

Case Study 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 1809 Global Bike

Fiori 2.0

Level

Beginner

Focus

Enterprise Asset Management

Authors

Robert Häusler Chris Bernhardt Stefan Weidner

Version

3.3

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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

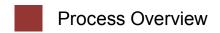
Before you use this case study, you should be familiar with navigation in the SAP system.

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 GBI company to solve the problem.

Employees involved Jun Lee (Production Planner)

Jermain Kumins (Production Manager) Ozzy Sandall (Shop Floor Worker) Pamela Ross (Shop Floor Worker)

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).

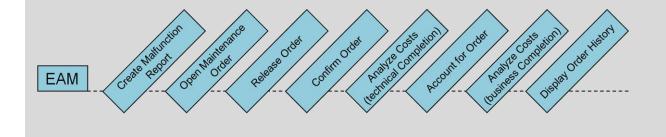


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Step 1: Create Malfunction Report

Task Create a malfunction report.

Time 10

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

min

Name (position) Pamela Ross (Shop Floor Worker)

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 got 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 also 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.

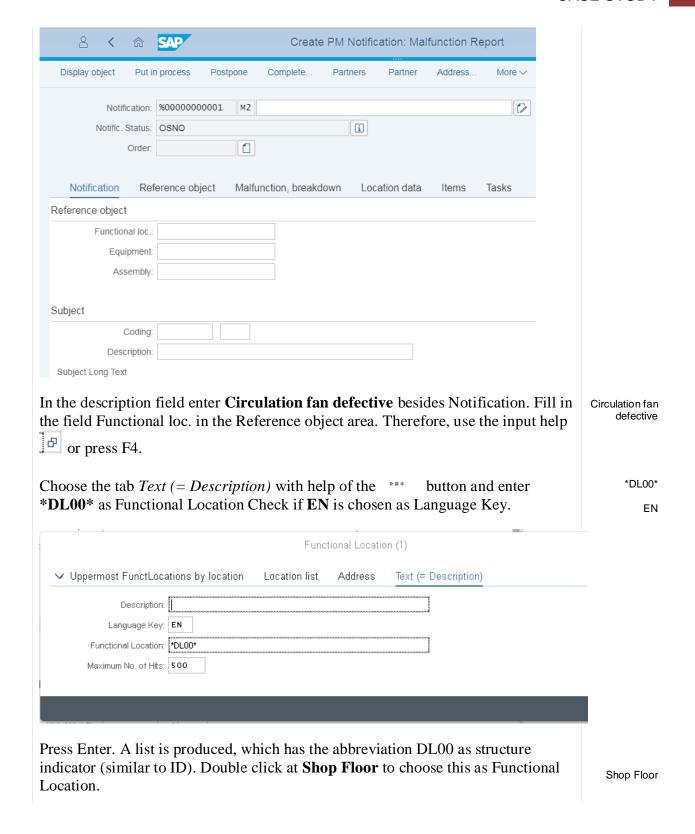
Please use the app *Create Malfunction Report* to create a malfunction report:

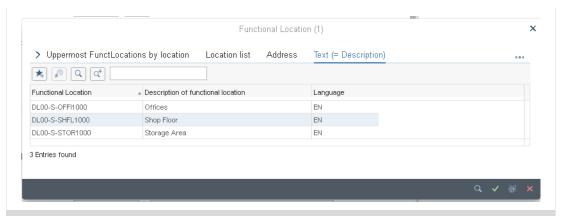
Fiori App





Now you should see the following screen.





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 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.

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.

