SAP Manufacturing Execution

How-To Guide



How To Set Up and Use the SAP ME Earned Standards Feature

Applicable Release: ME 6.0

Version 1.0

June 4, 2012

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Document History

Document Version	Description	Author
1.0	Initial version	Peggy Enriquez

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1 Introduction

1.1 Purpose

The SAP ME How-To-Guide for Earned Standards is intended to provide sufficient information to enable the Earned Standards feature to be easily configured and readily utilized to meet business needs, making use of available best practices.

1.2 Scope

This document covers all aspects of setting up and using earned standards in SAP ME.

1.3 Glossary

Claim	The action of a user to initiate the earning of standards, separate from actions that cause automatic awarding of standards.
Unclaim	The action of a user to subtract from previously earned standards.
Award	The action of the system to log the earning of standards automatically upon the completion of an operation or SFC.
Setup time	
Run time	The time to produce a unit for an operation or material, not including setup.
Earned Standards	Standards that have been claimed or awarded. Earned Standards result from one of the following: • The user claims standards in the Earned Standards activity • The system awards standards to the user automatically, upon completion of an operation or SFC

2 Earned Standards Overview

2.1 Description and Applicability

The setup and run standards specify how long a task should take. When actual work represented by the standards is accomplished by a production operator, they are said to have earned the standards. Earned standards represent the amount of work achieved as measured against the standards.

You claim partial credit for setup and run standard time for an operation and/or an SFC number in the Earned Standards plug-in. This can be useful in the following cases:

- When multiple operators are working jointly on the same operation/SFC number and need to divide the standards amongst themselves.

- When an operator must stop work on an incomplete operation/SFC number and would like to record his standards for the amount of work he accomplished, especially when there are long processing times.

You can use the data collected from earned standards reporting for the following:

- Efficiency, variance, manpower forecasting, and capacity analysis
- In support of providing percent complete of a sub assembly or final assembly in support of finite scheduling or accounting systems where progress payments are made.

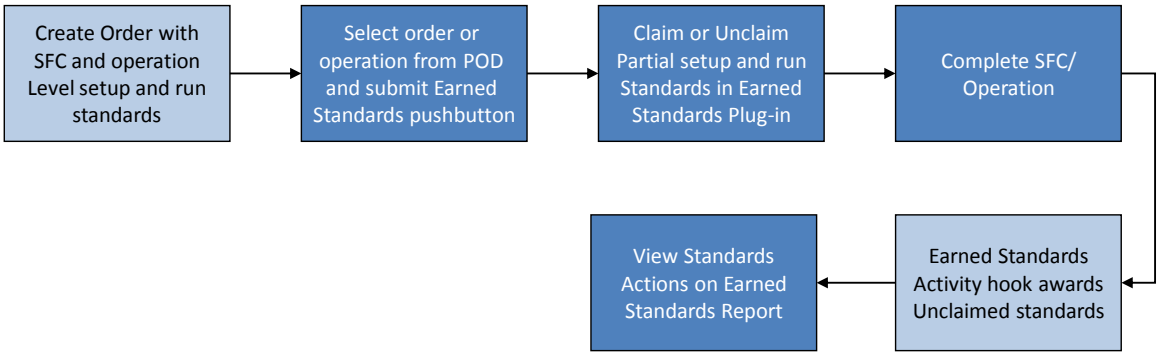
In a typical production setting, different roles/departments take part in the process of maintaining, earning and reporting earned standards. Industrial engineers typically maintain the setup and run standards. Production operators earn the standards. Engineers, supervisors and business managers view reports that contain data resulting from earned standards transactions and calculations. Supervisors monitor realization and assess schedule impacts through visibility to partial completion values. For more information see Earned Standards in SAP ME Help.

