

Enterprise Asset Management (EAM)

This case study explains an integrated enterprise asset management process in detail and thus fosters a thorough understanding of each process step and underlying SAP functionality.

Product

S/4HANA 2022 Global Bike

Fiori 3.0

Level

Beginner

Focus

Enterprise Asset Management

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4.2

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MOTIVATION

Based on continuous automation of production processes, availability and quality of manufacturing facilities mens that plant maintenance becomes more important. Plant maintenance comprises the three following activities: inspection, maintenance and repair.

The focus is not only on availability of manufacturing facilities but rather further aspects like system safety, product quality, procedure optimization and environment protection play a decisive role.

SAP offers a flexible facility management and maintenance system to strengthen these factors and increase the success of a company.

PREREQUISITIES

Before you use this case study, you should be familiar with navigation in the SAP system.

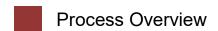
In order to successfully work through this case study, it is not necessary to have finished the EAM exercises. However, it is recommended.

NOTES

This case study uses the Global Bike (GB) data set, which has exclusively been created for SAP UA global curricula.







Learning Objective Understand and perform an integrated maintenance process.

Time 60 min

Scenario It is summer and the production line is getting into top gear for the upcoming event "Race Across America". There has been a sudden and unpredictable malfunction in a circulation fan in the air conditioning system. In order to process a complete maintenance process, you will take on different roles within the Global Bike company to solve the problem.

Employees involved Jun Lee (Production Manager)

Jermain Kumins (Shop Floor Worker 1) Ozzy Sandall (Shop Floor Worker 8) Pamela Ross (Shop Floor Worker 7)

A fan in the production facility is defective. As a Shop Floor Worker, it is your task to create the malfunction report. Before you create the notification, you have to locate the exact defective part and record the technical details for the repair. After that, you have to plan the production operations until the final repair of the faulty fan unit. The defective parts shall be exchanged and followed by a function test. After the successful installation of the spare filter, you can finish the order technically. As a final step, you can check if all the maintenance tasks have been carried out correctly.

The following graphical illustration depicts the whole process (8 tasks).

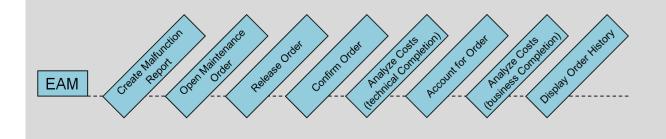


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Step 1: Create Malfunction Report

Task Create a malfunction report.

Time 10 min

Description Use the SAP Fiori Launchpad to create a malfunction report and a solution.

Name (position) Pamela Ross (Shop Floor Worker 7)

Mobile inventory (e.g. machines, circulation fan, PCs, vehicles) is defined as equipment in the SAP system. In general, equipment is allocated to a technical place that has an immobile character (e.g. streets, power plant, pipe systems). Functional locations are hierarchically ordered structures that represent a technical system, building, or part thereof. They can structure spatial, technical, functional or process-oriented.

Equipment

In creating a functional location, the functional location often takes on the function of the location where individual objects (engines, gearboxes, pumps, and so on) can be installed. In such cases, it is possible to view removal and installation locations from the point of view of the installation location and from the point of view of the individual installation or removal object.

Malfunction Report

A malfunction report normally is created by the corresponding requesting person (e.g. production employee). A malfunction report is used for messages about malfunctions and problems.

