Workflow

Release 4.6C

SAP ™

Copyright

Icons

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Workflow

Purpose

SAP Business Workflow has the technology and tools for automated control and processing of cross-application processes.

You can use workflow within the Project System to automate and integrate the performance of cross-application and cross-department processes within one project.

The Project System uses

- Predefined standard tasks in purchasing, confirmation, and during configuration changes

- Workflow tasks in milestones, which can also be user-defined.

Preparations and Customizing

Use

To use Workflow in the Project System, you must make the following settings in Customizing for Workflow and the Project System:

- Maintain your company's organization structure

- Link the predefined standard tasks with the authorized people in your company

- Activate existing event receiver links between triggering events and consuming workflow tasks.

- Name a technical person responsible for each standard workflow template.

- Determine whether a workitem should be created and make the appropriate setting in Customizing for network type parameters.

- Determine whether a workitem should be created if there is a deviation in the duration and work, and make the appropriate setting in Customizing for confirmation parameters.

For more information, see the Implementation Guide (IMG) for SAP Business Workflow [Ext.] and the SAP Library in the SAP Business Workflow [Ext.] component (BC-BMT-WFM).

Standard Tasks in the Project System

SAP has predefined the following standard workflow tasks and provided them with the Project System:

Standard Task TS20000653: Purchase Order Change

If you change dates or quantities of material components in a network with externally processed activities, for which a purchase order has already been created, the system automatically creates a workitem.

The purchasing agent receives a message in the mail system regarding the changes that need to be made. This person can then make the necessary changes to the purchase order directly from the mail system.
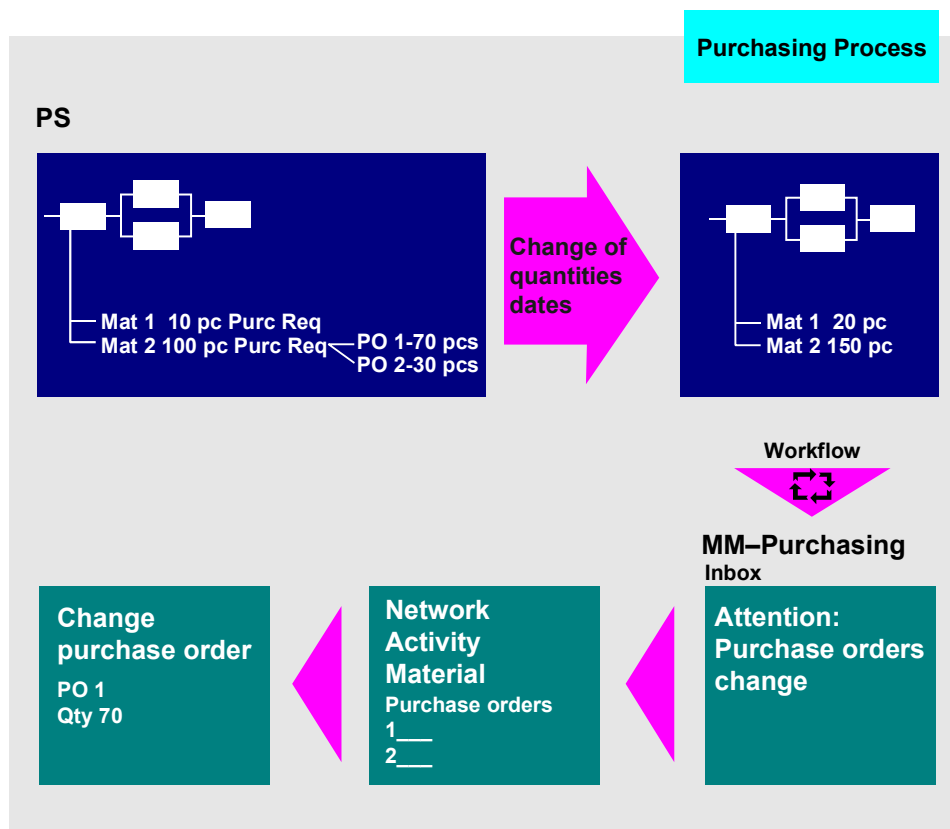
For more information, see Purchase Order Change (PS) [Page 11] .

Standard task TS00007944: Enter actual data

You can create a workitem for confirmation from the information system. The pool of confirmations can be sent to various addresses, for example, to a user or a work center.