2.2 Business Purposes / Functions

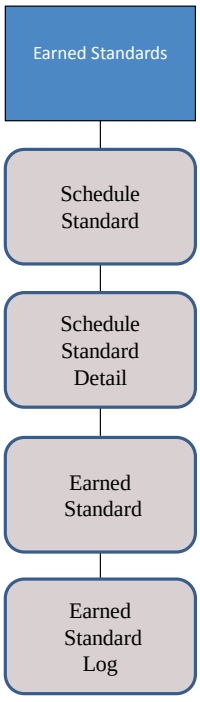
Earned standards contain the following features:

- Claiming and unclaiming setup and run time standards for an SFC and/or operation
  The setup and run standards are defined in the Scheduling Standards Maintenance activity and applied to the SFC and/or operation when the shop order is created. You can also unclaim previously claimed and awarded standards. (See **Creating and Viewing an Order with Standards and Claiming and Unclaiming standards).**
- Awarding Unclaimed Standards
  The Award Unclaim Standards activity hook allows for all unclaimed standards to be awarded by the system upon the completion of an operation or the SFC number going to the *Done* status (see **Awarding Unclaimed Standards)** .
- Viewing information about SFC number's earned standards actions taken during production in the Earned Standards Report (see **Viewing Earned Standards Log Report**).
- Viewing the details about the selected earned standards transaction in the Earned Standards Log Detail Report (see **Viewing Earned Standards Log Report**).

2.3 High-Level Process Flows



2.4 High Level Data Model



2.5 Best Practices

3 Functions

3.1 Creating and Viewing an Order with Standards

3.1.1 Description and Applicability

You can define planned production standards for shop floor processes for a material or an operation in Scheduling Standards Maintenance. Standards for the material will be applied at the SFC level. Standards for the operation will be applied at the operation level.

On the Scheduling Standards Maintenance detail screen, you enter Setup Time and select the applicable units of minutes, hours or seconds. You also input the two fields for Run time: Production Rate Qty and Time and choose the applicable units of minutes, hours or seconds.

The Standard Run Time is calculated by dividing the Time by the Production Rate Qty multiplied by the SFC quantity. The Setup time needs no further calculation. For more information, see Scheduling Standards Maintenance.

If standards are defined in Scheduling Standards Maintenance for an operation and/or material of a shop order, then those standards will be applied when creating the shop order. They can be viewed in the Earned Standards plug-in.

For more information see Claiming Earned Standards in the POD in SAP ME Help.

3.1.2 Purpose / Effects

Depending on your setup in Scheduling Standards Maintenance, the following standards get created together with a shop order:

- SFC Standards - If standards are defined for the shop order's material
- Operation Standards - If standards are defined for any of the shop order's operations, then Operation Standards will get created for each operation that has standards defined.

Note that if both material and operation standards are defined for an order, then both SFC and Operation Standards will get created.

A change made to the standards in Scheduling Standards Maintenance will not affect the SFC and operation standards once the shop order is created.

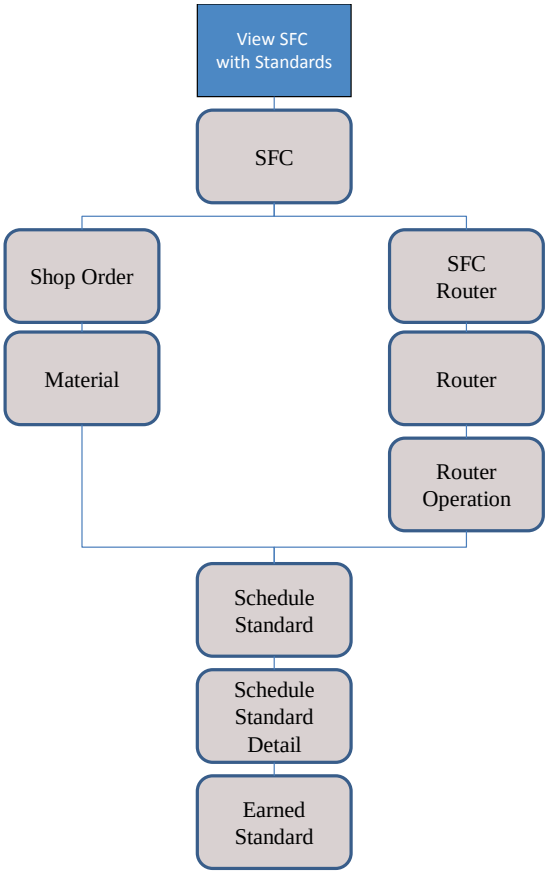
To view the order's earned standards, the production operator displays a POD for which an Earned Standards plug-in has been defined. He selects an SFC number and optionally an operation and chooses the Earned Standards pushbutton. The Earned Standards plug-in displays the SFC and/or Operation Standards that apply to the selection. If both are displayed in the plug-in, the SFC Standards of Setup, Run and

Total are listed first and the operation Standards are listed next. To view the standards from a different operation, the operator may select the desired operation from the Operation field.