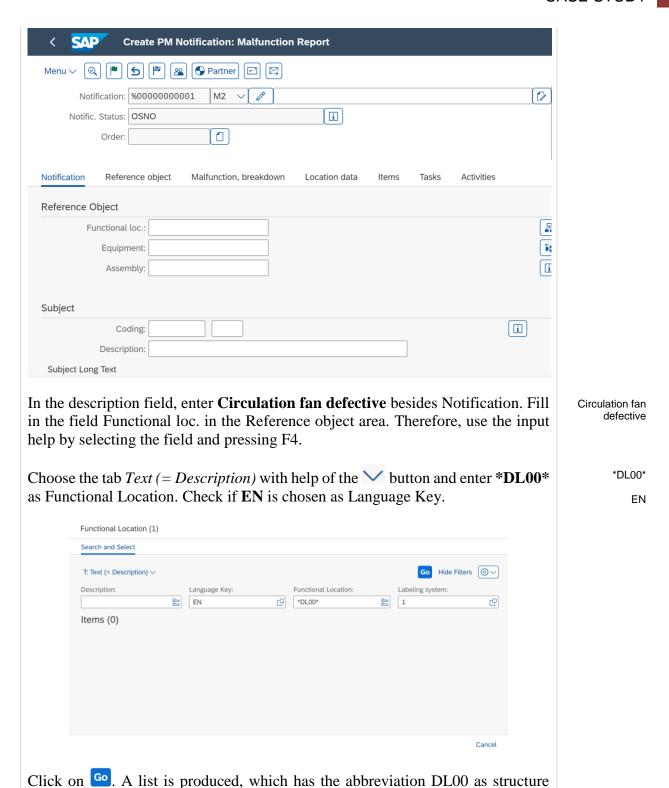
Go to the space Enterprise Asset Management in the role of Shop Floor Worker use the app *Create Malfunction Report* to create a malfunction report:

Fiori App

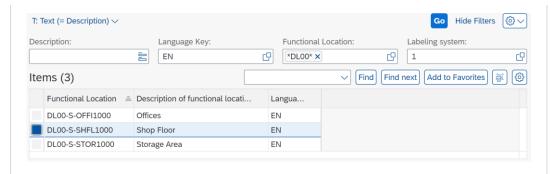
Create Malfunction Report



Now you should see the following screen.



indicator (similar to ID).



Double click at **Shop Floor** to choose this as Functional Location.

Shop Floor

The functional location is an organizational unit of logistics that structures the objects of a company to be maintained according to functional (e.g., drive unit), process-oriented (e.g., condensation), or spatial (e.g., hall) aspects. A functional location represents the location where a maintenance measure is to be performed.

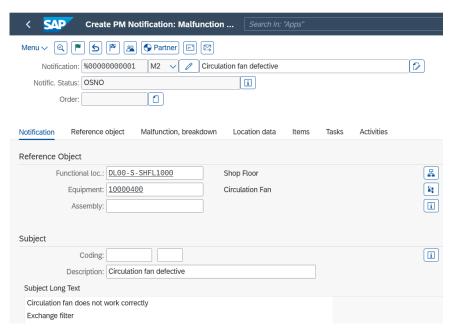
To choose the equipment, use F4 again. Click the button to switch to the tab Equipment by equipment list (a new window opens) and enter 10000### (exchange ### for your number e.g. 012) in the first field besides equipment. The rest of the fields can be left blank. Now press Execute. Afterwards (if the object was not defined exactly) double click on the equipment (Circulation Fan) and press Enter to confirm your entries up to then.

10000###

Circulation Fan

Circulation fan does not work correctly Exchange filter

Furthermore, enter the following in the *Notification* tab. In the Subject Area, enter for Subject Long Text Circulation fan does not work correctly with the request Exchange filter.



In the *Responsibilities* Area enter **D00/DL00** as *Planner Group*, **MANT1000/DL00** as *Main Work Ctr*. and **LEARN-###** as *Reported by*.

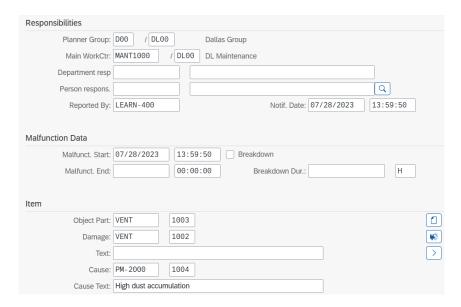
Afterwards enter in the *Item* Area **VENT/1003** (Circulation Fan Objects / Filter) as *Object part* and add **VENT/1002** (Worn Filter) as *Damage*. Use F4 to choose

D00/DL00 MANT1000/DL0 0 LEARN-###

VENT / 1002 PM-2000 / 1004 **Normal Wear and Tear** (PM-2000/1004) as *Cause*. Enter **High dust accumulation** as *Cause text*.

