1. Go to PFAC_INS and create a rule and enter the name and short description for the rule.
2. In the Category field choose **Agent Determination: Function to be Executed** and enter **RH_GET_STRUCTURE** as the function module.

The evaluation path is now active. Now you can enter the required Evaluation path.
3. Switch to the Container tab page to create the Rule Container.

Note: The rule container for an agent determination rule based on evaluation paths must contain only the Organizational Management object for which the evaluation path is to be applied. At runtime the system fills the rule container from the workflow or task container using binding.

Click on the Container tab page and create the following container elements.

<table>
<thead>
<tr>
<th>Name</th>
<th>Data type reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OType</td>
<td>OBJEC-OTYPE</td>
<td>Type of the Organizational Management object</td>
</tr>
<tr>
<td>ObjID</td>
<td>OBJEC-REALO</td>
<td>ID of the Organizational Management object</td>
</tr>
<tr>
<td>Org_Agent</td>
<td>WFSYST-AGENT</td>
<td>Organizational Management object</td>
</tr>
</tbody>
</table>

1. Choose .
2. Make entries in the **Element**, **Name**, and **Short Description** fields.
3. Create the required ABAP dictionary reference for the container element.
4. Repeat steps 1 to 3 until you have defined all the elements for the rule container.

```
Rule: 00000000_ztest_rule
Name: test evaluation path
Pack: 
Appl. component:
```

Choose Save.

**Note:** The rule container contains elements with which an Organizational Management object can be transferred. At runtime either the container elements OType and ObjID or the container element Org_Agent must be filled. If all container elements are filled, only the value transferred in Org.Agent is evaluated.
Related Content

Rules in SAP Business Workflow

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