3.1.3 Process Flow



3.1.4 Data Model



3.2 Claiming and Unclaiming Standards

3.2.1 Description and Applicability

You can view, claim and unclaim operation and SFC level standards for an SFC number in the Earned Standards activity.

The Earned Standards activity is a POD plug-in that displays the setup and run standards for an SFC and/or operations for an SFC. An earned standards log record is recorded for all claim and unclaim activities.

3.2.2 Purpose / Effects

From a POD, the production operator selects an SFC and optionally an operation and chooses the Earned Standards pushbutton. The Earned Standards plug-in displays with the SFC and/or Operation Standards that apply to the selection. If both are displayed in the plug-in, the SFC Standards of Setup, Run and Total are listed first and the operation Standards are listed next. The operator may select another operation from the Operation field and display and claim standards for that operation regardless of the Status of the operation. The operator may then navigate to another operation and display and claim standards for that operation.

The operator has the option to claim standards in time units or percent. The time units are displayed in the units defined in Scheduling Standards Maintenance (hours, minutes and seconds). The Data Entry Mode field on the plug-in sets the mode of either *Time* or *Percent*. Although each earned standards transaction must be claimed in either *Time* or *Percent*, a combination of both types of Data Entry Modes may be used to fully claim standards for an SFC or operation. To claim standards, the user selects one of the modes, enters the amount of Setup or Run standards to be claimed and submits the *Claim* pushbutton.

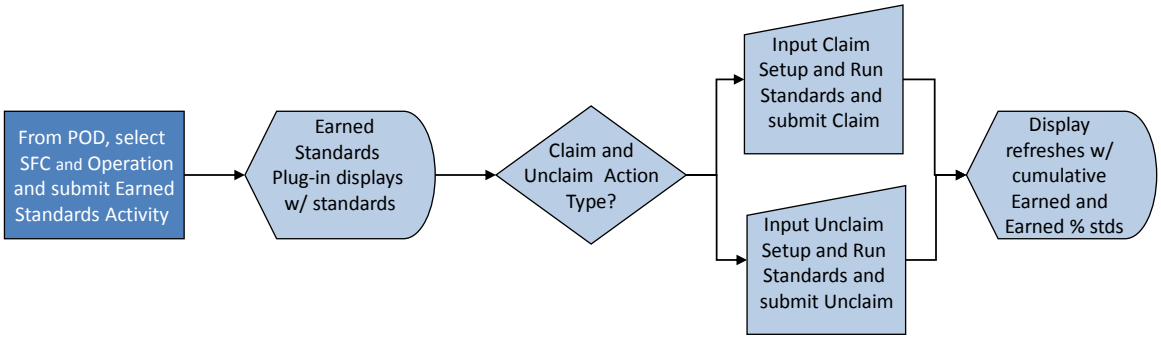
If the Earn Standards activity rule of AUTO_AWARD_SETUP is set to YES, then when the operator makes a Run standard claim, all remaining Setup standards are automatically awarded by the system.

After a Claim action, the Earned Standards plug-in displays the cumulative *Earned* and *Earned %* standards for Setup, Run and Total standards.