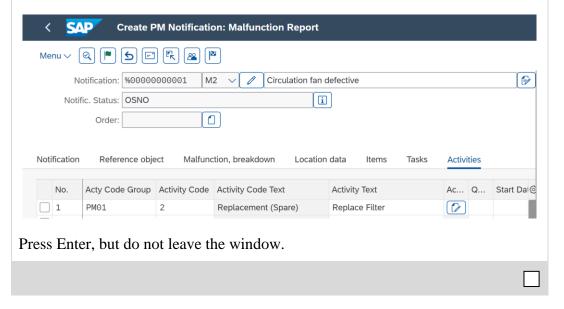
High dust accumulation

Compare your entries with the following screenshot.



In the *Activities* tab, please scroll up to see this tab, use F4 to choose **PM01** as *Activity Code group* and set the *Activity code* to **Replacement (Spare**). Enter the *Activity text* **Replace Filter**.

PM01 Replacement (Spare) Replace Filter





Step 2: Open Maintenance Order from Malfunction Report

Task Open a Maintenance order from the Notification

Time 10 min

Description Use the SAP Fiori Launchpad to create an order directly from the malfunction report.

Name (Position) Jun Lee (Production Manager)

If you stayed in the last window, as it was required, you will be able to go on with the next step now. Otherwise, use again the app *Create Malfunction Report* to create a malfunction report.

Fiori App

| < SAP | Create PM Notification: Malfunction | Search In: "Apps" | | | | | | | |
|--------------------|-------------------------------------|-------------------|--|--|--|--|--|--|--|
| Menu ∨ ② 🏴 ち 🗁 🕰 🔯 | | | | | | | | | |
| Notification | on: | fan defective | | | | | | | |
| Notific. Stat | us: OSNO | i | | | | | | | |
| Ord | ler: | | | | | | | | |

To open a notification from the malfunction report, click besides the field Order.

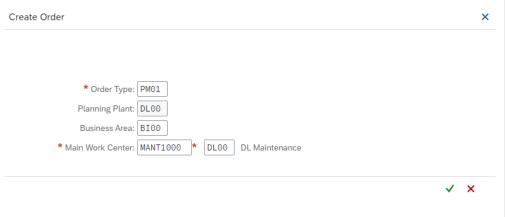
Note Each maintenance notification contains header data, which is the information used to identify and manage the notification. The header data is valid for the complete maintenance notification.

You enter and maintain data in a notification item to determine a problem, find any damage, or view maintenance activity executed in greater detail. A notification can contain several items.

Activities document the work performed for a notification. They are particularly important for inspections because they prove that certain tasks have been performed.

A new window appears where you enter **PM01** (Repair Order) as *Order Type*, **DL00** as *Planning plant*, **BI00** as *Business Are*a and **MANT1000/DL00** as *Main work center*. Afterwards click on .

PM01 DL00 BI00 MANT1000 / DL00

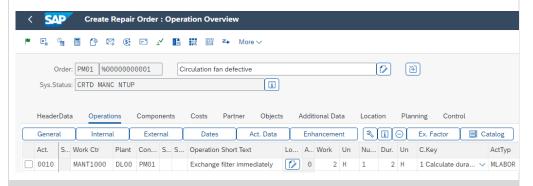


Change to the tab *Operations* and exchange the original description Circulation Fan defective for **Exchange filter immediately**. For Work, enter

Exchange filter immediately 2 hrs.

2, for unit (Un) **H**, Number 1, Dur. 2 and a further entry for unit (Un) **H**. Choose **Calculate duration** from the Dropdown Menu and enter **MLABOR** as ActTyp.

1 2 hrs. Calculate duration MLABOR



Note Work effort relates to the work that must be done. The number must be related to the employees. The duration defines the time when the object cannot be used for work. So, if the work effort is 8hrs and 2 people are working on it, work will be done in 4hrs. Another example is the varnishing of an object. Here the effort is lower than the duration since the object needs to dry some time and no work is done at the object within the drying process.

Open another Operation by clicking in a new line. Enter **0020** for Activity, **Functional test** as *Operation short text* and plan duration for the *work* for **15 MIN**. Enter a *Number* of **1** and a *Duration* of **15 MIN**. Choose **Calculate duration** as *C.Key* and **MLABOR** as *ActTyp*.