Standard Tasks in the Project System

Information system

- X **Activity 10**
- X **Activity 20**
-   **Activity 30**
- X **Activity 40**

- **Role**
- **Position**
- **User**
- **Work center**
- **Job**
- **Organiz. unit**

Pool of confirmations

- X **Activity 10**
- X **Activity 20**
- X **Activity 30**

Workflow

Confirmation

Activity 10	10%
Activity 20	30%
Activity 40	

Inbox

PS: Enter actual data
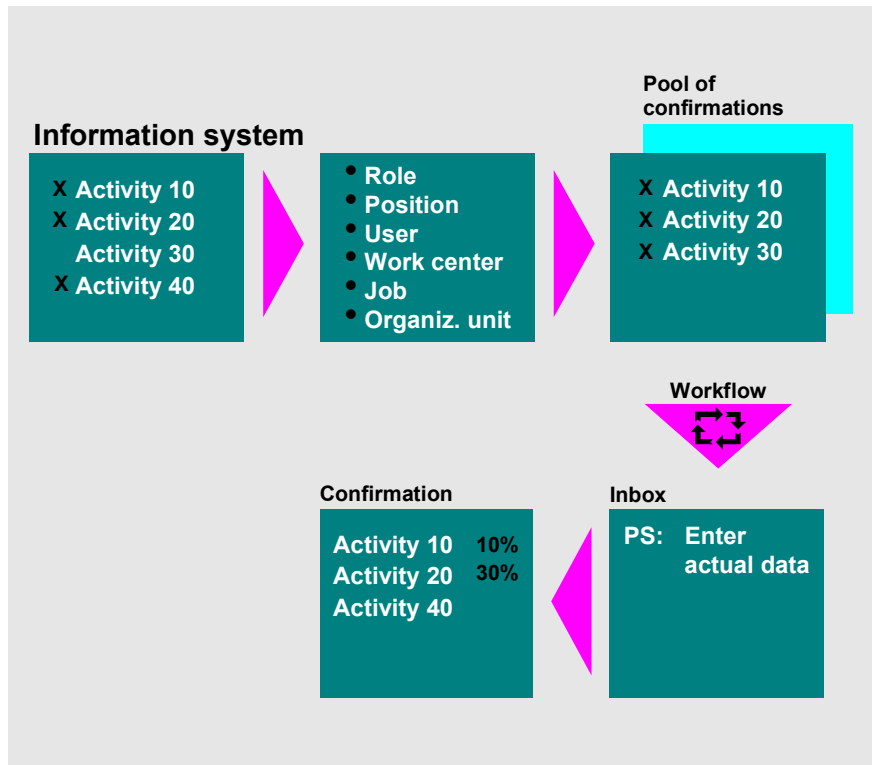
See also:

Creating a Workflow for Confirmations [Ext.]

Standard Task TS00008015: Deviation in the Confirmation is too Large

If the duration or work exceeds the values you defined in the confirmation parameters in Customizing, the system automatically creates a workitem: The MRP controller receives a workitem by mail and can display the confirmation or network. The MRP controller can also use the mail system to contact the person who made the confirmation.

Confirmation

Confirmation

| Deviation Work: - Max - Actual Duration - Max - Actual | Actual> Max | Workflow to MRP controller | | **MRP controller's inbox** Maximum deviation exceeded |