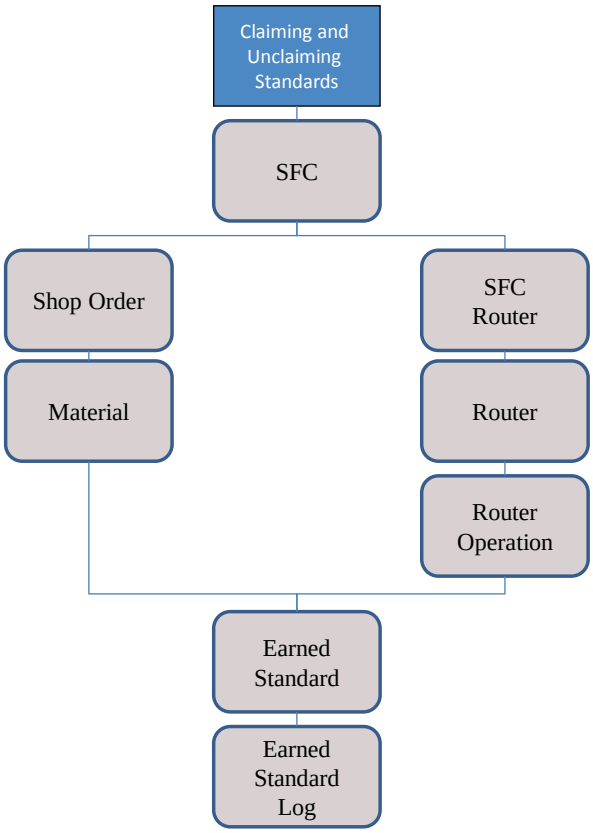
If the system rule AUTHORIZED_PERFORM_UNCLAIM is set to TRUE, then the Earned Standards plug-in has the Action Type field with the option of Unclaim. This allows standards to be unclaimed for the previously claimed and awarded standards. The effect is that the amount unclaimed is subtracted from the claimed and awarded standards. To unclaim standards, the operator selects the Action Type of *Unclaim*, selects the Data Entry Mode of *Time or Percent*, enters the amount of setup and run standards to be unclaimed and chooses the Unclaim pushbutton.

Note that when claiming earned standards, if the production operator enters an amount that exceeds the remaining standards, then an error message will display listing the type and amount of standards that have been exceeded and giving the operator the option to claim the remaining amount of standards. The user may submit the *OK* button to claim the remaining standards or *Cancel* to leave the transaction without claiming standards.

3.2.3 Process Flow



3.2.4 Data Model



3.3 Awarding Unclaimed Standards

3.3.1 Description and Applicability

You can automatically award any unclaimed standards for an operation or SFC using the Award_Unclaimed_Stds hook point activity. It can be attached to an Operation, Routing Step or a Resource at the Post Complete hook point.

This is useful when your business process calls for all standards to be accounted for. If a user completes an operation without claiming all of the setup and run standards, then the remaining standards will not be claimed/awarded and the claimed standards will not equal the total earned standards defined for the operation. By attaching the activity so that it processes, the system will automatically award the unclaimed standards and all standards will get awarded.

3.3.2 Purpose / Effects

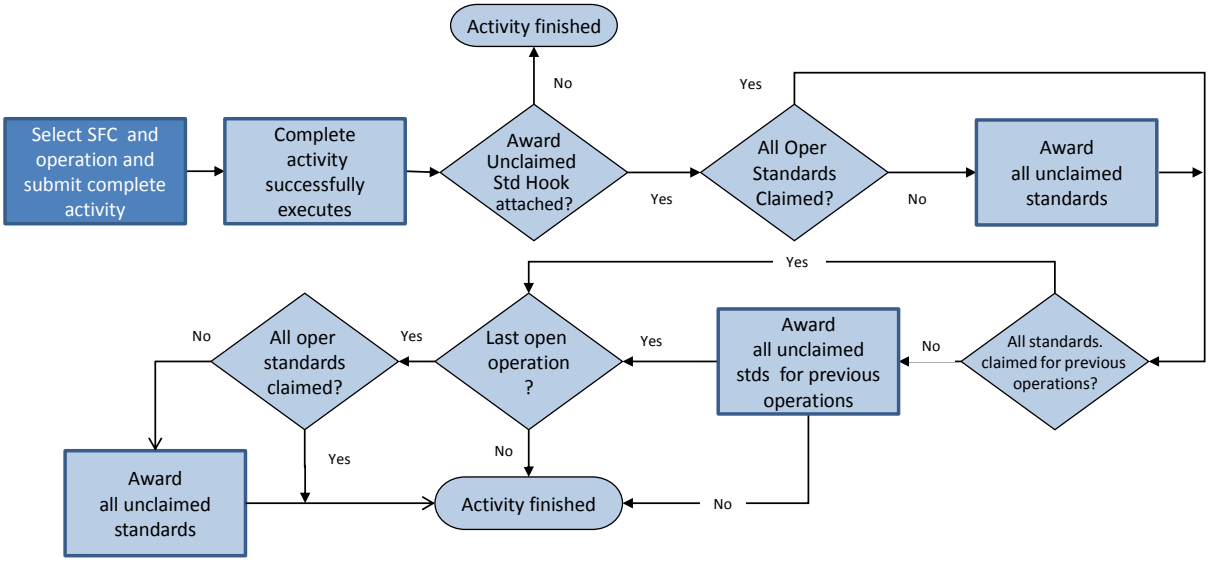
After the Complete activity is submitted and successfully executed for an operation that has the Award_Unclaimed_Stds activity attached, the operation status goes to Complete or Complete Pending and the activity calculates and awards any unclaimed standards for the operation. The hook will check all previously completed operations on the current routing to verify that all standards have been claimed/awarded. If there are previously completed operations on the current routing with unclaimed standards, the activity will award those unclaimed standards.