Create Repair Order : Operation Overview

Items (0)

0020
Functional test
15 MIN
1
15 MIN
Calculate duration
MLABOR

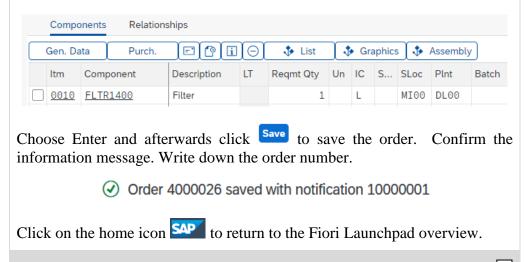
| © © © © © © © ✓ 🖺 🐯 🐯 🍑 More∨ | | | | | | | | | | | | | | | | |
|--|--|-----------|---------------|---------|-----------|-----|---|-----------------------------|----|-----|--------|-----|----------|------|----------|---------------------------|
| Order: PM01 %0000000001 Circulation fan defective | | | | | | | | | | | | | | | | |
| | Sys.Status: CRTD MANC NTUP | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | HeaderData Operations Components Costs Partner Objects Additional Data Location Planning Control | | | | | | | | | | | | | | | |
| | Ger | neral | Interna | | Exter | nal | L | Dates Act. Data | L | Enh | anceme | nt | 2 | | Θ | Ex. Factor |
| | Act. | S | . Work Ctr | Plant | Con | S | S | Operation Short Text | Lo | Α | Work | Un | Nu | Dur. | Un | C.Key ActTyp |
| | 001 | | MANT1000 | DL00 | PM01 | | | Exchange filter immediately | | 0 | _ | H | 1 | 2 | | 1 Calculate dura V MLABOR |
| Ш | 002 | 20 | MANT1000 | DL00 | PM01 | | | Functional test | | 0 | 15 | MIN | 1 | 15 | MIN | 1 Calculate dura V MLABOR |
| Press Enter to confirm your entries. Now mark both of your Operations and choose Internal . You will get to operation 0010 automatically. Use the F4 help to choose the corresponding spare part in the field Component. Therefore, select tab <i>Material Number/Material Description</i> using the button and enter the material | | | | | | | | | | | | | | | | |
| FLTR1### (exchange ### by your number). Click on Material Number (1) | | | | | | | | | | | | | | | | |
| Search and Select | | | | | | | | | | | | | | | | |
| - | M: M | aterial I | Number/Materi | al Desc | ription ~ | | | | | | | | | | | Go Hide Filters |
| N | later | ial desc | ription: | | | | | Language Key: | | | | N | laterial | : | | |
| L | | | | | | | | EN | | | | 9 | FLTR1 | 400 | | |

FLTR1###

Select your filter by double-clicking it. As a description enter **Filter**, choose 1 for amount Reqmt Qty, and change the position type IC (item category) to **L** (Stock item). As storage location (SLoc) choose Miscellaneous (**MI00**) using the F4 help. Thereby the plant in Dallas appears automatically.

Filter 1 L MI00

The second operation needs no other components and therefore no further entries are necessary.



Order number:



Step 3: Release Order and Display Documents

Task Release the Order and Display Order Documents.

Time 10 min

Description Use the SAP Fiori Launchpad to release the order and to print the documents for the maintenance person.

Name (Position) Jun Lee (Production Manager)

Note Different documents can be displayed.

Go to the space *Enterprise Asset Management* in the role of *Production Manager* use the app *Change Maintenance Order*.

Fiori App

Change Maintenance Order

If the SAP system did not propose an order, enter the order number yourself. You have written down the number previously.

If you do not know your number anymore, you can use the F4 help to search for it. Choose the tabs *PM orders using order list* and as Entered By enter **LEARN-###** in the area *General Data/Administrative Data* (exchange ### for your number).

LEARN-###



Press Enter to get to the next page.

Choose to release the order. Confirm the information message.

Note: The order is released **after** saving it. When you release a maintenance order, the system checks the availability of materials and production resources or tools. At the time of release (at the latest), material reservations become relevant to materials planning, materials withdrawn, and purchase requisitions are generated. You can only perform activities like print shop papers, withdraw material or book goods receipt after you released the order.

✓ Order 4000026 will be released after update

| You can release the order by clicking Save. As soon as you pressed the button, the order will be released. | |
|--|--|
| ⊘ Order 4000026 saved with notification 10000001 | |
| Click on the home icon to return to the Fiori Launchpad overview. | |
| | |



Step 4: Confirm Order

Task Confirm the order.

Time 10 min

Description Use the SAP Fiori Launchpad to confirm the order.