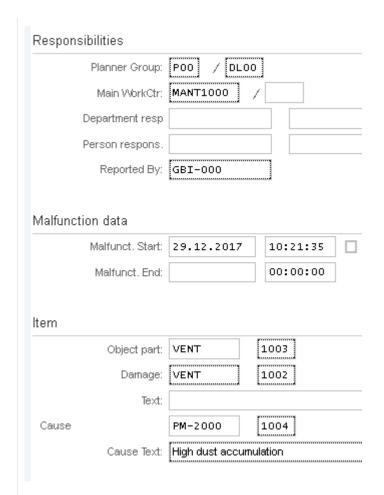
10000###

Circulation Fan

Circulation fan does not work correctly

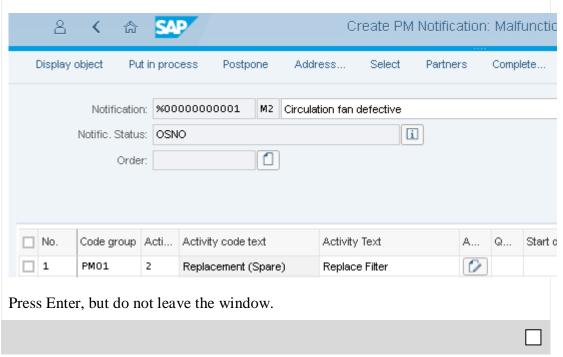
> Exchange Filter

名 〈 命 SAP Create PM Notification:	
Display object Put in process Postpone Complete Partners Partner	
Notification: %0000000001 M2 Circulation fan defective	
Notific. Status: OSNO	
Order:	
Notification Reference object Malfunction, breakdown Location data	
Reference object	
Functional loc.: DL00-S-SHFL1000	
Equipment: 10000000	
Assembly:	
Subject	
Coding: Circulation for defective	
Description: Circulation fan defective Subject Long Text	
Circulation fan does not work correctly	
Exchange Filter	
In the Responsibilities Area enter P00/DL00 as Planner Group, MANT1000/DL00 as Main WorkCtr. and Learn-### as Reported by.	P00/DL00 MANT1000/D L00 GBI-###
Afterwards enter in the Item Area VENT/1003 (Circulation Fan Objects / Filter) as Object part and add VENT/1002 (Filter Wear) as Damage. Use F4 to choose Normal Wear and Tear (PM-2000/1004) as Cause Code. Enter High dust accumulation as Cause text:	VENT / 1003 VENT / 1002 PM-2000 / 1004 High dust accumulation
Compare your entries with the following screenshot.	PM01 Replace (Spare) Replace Filter



In the *Activities* tab, please scroll up to see this tab, use F4 to choose **PM01** as 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 Planner)

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

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

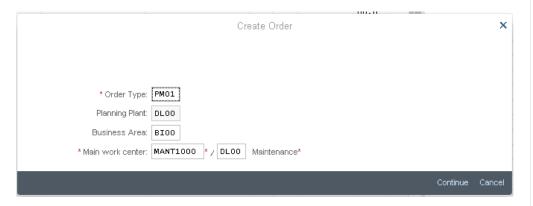
Note: Each maintenance notification contains header data, which is the information used to identify and manage the notification. The header data is valid for the complete maintenance notification.

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** (Maintenance order) as Order Type, **DL00** as Planning plant, **BI00** as Business Area and **MANT1000/DL00** as Main work center. Afterwards click on Continue.

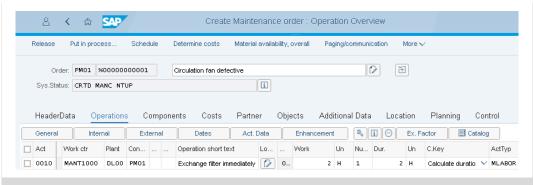
PM01 DL00 BI00 MANT1000 / DL00



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

Exchange filter immediately 2 hrs. 1 hrs. 2 hrs. Calculate duration MI ABOR

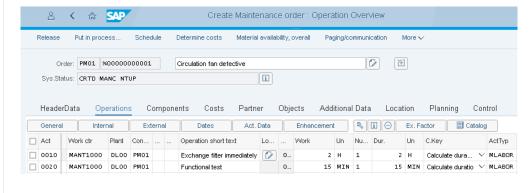
© SAP UCC Magdeburg



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.

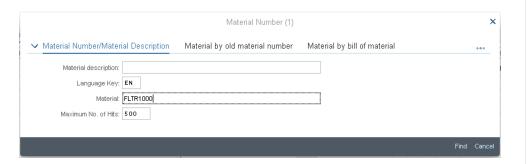
Open another Operation by clicking in a new line. Enter **0020** for OpAc, **Functional test** as Operation short text and plan duration for the work for **15** min. Enter a Number of **1** and a Duration of **15** min. Choose **Calculate duration** as CcKey and **MLABOR** as ActTyp.