If a user performs a complete of an operation for a quantity that is less than the SFC quantity (a partial complete), and no standards have been claimed for that operation, the Award_Unclaimed_Stds hook activity will award all of the setup standards and a prorated amount of the run standards, according to the quantity being completed. If any run standards have been claimed, the activity will award any unclaimed setup standards and a prorated amount of the run standards according to the quantity being completed minus any claimed standards. If the claimed amount is more than the calculated amount for the prorated run standards, the activity will not award any run standards.

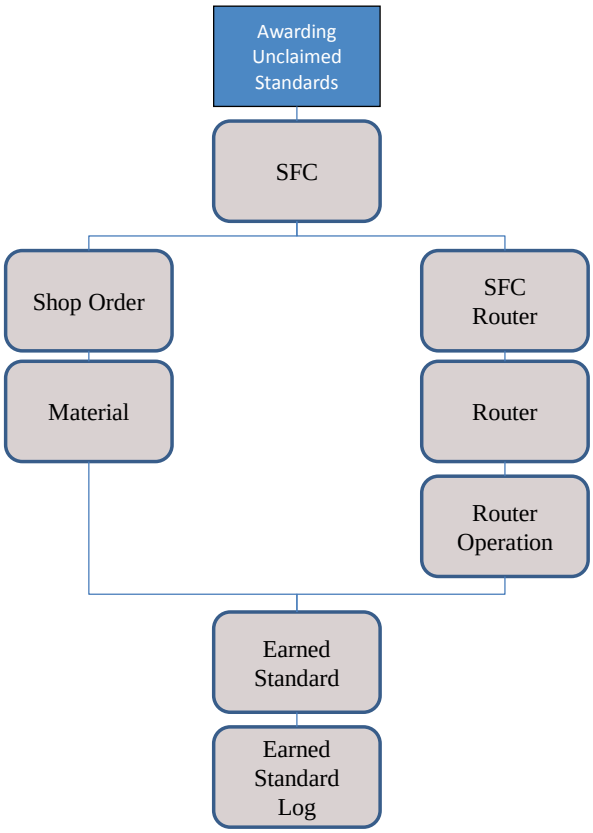
If the operator submits the Complete action for the last open operation which does not have a buyoff attached and the complete transaction is successful, then the unclaimed operation and SFC level standards will be awarded and the SFC status then changes to Done. If the operator submits the Complete action for the last open operation which does have a buyoff attached and the complete transaction is successful, then the unclaimed operation and SFC level standards will be awarded and the SFC status then changes to Complete Pending.

The activity hook is active only if the SFC number is at the last operation on the production routing. If the CHECK_ALL_STDS_LAST_OPER activity rule is set to the default value of TRUE, the activity will look for unclaimed standards regardless of whether or not the operation is on the production routing. If set to FALSE, the activity will not look for all unclaimed standards regardless of whether or not the operation in on production router.

3.3.3 Process Flow



3.3.4 Data Model



3.3.5 Best Practice

If your site does individual performance measurement and more than one person works on a job, it is best to have each person who works on an operation/SFC number use the Earned Standards to claim standards. The user ID of the person who performs the Complete action is credited for the unclaimed standards awarded by the AWARD_UNCLAIMED_STDS activity.

