SAP Manufacturing Execution

How-To Guide



How To Create and Use an SAP ME Process Workflow

Applicable Release: ME 15.0

Version 1.0

May 15, 2014

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Document History

Document Version	Description	Author
1.0	Initial version (information and usage scenario example provided by John Cohenour and John Parker)	Chet Moutrie

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1 Introduction

1.1 Purpose

The ME How-To-Guide for Process Workflow is intended to provide sufficient information to enable the user to easily create and utilize SAP ME Process Workflows, making use of available best practices. This includes information regarding creating custom process workflow activities.

1.2 Scope

This information covers all aspects of the creating and using SAP ME Process Workflows. It does not cover in detail the use of the SAP ME Message Board. For more information regarding the Message Board, see the SAP ME How-To-Guide – Message Board.

1.3 Glossary

Automatic Activity	An ME **process workflow** activity that does not require user interaction and is executed and completed automatically by ME
Manual Activity	An ME **process workflow** activity that requires user interaction for it to be completed
Message	An ME business object used to communicate an ME system event or user generated information to ME users and email recipients and, optionally, to trigger the creation and execution of a **Process Workflow**
Message Board	An ME **POD**, or plug-in, which enables the creation, management and processing of ME **Message**s
POD	Production Operator Dashboard – Primary ME user interface module for the factory floor operator
Process Workflow	In ME, a sequence of automatic and/or manual activities, whose creation and execution can be triggered by the creation of an ME **Message**, and that can be processed using the ME **Message Board**.

2 Process Workflows Overview

This overview will provide a high level description of the creation and use of SAP ME Process Workflows.

2.1 Description and Applicability

Process workflow templates are created and maintained in the Process Workflow Maintenance (PROCESS_WF) activity. Process workflow templates can be assigned to ME messages in the Message Type Maintenance (MSG_TYPE_MAINT) activity. At the time when an ME message is created, the process workflow template, associated to the message type, is used to create a process workflow. This process workflow is assigned to the message and any automatic process workflow activities at the start of the process workflow are executed. Execution of the process workflow stops at the first manual activity in the process workflow. Manual process workflow activities must be executed from the ME Message Board (MESSAGE_BOARD) activity.

The following table shows the process workflow templates provided by default in ME and the message types to which they are associated by default.

Process Workflow Template	Description	Message Type
Buyoff (BUYOFF_WF)	Used for messages generated when a buyoff request needs to be accepted or rejected to complete work on an SFC	BUYOFF_REQUEST
Oper Res Hold Consec NC (OP_RES_HOLD_CONSEC_NC)	Used for messages generated when the number of nonconformances (NCs) logged against an SFC number has exceeded the maximum allowed number of consecutive NCs	RTW_CONSEC_NC
Operation/Resource Hold Yield Rate (OP_RES_HOLD_YIELD_RATE)	Used for messages generated when the yield rate parameters have not been met	RTW_YIELD_RATE
Oper Res Hold SPC Violation (OP_RES_HOLD_SPC_VIOL)	Used for messages generated when SPC rule violation parameters have been met	SPC_ALARM_VIOLATION
Oper Res Hold SPC Warning (OP_RES_HOLD_SPC_WARN)	Used for messages generated when SPC warning parameters have been met	SPC_ALARM_WARNING

The above process workflows can be modified by the customer and new process workflows can be created. This will be described in more detail in later sections of this document.

Best Practice

We recommend that the process workflows delivered with ME not be modified or deleted. They can be useful in determining whether or not there is an issue with the standard ME functionality. If you need a workflow that is slightly different, the existing workflow can be used to create a new workflow that can be modified as needed.

2.2 Business Purposes / Functions

While the existing process workflows are used to implement standard ME functionality, process workflows are a very flexible and powerful capability that can be used for many things. New process workflows and process workflow activities can be created to address things such as:

- Interfacing to external equipment for alarming / alerting (see User Scenario Example)
- Automatically logging a nonconformance code due to an SPC rule violation
- Prompting the creation of an ME business object due to an ME system event or action

Creating a new process workflow can involve the following functions:

- Create a new process workflow activity (optional)
- Create a new process workflow template

Using a process workflow can involve the following functions:

- Create a new message type
- Assign the process workflow template to a message type
- Give one or more user groups permission to execute new process workflow activities
- Create a message to run the process workflow

The above functions will be explained in the following sections.

3 Process Workflows Functions

3.1 Create Process Workflow Activity

The Activity Maintenance (SY030) activity can be used to define a new process workflow activity. The activity can be either an automatic process workflow activity or a manual process workflow activity.

A new automatic process workflow activity typically requires the creation of a new java class. The java class must implement the interface, MessageActivityInterface, as described in ??. A new automatic process workflow activity typically requires the creation of a new POD plug-in, as described in the SAP ME SDK Implementation Guide.