Workflow

| **Inbox** Reason | Mail Reply required | **Inbox** Response | Mail | **Inbox** Network Activity Employee % Max % Actual Duration Work |
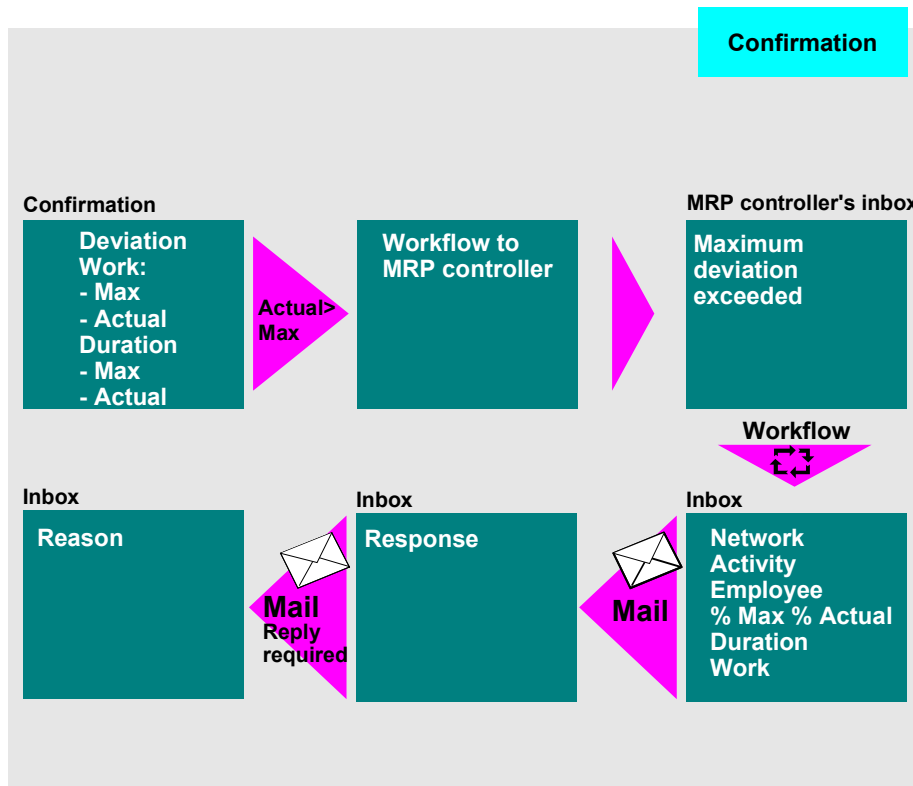
Standard Task TS00200040: Change Network

SAP has predefined this standard task which you can use as a model for creating your own standard tasks and workflow tasks for the milestones in a network. This standard task calls up the change network transaction. You can use it to define your own standard tasks and workflow tasks.

WS20000265 Configuration Change Management

This workflow template contains the following standard tasks:

TS20000477 Display change management

TS20000478 Create text

TS20000479 Display text

TS20000480 Make change

For more information, see Configuration Change Management (PS) [Page 17] .

User-defined Standard Tasks and Workflow Tasks in Milestones

You can use the milestone function *start workflow task* in a network to start:

- Standard tasks

- Tasks

- Workflow tasks

depending on the status of the activity to which the milestone is assigned. You can use network and activity data for the task.

The tasks must meet certain conditions. For more information on how to define user-defined standard and workflow tasks, refer to the Implementation Guide for the *Project System* under Workflow [Ext.].

See also:

IMG: Define Workflow for network milestones [Ext.]

Purchase Order Change (PS)

Purpose

If, during network processing, either an external material (non-stock item) or an external service (external activity/service activity) has to be procured, a purchase requisition is created. This is proceced by the purchaser, who creates on or more purchase orders. This is noted in the network.

If changes occur in the nezwork with regards to the ordered materials or services (changed quantities or dates), the sytem automatically changes the purchase requisition. However, any purchase orders that have already been created must be changed manually by the responsible purchaser.

Process Flow

You can use the SAP Business Workflow to inform the responsible purchaser, if based on a change in a network

- The required quantity or the requirements date of an external material or service changes or

- An external material item or external activity is deleted or

- An external activity becomes an internal activity or

- The external material or service is no longer required, because the network now has the *Technically completed* status

- And one or more purchase orders have been created for the purchase requisition

The purchaser receives a workitem, in which all the relevant changes that affect the external materials or services are listed. He/she can view the purchase requisitions and the existing purchase orders that are affected. It is also possible to edit the purchase orders and to create new orders.

Technical Implementation

Object Types

The interface between the R/3 functionality and the workflow system has been implemented using object technology. As a result, this topic contains information of a more technical nature, which is now required for a first overview.

In this context, the following object types are important:

BUS2002: Network

Position in the object repository: *Project System*

T024: Purchasing group

Position in the object repository: *Materials management → Sales*

Standard tasks

Standard tasks are single-step tasks delivered from SAP, which describe basic business processes from an organizational point of view. A single-step task always refers to an object method (technical connection to R/3 functionality) and is linked with employees, who are assigned to the relevant part of the organization.

Standard Task TS20000653:

Abbreviation: PurchOrdPS

Description: Change order network

Referenced object methods, characteristics

Object type: BUS2002

Method: DisplayPurchaseOrderChange

Characteristics: synchronous , with dialog

Process Flow

If there are changes in a network that affect ordered materials or services (quantities or dates), the affected materials are sorted according to purchasing group (in the purchase order). The event PurchaseOrderChange is then triggered for object type BUS2002 for each purchasing group.