3.4 Viewing Earned Standards Log Report

3.4.1 Description and Applicability

You use this procedure to view the log records of Earned Standard actions taken during production. You may input specific search criteria to retrieve the records you would like to view.

3.4.2 Purpose / Effects

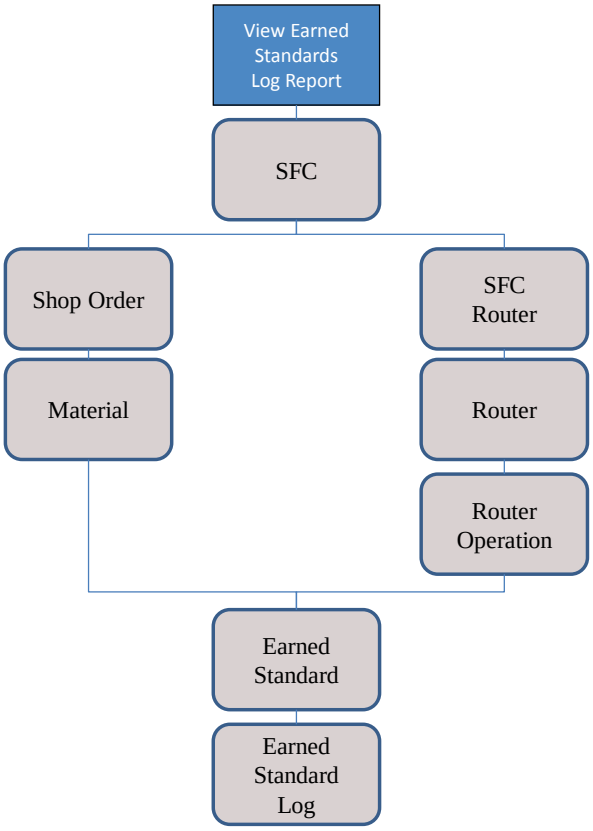
To view the report, select the Earned Standards Log Report from the activity manager or from the Reports button on the POD. The Earned Standards Log Report will display with the available search fields. Enter the desired information into the search fields, including one mandatory field of Material, SFC or Date Range and submit the *Search* action. The Earned Standards Log Report returns the records that match the inputted criteria.

To see additional information about a specific transaction, select the Info icon, which will then display the Earned Standards Log Detail Report. The report lists the time and person who did the transaction as well as what type of transaction it was (claim or award), the trigger activity (earned standards, complete, run claim) and the amount of standards earned.

3.4.3 Process Flow



3.4.4 Data Model



4 Integration

Not applicable.

5 Earned Standards Setup

You can use this process to set up the Earned Standards feature.

1. In *Activity Maintenance*, set the following activity rules for the EARNED_STANDARDS activity per site's business process:
   - AUTHORIZED_PERFORM_UNCLAIM (default: TRUE)
     If set to *TRUE*, activates the Action Type field on the plug-in with the choice of *Claim* and *Unclaim* actions on Earned Standards plug-in. If set to *FALSE*, the Action Type field is not on the plug-in so it can only do *Claim* actions; the *Unclaim* action is not available on the plug-in.
   - AUTO_AWARD_SETUP (default: YES)
     Automatically awards all setup standards when run standards are claimed. If set to NO, there is not effect to remaining setup standards if run standards are claimed.

2. You set AWARD_UNCLAIMED_STDS hook point activity.
   - The Award Unclaimed Standards Activity can be defined as a hook activity for an Operation, Router Step and a Resource. Anywhere the hook activity is defined, the activity will be executed when the operation is completed.
   - The Award Unclaimed Standards Hook Activity can be defined only for the POST_COMPLETE hook point.
   - Operations with the status of Bypass will not be affected by this activity. No standards will be awarded for an operation with a Bypass status.
   - Activity hook activity rule, CHECK_ALL_STDS_LAST_OPER, controls whether the AWARD_UNCLAIMED_STANDARDS hook activity checks all operations for all unclaimed standards when the SFC is at the last operation on the production router. If the rule is set to TRUE, the activity will look for all unclaimed standards regardless of whether or not the operation is on a production router.
3. You must set up the Earned Standards activity as a plug-in of a POD. In *POD Maintenance*, create a pushbutton associated with the *EARNED_STANDARDS* activity and assign it to a layout (seeAdding POD Pushbutton Activities to Your PODs).
   You may also choose to create a Report pushbutton for the EARNED_STANDARDS_REPORT and assign it to the pop up panel.
   For example, you can attach the EARNED_STANDARDS activity to a pushbutton of the Default Work Center POD in the C panel.