Name (Position) Ozzy Sandall (Shop Floor Worker 8)

The overall completion confirmation is used to capture further data besides working times. For instance, used materials, information about errors, executed work and so on. All of this data is important for future maintenance history and analysis.

Go to the space *Enterprise Asset Management* in the role of *Shop Floor Worker* use the app *Overall Completion Confirmation* to confirm the order.

Fiori App



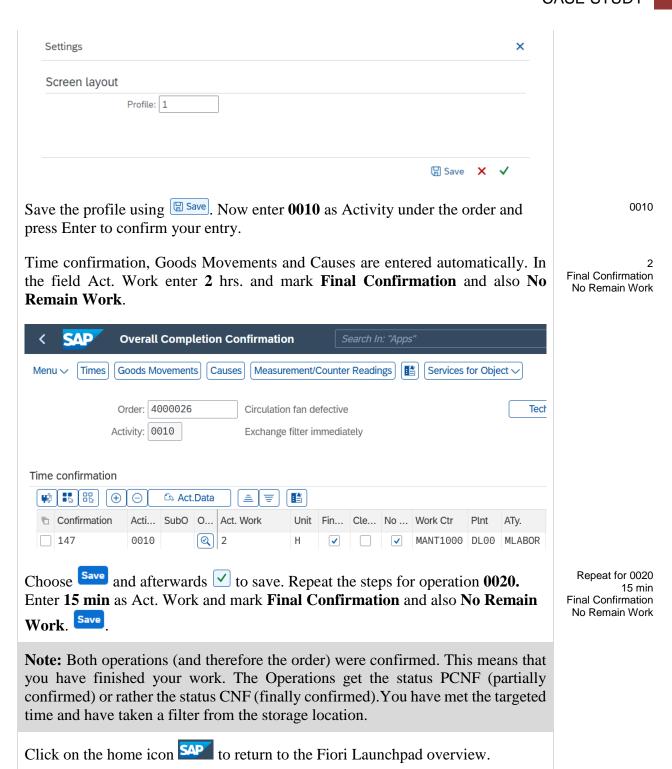
The display should now show the previously prepared order. If this is not the case, you will have to search for the order using F4.

| < SAP C | Overall Comp | letio | n Confirmatio | n | S | earch Ir | ı: "Apps | | | | | |
|---|--------------|----------|---------------|------|-----|----------|----------|--|--|--|--|--|
| Menu ✓ Times Services Goods Movements | | | | | | | | | | | | |
| Order: 4000026 Activity: | | | | | | | | | | | | |
| Time confirmation | | | | | | | | | | | | |
| #\$! \$! \$! \$ | ☐ 🕒 🖎 Act | .Data | | | | | | | | | | |
| [□] Confirmation | Acti SubO | 0 | Act. Work | Unit | Fin | Cle | No | | | | | |
| | | Q | | | | | | | | | | |

Note: The overall completion confirmation enables you to confirm not only working times, but also all of the relevant details for an order on a single screen, configured to suit your individual requirements. Time confirmations and technical confirmations therefore can be processed in the same way.

Choose **Menu** ► **Extras** ► **Settings** and enter **1** (Maintenance with order number) in the field.

1





Step 5: Analyze Final Costs and Technical Completion

Task Analyze the final costs.

Time 5 min

Description Use the SAP Fiori Launchpad to execute a cost analysis and to finish the order technically.

Name (Position) Jun Lee (Production Manager)

Go to the space *Enterprise Asset Management* in the role of *Production Manager* use the app *Change Maintenance Order* to execute a cost analysis and to finish the order technically.

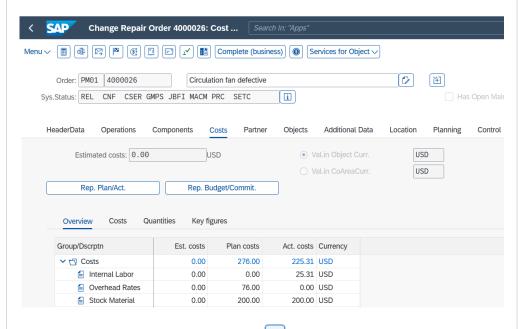
Fiori App

Change Maintenance Order

If the system should not propose the number, search the order number using the F4 help.