The event BUS2002.PurchaseOrderChange is the triggering event for the standard task TS20000653. It has the following parameters:

Parameter	Description
PurchasingGroup	Purchasing group
TodoList	Internal table containing the changed materials and services

The following data flow has been defined between the event PurchaseOrderChange and the task TS20000653:

Task container	Event parameter container
Network	_Evt_Object

Start date	_Evt_Creation_Date
Start time	_Evt_Creation_Time
Triggered by	_Evt_Creator
Simple todo list	TodoList
Purchasing group	PurchasingGroup

The standard task uses the role 00900010 (purcahsing group). It determines all users linked with the relevant purchasing group. If no users have been linked the purchasing in SAP Organization Management, all the users linked to the standard task receive a workitem.

Preparations and Customizing

As well as the general Customizing that guarantees the smooth performance of the workflow system, it is also necessary to carry out special Customizing for standard task TS20000653.

Maintaining Employee Assignments

Assign standard task TS20000653 to the employees who could need it. To do so, choose in Customizing *Project System → Workflow → Configure Standard Tasks for Workflow in the Project System* or proceed as follows:

1. On the SAP Easy Access menu choose *Tools → Business Workflow → Development → Tasks/Task groups → Display*.

2. Choose *Tasks/task groups → Display* and enter the standard task TS20000653

3. Assign the standard task TS20000653 to the users in the organizational unit that is to process the task in your company.

Link Purchasers to Organization Management

If you only want the purchaser responsible to receive a workitem (instead of all the possible agents of the standard task TS20000613), link the purchaser to SAP Organizational Management. To do so, use the Customizing activity *Project System → Workflow → Configure Standard Tasks for Workflow in Project System → Customizing tasks* or proceed as follows:

1. On the SAP Easy Access menu choose *Tools → Business Workflow → Development Definition tools →SAP org. objects → Create assignment*.
   The *Assignment to SAP organizational objects* initial screen appears.

2. Enter the organizational object.

3. In the *Org. object type* field enter *T024.*

Activating the Event Linkage

The PurchaseOrderChange event for the object type BUS2002 is the triggering event for the standard task TS20000653. Before the standard task can be started event linkage must be activated. To do so, choose in Customizing *Project System → Workflow → Configure Standard Tasks for Workflow in the Project System* or proceed as follows:

1. On the SAP Easy Access menu choose *Tools → Business Workflow → Development Definition tools → Tasks/Task groups→ Display.*

   The *Task: Display* screen appears.

2. Enter the standard task TS20000653, choose ⚙ and go to the *Triggering events* tab page.

3. Activate the event by clicking on the iicon in the ▶ column so that a green light appears.

Maintaining Order Type-Dependent Parameters

You must define whether the standard task TS20000653 is to be started for each order type (network type)and plant. Use Customizing activity *Project System → Workflow → Configure Standard Tasks for Workflow in the Project System → Network Type Parameters: Overview.*

Select the relevant combination of plant and network type, choose , and set the *Wrkflw PO chg* indicator.

Operation

When you execute a workitem for standard task TS20000653, you see a screen split into two sections:

On the left-hand side is an overview list of the materials or services. There is checkbox for each material/service. You can use these checkboxes to indicate which materials/services you have already processed.

A red light in front of a material or service means that another workitem has been created for this material or service after the current workitem was created.

By double-clicking on a material or service in the overview list you can display the detailed data on the right-hand screen.

You can edit exsiting purchase orders or create new ones. A new purchase order does not appear immediately in the table of existing purchase orders. The purchase order has to be saved to the database first. After it has been saved you can display the purchase order by:

- Choosing *Refresh*

- Double-clicking on the material or service in the overview list.

You can always interrupt processing of a workitem by choosing *Cance*l, *Back* or *Exit*. You can then resume work later. Choose *Close Workflow* to finish the workflow.

Configuration Change Management (PS)

Purpose

A network can be created for a configurable product from the sales order using assembly processing. The characteristic value assignment is passed directly from the configurable material to the network, and the relevant activities, activity elements, components, PRTs, etc. are selected.

If the configuration of the material, which has an assembly order involving a network, is later changed, a change comparison is started for the network. Objects are added to or deleted from the network. The system tries to make this change comparison automatically. If conflicts arise, the network receives the *Manual adjustment necessary* status and the change steps have to be processed manually.