6 Usage Scenario Examples

6.1 Claim Earned Standards

6.1.1 Purpose / Goal

An operator needs to claims SFC number and operation standards in the Earned Standards plug-in and view earned standards transactions from the Earned Standards Log Report.

6.1.2 Scenario Specific Settings

1. You have set the Earned_Standards activity rules follows:
   - AUTHORIZED_PERFORM_UNCLAIM :TRUE
   - AUTO_AWARD_SETUP:YES
2. You have set AWARD_UNCLAIMED_STDS activity rule as follows:
   - CHECK_ALL_STDS_LAST_OPER:TRUE
3. You have defined EARNED_STANDARDS activity in the Default Work Center POD. Define a button to the EARNED_STANDARDS activity and define EARNED_STANDARDS as an optional plug-in for Panel C, a fixed panel
4. You have defined AWARD_UNCLAIMED_STDS activity to run at the POST_COMPLETE hook point for the DEFAULT resource
5. Operations assigned to routing for ASSEMBLY123 have DEFAULT assigned as the Default Resource.

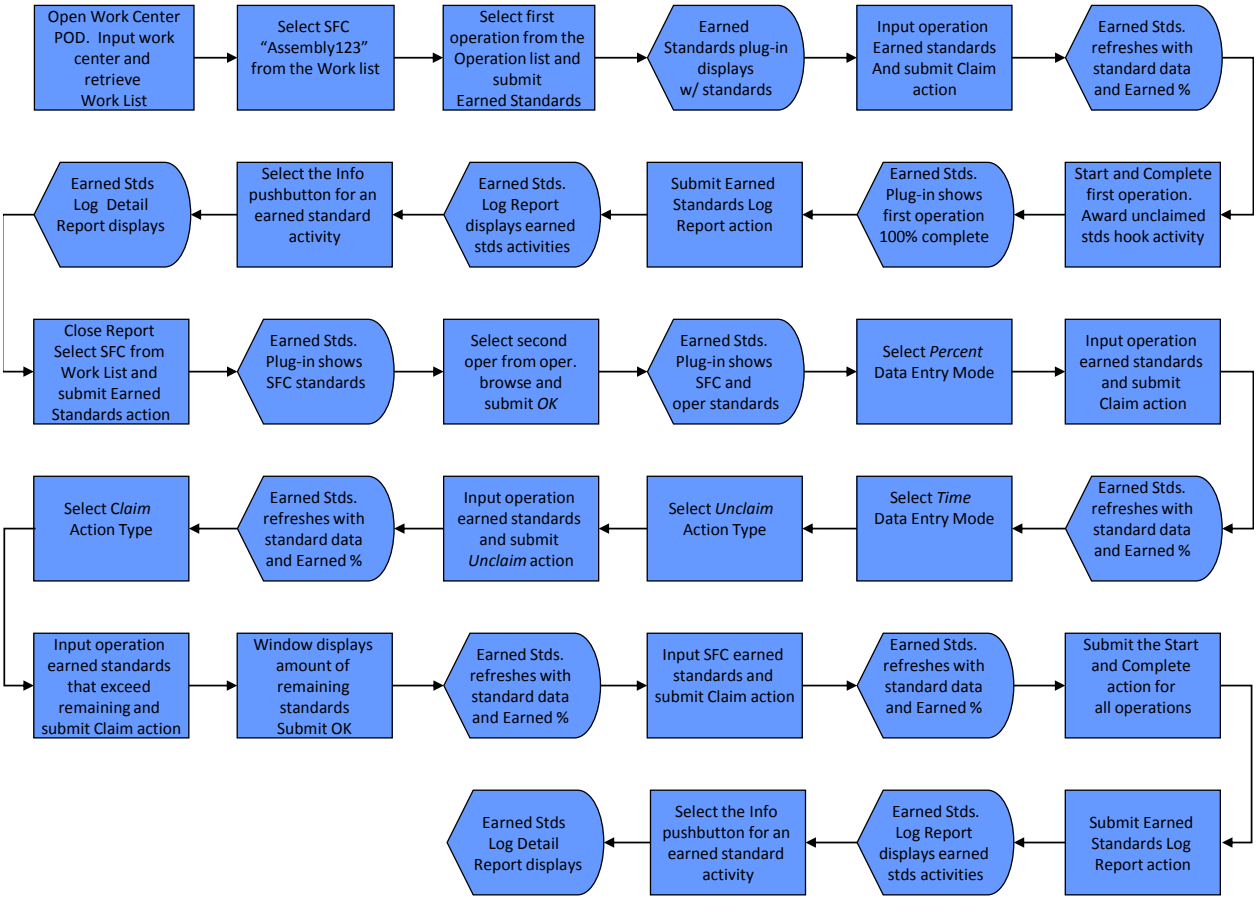
6. You have defined material and operations standards for Material "ASSEMBLY123" in Scheduling Standards Maintenance as follows:
    - Material standards: Production Rate Qty: 1 , Time 45 minutes, Setup Time 1 hour
    - First operation standards: Production Rate Qty: 1 , Time 1 hour, Setup Time 2 hour
    - Second operation standards: Production Rate Qty: 2 , Time 2 hour, Setup Time 30 minutes
    - Create a shop order for material ASSEMBLY123 for a quantity of 2