In Activity Maintenance, the fields in the following table need to be specified.

Field	Description	Comment
Activity	The name for the process workflow activity	
Enabled	Specifies if the activity is available for use	Must be selected (checked)
Visible in Activity Manager	Specifies if the activity is to appear in the Activity Manager list of activities that can be run	Should not be selected (checked)
Class/Program	The path and name of the java class or POD plug-in that implements this process workflow activity	Manual activity – Java class Automatic activity – POD plug-in
Type	The type of activity - either Process Workflow Manual Activity or Process Workflow Automatic Activity	

On the Activity Groups tab, specify the activity group to which the activity is to be assigned. Then permission to run the activity can be assigned to user groups in the User Group Maintenance (EN070) activity.

3.2 Create Process Workflow

The Process Workflow Maintenance (PROCESS_WF) activity can be used to create and maintain an ME process workflow template. To create an ME process workflow template, perform the following:

1. Specify a name for the process workflow in the Process Workflow field
2. Select Insert New
3. Browse for and select an activity
4. If the activity is a manual process workflow activity, specify a label for the Message Board button that will be used to execute this activity
5. Repeat steps 2 through 4 until all activities have been added
6. Select Save

3.3 Create Message Type

If it is necessary to create a new message type, the Message Type Maintenance (MSG_TYPE_MAINT) activity can be used to accomplish this.

For more information regarding creating a message type, see Message Type Maintenance.

3.4 Assign Process Workflow to Message Type

The Message Type Maintenance (MSG_TYPE_MAINT) activity can be used to associate a process workflow to an existing or new message type. To associate a process workflow to a message type, specify the process workflow name in the Process Workflow field on the main tab in Message Type Maintenance. When a message is created for this message type, the process workflow will be automatically executed.

3.5 Assign Permission to Execute New Process Workflow Activities

The User Group Maintenance (EN070) activity can be used to grant permission to user groups to run a new process workflow activity. To grant permission:

1. Specify a user group in the User Group field
2. Retrieve the user group
3. Select the Permissions tab
4. Scroll down to the activity group to which the process workflow activity was assigned in Activity Maintenance
5. Locate the name of the process workflow activity and select (check) the checkbox in the Execute column
6. Select Save

3.6 Create a Message to Run Process Workflow

In order to run a process workflow, it is necessary to create a message to be processed by the ME Message Board. There are several scenarios in SAP ME core functionality where a message can be automatically or manually created.

These include:

- Alarm rule violation occurs for an SPC chart
- Alarm rule warning occurs for an SPC chart
- Buyoff request needs to be accepted or rejected to complete work on an SFC
- Certification (check fails, is deleted, put on hold, is obsolete)
- Data collection limit override
- Inspection change (tightened or procedure change)
- Engineering change order warning occurs
- Exceeding the limit on the number of times an NC code is logged for an SFC
- Manual creation in the Create Message (CREATE_MESS_PLUGIN) activity
- Manual creation in the Message Board
- Maximum loop count reached for a step in a routing
- NC Code is logged
- Reason Code is assigned to a user action for an SAP ME business object:
    - Creating an ECO change request
    - Equipment status change
    - Floor stock status change
    - Logging corrective action
    - Placing or releasing a hold
- Sample is rejected or skipped
- Security violation occurs
- Slot (minimum quantity or zero quantity) is reached
- User certification (is expired, is on hold, is near expiration, is revoked, is given temporary extension)
- Yield rate parameters have not been met for an operation

Note that for some of the above you can specify the message type to be used, but for many the message type is hard-coded.

For other scenarios not covered by the above, you may be able to create a hook activity to generate the needed message.

4 Integration

Not Applicable

5 Process Workflow Setup

This is covered in section 3.

6 Usage Scenario Example

The following is a simplified description of a customer project that used a custom automatic process workflow activity and process workflow to control some shop floor equipment used for alarming / alerting.

- A new automatic process workflow activity was created to interface to the shop floor equipment via a 3rd party application specified by the customer
- A new process workflow template, which contained only the above new process workflow activity, was created
- Several new message types were created to implement the various control functions needed for the shop floor equipment
- These message types were assigned to NC codes
- When the user logs one of these NC codes, a message is created for the associated message type.
- The automatic process workflow activity, in the workflow assigned to the message, is automatically executed by the Message Board.
- This custom activity sends the control information to the shop floor equipment
- The process workflow is automatically closed by the Message Board

7 Links to Additional Information

SAP Service Marketplace

8 Other Reference Material

Installation Guides SAP ME – The installation guide for your version of ME can be downloaded from the SAP Support Portal > Release & Upgrade Info > Installation & Upgrade Guides > SAP Business Suite Applications > SAP Manufacturing > SAP Manufacturing Execution

SAP ME Help

9 Overview of Changes

Not Applicable