Order Number

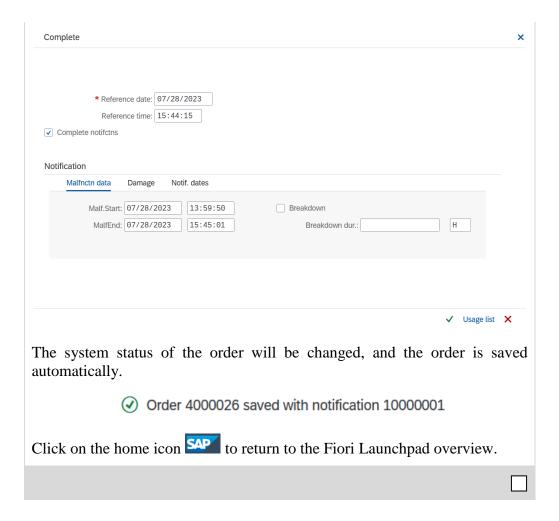
Now choose Costs. You will get an overview of actual planned costs and effective costs.



To finish the order technically, choose (Complete technically).

In the dialog window enter the **current date** and **current time** as MalfEnd and confirm with .

current date current time





Step 6: Accounting for the Maintnenance Order

Task Accounting for the Maintenance Order.

Time 5 min

Description Use the SAP Fiori Launchpad to settle the accrued costs with the settlement receiver.

Name (Position) Jun Lee (Production Manager)

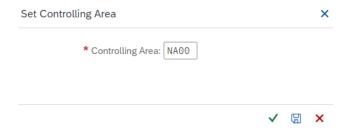
Go to the space *Enterprise Asset Management* in the role of *Production Manager* use the app *Run Actual Settlement* to account for the order.

Fiori App



If the Set Controlling Area pop up opens enter **NA00** as Controlling Area.

NA00



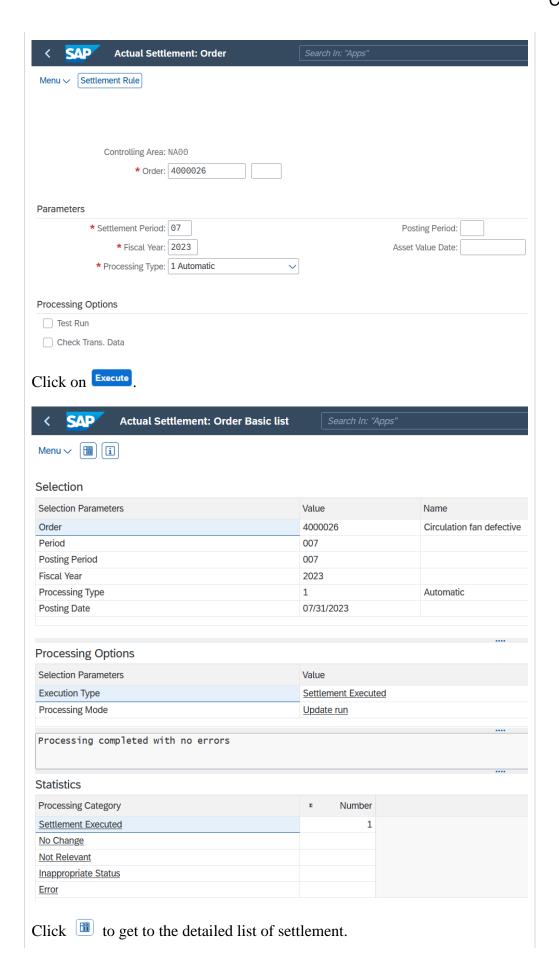
If your order number does not appear, either enter it yourself or search for it using F4. Additionally, make the following entries:

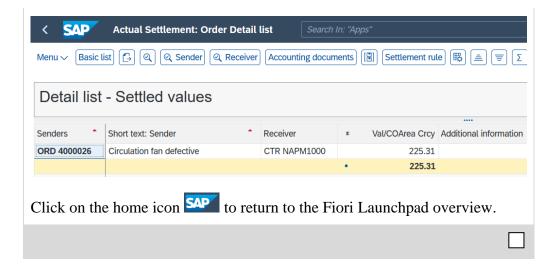
Enter the **current month** as *Settlement period* and the **current year** as *Fiscal Year*. Make sure that the Processing type is set to **automatic**.