6.1.3 Scenario Steps

1. Open the Default Work Center POD and retrieve your work center.
2. Enter SFC "ASSEMBLY123" from the work list,
3. Choose the first operation from the Operation List and choose the Earned Standards pushbutton
4. For the first operation, under Operation Standards input 0.2 Setup and 0.4 Run in Claim fields and choose the *Claim* pushbutton. The plug-in refreshes showing Earned % of 100% for setup (due to activity rule AUTO_AWARD_SETUP = YES) and 20% for run for a total of 60% earned standards.
5. Close the plug-in.
6. Start and complete your SFC number.
7. With first operation still selected, choose the *Earned Standards* pushbutton.
8. View the operation standards for the first operation. Note that Earned % is 100% due to AWARD_UNCLAIMED_STDS activity hook.
9. Open the Earned *Standards Log Report*. View the report and select the Info pushbutton for each log record. Note the differences between the Activity Info, Claim Info and Award Info for each log record.
10. From the Work Center POD, select the SFC number but no operation and choose the Earned Standards pushbutton. Note that only the SFC standards display.
11. Enter the second operation and choose the *OK* pushbutton. Note that both SFC and Operation standards display.
12. Select the Data Entry Mode of *Percent*.
13. For the second operation, under Operation Standards-Setup, enter 25 in the *Claim* field and choose the *Claim* push button. The plug-in refreshes showing Earned % of 25% Setup and 5 % Total.
14. Choose the Data Entry Mode of *Time and*.
15. The Action Type of *Unclaim*.
16. For the second operation, under Operation Standards-Setup, enter 3 in the *Unclaim* field and choose the *Unclaim* push button. The plug-in refreshes showing Earned % of 15% Setup and 3 % Total.
17. Select the Action Type of *Claim*.
18. For the second operation, under Operation Standards-Setup, enter 30 in the *Claim* field and submit the *Claim* push button.
19. A notification is displayed that the Setup standards are exceeded and asking if the total remaining standards should be claimed. Choose the *OK* pushbutton. The plug-in refreshes showing Earned % of 100% Setup and 20% Total.
20. For the SFC, under SFC Standards-Run, enter 15 in the *Claim* field and choose the *Claim* push button. The plug-in refreshes showing Earned % of 100% Setup, 16.667 % Run and 50 % Total.
21. *Close* pushbutton the plug-in.
22. From POD, start and complete all operations with SFC status *Done*.

23. Open the *Earned Standards Log Report* Enter the SFC number and choose the Search pushbutton.
24. View the report and select the Info pushbutton for each log record. Note the differences between the Activity Info, Claim Info and Award Info for each log record.

6.1.4 Scenario Flow



7 Links to Additional Information

8 Other Reference Material

9 Overview of Changes

Earned Standards is a new feature in SAP ME 6.0.