0020
Functional test
15 min
1
15 min
Calculate duration
MLABOR



Press Enter to confirm your entries.

Now mark your Operations and choose .You will get to operation **0010** automatically. Use the F4 help to choose the corresponding spare part in the field Component. Therefore, select tab *Material Number/Material Description* using the button and enter the material **FLTR1**### (exchange ### by your number).



As a description enter **Filter** and choose ${\bf 1}$ for amount Reqmt Qty and change the position type IC (item category) to ${\bf L}$ (Stock item). As storage location

FLTR1###

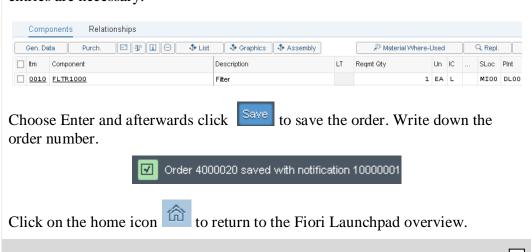
Filter 1

MI00

Order number:

(SLoc) choose Miscellaneous (M100) using the F4 help. Thereby the plant in Dallas appears automatically.

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





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 Planner)

Note Different documents can be displayed.

Use the following app to release the order and to display documents.

Fiori App



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 Release to release the order.

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.

You can release the order by clicking Save . As soon as you pressed the button, the order will be released.

Order 4000020 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)

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.

Use the app *Overall Completion Confirmation* to confirm the order.

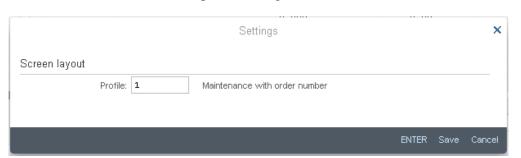
Fiori App



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.

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

Choose **More** ► **Extras** ► **Settings** and enter **1** (Maintenance with order number) in the field to save the profile using Save.



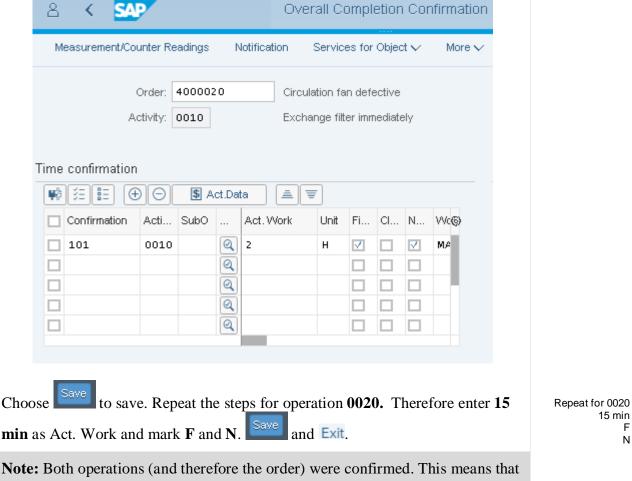
Now enter **0010** as operation/activity under the order and press Enter to confirm your entry.

Time confirmation, Goods Movements and Causes are entered automatically. In the field Act. Work enter 2 hrs. and mark F (Final Confirmation) and also N (No Remain work).

0010

1

2 F N



Ν

you have finished your work. The Operations get the status PCNF (partially confirmed) or rather the status CNF (finally confirmed). You have met the targeted time and have taken a filter from the storage location.



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.

Use the app *Change Order* to execute a cost analysis and to finish the order technically.

Fiori App

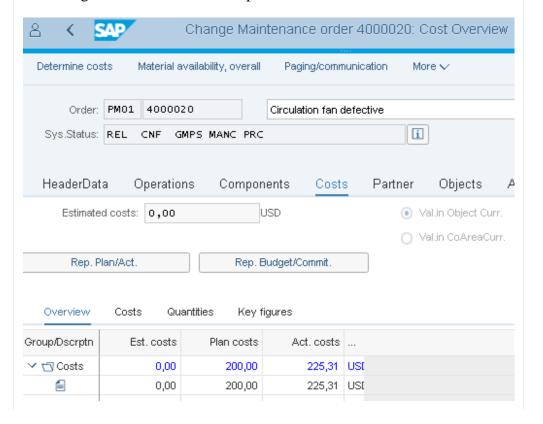


If the system should not propose the number, search the order number using the F4 help.