The changes to the configuration are made in Sales by the responsible employee. However, an employee in project planning makes the changes to the network. To facilitate communication between the two departments and to avoid long processing times, a workflow template has been created to automate this business process.

Process Flow

The triggering event for this workflow is a conflict during a change comparison, which means that that the *Manual adjustment necessary* status is set. The flow of the workflow template is as follows:

A dispatcher determines which employee in project planning should make the change comparison. He/she makes this decision after seeing the network. The dispatcher is determined via a role, that evaluates the network data and the structure of the organization. The dispatcher can then create a text that is sent to the chosen employee. The employee sees this text and can then start processing the network immediately. The workflow finishes when the change comparison is concluded successfully.

Technical Realization

Object Types Used

The interface between the R/3 functionality and the workflow system has been implemented using object technology. As a result, this topic contains information of a more technical nature, than is required for a first overview.

Standard tasks

Standard tasks are single-step tasks delivered from SAP, which describe basic business processes from an organizational point of view. A single-step task always refers to an object method (technical connection to R/3 functionality) and is linked with possible agents, who are assigned to the relevant part of the organization.

Workflow template

The actual business process as been implemented as a workflow template. You can find this workflow template in your R/3 system.

Object Network (BUS2002)

Objects are created in runtime and are the specific instances of pre-defined object types that have been given values. Object types are defined, entering the component, in the Business Object Repository and implemented:

An object Network (BUS2002) exist, for which methods, attributes, and events have been defined that are used by the workflow.

Standard Task TS20000477 Display change management (PS-DisplayCM)

Use

In this standard task, the system displays change management for networks to the dispatcher. He/she then decides which agent is responsible for the change comparison.

Referenced object methods: Object type BUS2002 (network), method ChangeManagementDisplay (display change management)

Assigning agents: This task should be classed as a general task. General tasks do not have to be assigned to an agent, since they can be carried out by everyone. The agent is determined from the context of the workflow.

Standard Task TS30001203 Determine possible agents and dispatch

Use

This standard task determines the possibe agents for a subsequent task in the workflow. The dispatcher selects an agent from a list of possible agents. This agent is then assigned the single-step task in the workflow.

Referenced object methods: Object type WF_TASK, method AllAgentsOfTaskGetAndDispatch (Determine possible agents and dispatch)

Assigning agents: This task should be classed as a general task. General tasks do not have to be assigned to an agent, since they can be carried out by everyone. The agent is determined from the context of the workflow.

Standard Task TS20000478 Create Text (PS-CreaText)

Use

In this standard task, the dispatcher creates a text for the agent.

Referenced object methods: Object type STD_TEXT, method Create (create text)

Assigning employees: This task should be classed as a general task. General tasks do not have to be assigned to an agent, since they can be carried out by everyone. The agent is determined from the context of the workflow.

Standard Task TS20000479 Display Text (PS-DispText)

Use

In this standard text the agent sees the text that the dispatcher created.

Referenced object methods: Object type STD_TEXT, method ReplaceAndDisplay (replace text symbols)

Assigning agents:s This task should be classed as a general task. General tasks do not have to be assigned to an agent, since they can be carried out by everyone. The agent is determined from the context of the workflow.

Standard Task TS20000480 Make Change (PS-EditCM)

Use

In this standard task when an agent opens the workitem, he/she goes directly to change mangement for networks, to make the necessary change steps.

Referenced object methods: Object type BUS2002 (network), method ChangeManagementEdit (make change)

This is ansynchronous method, which means that it can only be completed if another, terminating, event occurs. In this case, this event is the successful execution of a change comparison for the corresponding network. The workitem remains until the event occurs. The terminating event ChangeManagementClosed is defined in the task on the corresponding tab page.

Assigning agents: Here you should enter all the possible agents for confirmation change management, since the dispatcher sees them in a list. You can assign agents in the task basic data.

You can also define the task as a general task and let the dispatcher choose the agent.

Standard role 20000054 MRP Controller Group (MRPContGroup)

Use roles to specify the agents for tasks or the addressees for messages.

Determining all the agents with the relevant attribute is refered to as role resolution. Each role has a role parameter container that contains the values used in role resolution.

Technical Realization

Entering a role is just one of several ways of finding the responsible agents or addressees. It is also possible to find someone via a suitable organization object (position, job, organization unit) or an expression with reference to the workflow container.