Remove the **Test Run** indicator. Compare with the next screenshot.

current month current year automatic

Test Run







Step 7: Analyze Costs and Finish Order

Tasks Analyze costs and finish order.

Time 5 min

Description Use the SAP Fiori Launchpad to perform a cost analysis and to finish the order.

Name (Position) Jun Lee (Production Manager)

Go to the space *Enterprise Asset Management* in the role of *Production Manager* use the app *Change Maintenance Order* to analyze costs another time and finish the order:

Fiori App

Change Maintenance Order

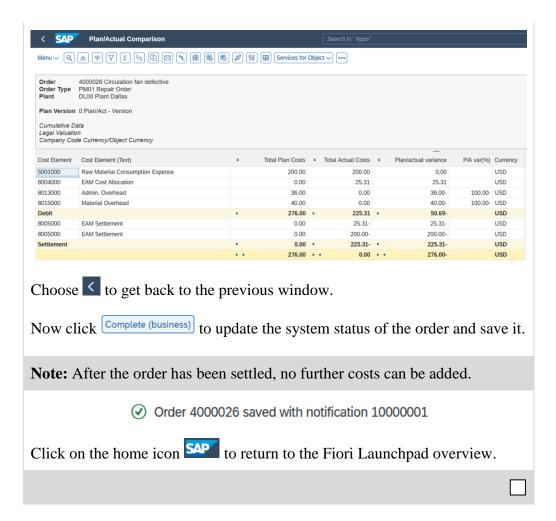
The number of your order should be proposed. If this is not the case, search for your order number using F4.



Note: You will get a message that the document is finished and therefore no changes will be possible. This is done due to the technical closure.

To display the relief of the order using the settlement choose *Additions*

Menu ► Extras ► Cost reports ► Planned/actual comparison.





Step 8: Display Order History

Task Display the order history for your equipment.

Time 5 min

Description Use the SAP Fiori Launchpad to see a detailed history about the equipment.

Name (Position) Jun Lee (Production Manager)

Go to the space *Enterprise Asset Management* in the role of *Production Manager* use the app *Display PM orders* to display the order history.

Fiori App

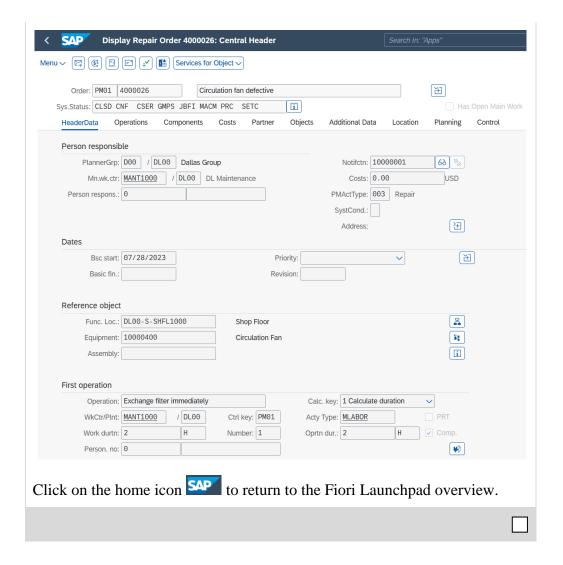


In the following window mark **Completed** and for equipment enter **10000**### (exchange ### for your number) and choose the period from **01/01 current** year up to today.

completed 10000### 01/01 of the current year Today's date

Press F8 or click Execute alternatively.

Your order should be displayed automatically. However, if there is more than one order for your equipment please double click the order you just finished.



EAM Challenge

Learning Objective Understand and perform an integrated EAM process.

Time 30 min

Motivation After you have successfully worked through the *Enterprise Asset Management* case study, you should be able to solve the following task on your own.

Scenario There are problems with the circulation fans in your company. One of them has malfunctioned in the Shop Floor. In this case, one of the impellers has been worn out due to long continuous operation. If you decide to repair it, the maintenance process would take 1.50 hours and the function test 15 minutes. For the repair, you use two Lock Washers, one Socket Head Bolt and one Hex Nut.

Task Information Since this task is based on the *Enterprise Asset Management* case study you can use it as guidance. However, it is recommended that you solve it without any help in order to test your acquired knowledge.