Order Number

Now choose Costs

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



Complete (technically) To finish the order technically, choose In the dialog window enter the current date and current time as MalfEnd Continue and confirm with Complete × * Reference date: 29.12.2017 Reference time: 14:24:39 ✓ Complete notifctns Notification Malfneth data Notif. dates Damage Malf.Start: 29.12.2017 10:21:35 ☐ Breakdown MalfEnd: 29.12.2017 14:25:11 🗗 Breakdown dur.: Continue Usage list Cancel Note: The system status of the order will be changed, and the order is saved automatically. ☑ Order 4000020 saved with notification 10000001 to return to the Fiori Launchpad overview.

current date current time



Step 6: Accounting for the Maintnenance Order

Task Accounting for the Maintenance Order.

Time 5 min

Fiori App

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

Use the app Actual Settlement to account for the order.

Actual Settlement

NA00

In the Set Controlling Area pop up enter NA00 as Controlling Area.



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

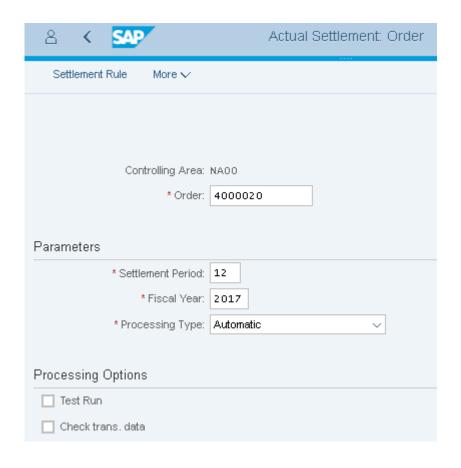
Enter the **current month** as Settlement period and the **current year** as Fiscal Year. Make sure that the Processing type is set to **automatic**.

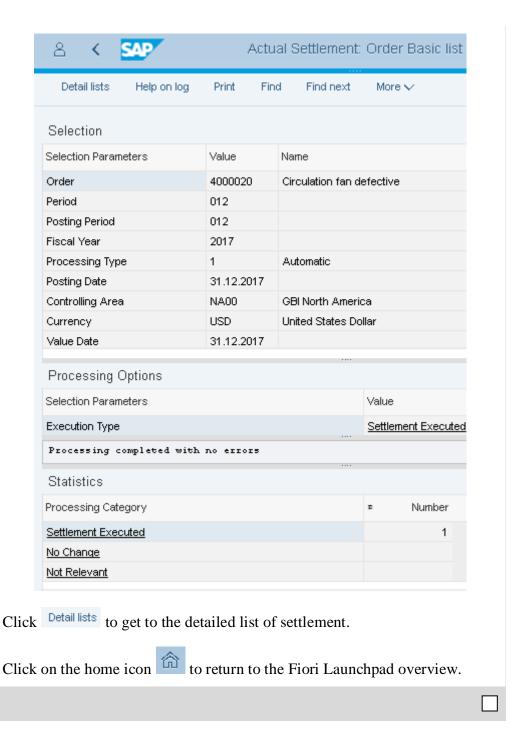
Remove the **Test Run** indicator and click



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 Planner)

Use the app *Change Order* to analyze costs another time and finish the order:

Fiori App



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

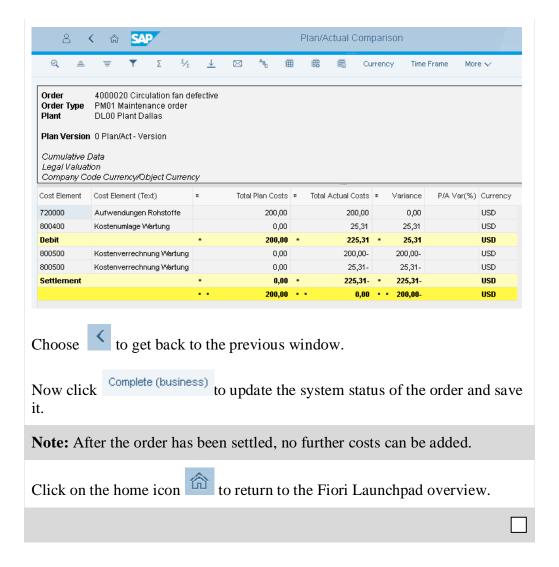
Afterwards choose Enter.