Role resolution is facititated by the SAP organization object MRP Controller Group (MRP_Controller_Group). The key for the MRP controller group is T024D.

SAP organization object types (short: SAP OrgObjectTypes) represent organizational units on the object type level in the Business Object Repository. Organizational units are used to group employees together and to describe these groups. The key of the SAP organizational object type *MRP controller group* consists of the plant and the MRP controller.

The object type BUS2002 receives a MRPControllerGroup attribute that represents a object type reference to the SAP organizational object type *MRP controller group.*

The assignment of the SAP organizational object type *MRP controller group* to an organizational unit or a position results allows the responsible agent group to be determined at runtime. Since the role entry parameter is BUS2002, the role resolution searches the whole organizational plan for departments that are linked with objects of the type MRP controller group. All employees in such an organizational unit or position receive the workitem.

The role determines the agents for the single step *Display Change management*. The agents found determine the responsible agent.

Preparations and Customizing

As well as the general Customizing that guarantees the smooth performance of the workflow system, it is also necessary to carry out special Customizing for this workflow template.

Determining Responsibilities of the Roles

You must assign SAPorganizationjal object type T024D (MRP controller group). Since the organizational plan is always structured according to you requirements, this step is always necessary. When you create the assignment, you must specify the plant and the MRP controller so that the MRP controller is uniquely identified. You can create several assignments within your organizational plan.

Executing Task-Specific Customizing

1. Perform task-specific Customizing for SAP Business Workflow.

2. Classify the standard task TS20000477 (Display change management), TS30001203 (Determine possible agent and dispatch), TS20000478 (Create text) and TS20000479 (Display text) as general tasks.

3. Assign the standard task TS20000480 (make change) to the agents who could process it.

Activate Event Receiver Linkage

The event ChangeManagementOpened (configuration change with conflict) for object type BUS2002 (network) is the triggereing event for workflow template 20000265 (Change management) and as such is entered in the event linkage table The terminating event ChangeManagementClosed (Change management concluded) is also entered in this table.

You can find the table in *Event creation → Status management*. You decide wheteher you want to mainatin system settings, if you want to use system statauses, or customer settings, if you want to use your own status profile. In our case, the entry is in the system settings. The status object (NPH), object type (BUS2002) and the event are maintained here. If you select an entry and double-click on *Status restriction* in the left-hand screen area, the relevant status is displayed. The *Inactive* field informs you whether the event is created when the status is set or when the status is revoked (subsequent status set).

To actually start the workflow template, the linkage between the triggering event and the workflow template, as receiver of the event, has to be activated in Customizing for *SAP Business Workflow*.

The event linkage of the workflow templates must also be activated. To create your own workflow template or to display an existing template, in the *SAP Business Workflow* menu choose *Definition tools → Tasks/Task groups* and then the required maintenance transaction. On the initial screen enter Workflow template in the *Task type* field and the name of the workflow template. Choose either 🗎 , 🖉 , or 👓 to create, change or display respectively.The workflow template screen appears. To activiate the workflow, choose the Triggering events tab page and activate the event by clicking on the icon in the 🔁 column so that a green light appears.

Further Options

If you want to use the workflow tempalte without a dispatcher, you must delete the following steps: *Display change management* (TS20000477), *Determine possible agents and dispatch* (TS30001203)as well as the user decision *Do you want to create a text ?*. You can delete single

Preparations and Customizing

steps in the workflow editor. Select the node to be deleted. In the context menu choose *Delete*. If you delete the *Do you want to create a text ?* node, you also delete the dependent nodes *Create text* (TS20000478) and *Display text* (TS20000479) and the connecting operators. A dialog box to this effect appears, which you have to confirm.

Apart from deleting the nodes, you must change the agent assignment for the *Make change* (TS20000480) single step. Delete the SelectedObject expression and enter role 20000054 *MRP controller group*.You now have to change the autoamtically generated dat flow from the workflow container to the role container. Delete the Org_Object_ID and choose, using F4 help, the attribute MRP controller group under network.

Check the workflow template and then activate it.

Operation and Connection to the Application Functionality

Changes to the configuration of a sales order can occur frequently. Depending on the change profile and the status of the network, the system can set the *Manual adjustment necessary* status.

If you have made the necessary settings in Customizing, the workflow template is active and is started automatically from the application.