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

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





Step 8: Display Order History

Task Display the order history for your equipment.

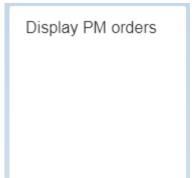
Time 5 min

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

Name (Position) Jun Lee (Production Planner)

Use the app *Display PM Order* – (*IW33*) path to display the order history.

Fiori App



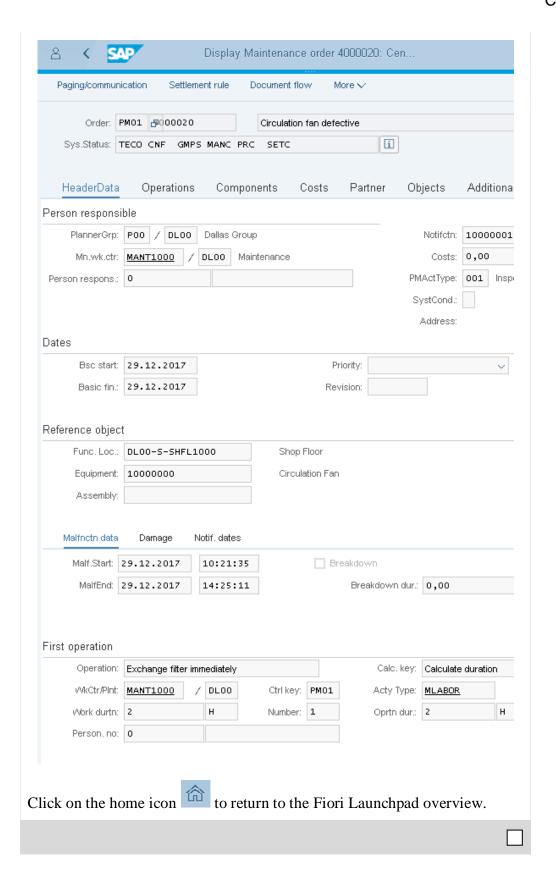
In the following window mark **Completed** and for equipment enter **10000**### (exchange ### for your number) and choose the period from **01/01** current year up to today.

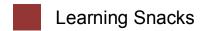
completed 10000### 01/01 of the current year Today's date

Press F8 or click

alternatively.

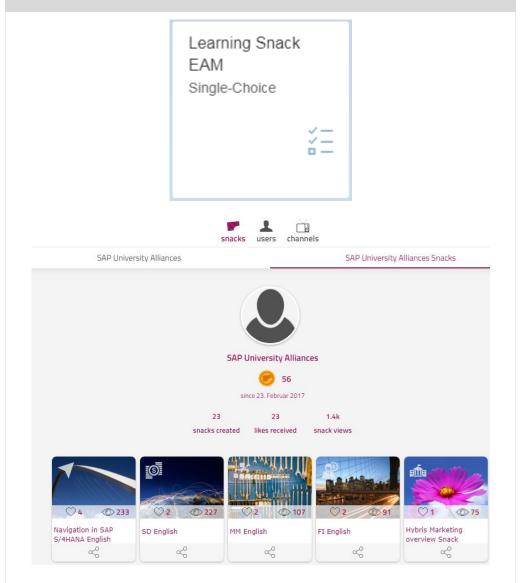
Your order should be displayed automatically. However, if there is more than one order for your equipment please double click the order you just finished.





In order to test and consolidate your knowledge use the app *Learning Snack EAM*.

Fiori App



You see all the snacks for the individual case studies. Select the Snack *EAM English* and answer all six questions.

Learning Snack

Hint:

If you do not see any Apps, you need to change the language on the page Learning Snacks. Therefore click on the current language right next to *change language* and choose **English**.



When you have answered all the questions you will receive a success message and your placement.



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.