

Enterprise Asset Management (EAM)

This document is intended to help instructors understand the case study process and manage the learning process in and outside the classroom. The main focus lies on prerequisites and common tasks such as testing and trouble-shooting.

Product

SAP S/4HANA 2022
Global Bike

Fiori 3.0

Level

Instructor

Focus

Enterprise Asset Management

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Version

4.2

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MOTIVATION

Theoretical lectures explain concepts, principles, and theories through reading and discussion. They, therefore, enable students to acquire knowledge and gain theoretical insights.

In contrast, case studies allow them to develop their abilities to analyze enterprise problems, learn and develop possible solutions, and make sound decisions.

The main objective of the Global Bike case studies in general is for students to understand the concept of integration. These descriptive and explanatory case studies will allow students to understand the importance and the advantages of integrating enterprise areas using an S/4HANA system.

The main goal of this document is to help instructors prepare the SAP system for the Enterprise Asset Management case study process and to support them trouble-shoot problems that might occur during the course.

Beside technical and didactic prerequisites, the lecturer notes list SAP transactions for testing and correcting student results in the SAP system. In addition, this document describes common problems and explains their reason and solution.

Prerequisites

Note Before using this case study in your classroom please make sure that all technical (month-end closing, user management etc.) and didactic prerequisites are fulfilled. Such prerequisites are briefly pointed out below. Detailed documentation can be displayed at and downloaded from the *Learning Hub of SAP UA* or the *UCC web sites*.

Technical Prerequisites

Basically, the case study is based on the system environment of a standard SAP S/4HANA client with the current Global Bike dataset. Before processing the case study on your own or with your students, the general setting should be checked.

This includes **month-end closing** in Materials Management (transaction **MMPV**) which is documented on the UCC web sites.

Month-end closing in
MM
MMPV

Note: With the current version of the Global Bike client a **year-end closing** is not necessary, because it has already been automated or because it is not needed for the process described in the curriculum material.

Year-end closing

User accounts in the SAP system need to be created or unlocked.

User management

These student user accounts should end with a three-digit numeric number (e.g. LEARN-001, LEARN-002 etc.). This number will be represented by ### in the case study and helps differentiate customer accounts, products etc.

In an SAP S/4HANA Global Bike client already exist 1000 user accounts from **LEARN-000** to **LEARN-999**. These users need to be unlocked. The initial password for each LEARN-### account is set to **tlestart**.

LEARN-000 to LEARN-
999

tlestart

Transaction **ZUSR** was developed in the Global Bike client in order to mass maintain SAP user accounts. For a detailed description of this and SAP standard transactions for user management (**SU01** and **SU10**) please refer to the *lecturer notes "User Management"* (see: current Global Bike curriculum → chapter 99 – Instructor Tools).

ZUSR

SU01
SU10

All LEARN-### user accounts have been assigned to the role **Z_UCC_GBI_SCC** and have authorizations to use all applicative transactions in the SAP S/4HANA system. The role allows access to all transactions necessary for Global Bike exercises and case studies. If you need access to system-critical transactions, i.e. for development purposes, you may assign the composite profile **SAP_ALL** to your student accounts.

It is useful for the instructor to have a user account available for testing that has the same authorizations as the student accounts. You may use the predefined instructor account **LEARN-000** for this purpose.

Instructor account
LEARN-000

Didactic Prerequisites

In order to successfully process this case study, students should be familiar with the **navigation** in SAP systems, especially the SAP Easy Access menu, the SAP transaction concept as well as possible documentation and help options. We highly recommend using the *navigation slides* and the *navigation course* (see: current Global Bike curriculum → chapter 2 – Navigation).

Navigation

In addition, it has been proven beneficial that students have a thorough understanding of the **historic background** and the enterprise structure of the Global Bike concern before they start working on the SAP system. For this purpose we recommend the *case study „Global Bike Inc.“* (see: current Global Bike curriculum → chapter 3 – Global Bike).

Company background

Because the case study is not based on the exercises, it is not necessary to have processed the EAM exercises before you start with the case study. However, it is recommended.

In order to function properly this case study needs a **Global Bike client version** that is equal to or higher than the case study version (see cover page). Please check. If you do not know the client version please use the transaction **ZGBIVERSION** within your SAP S/4HANA system or contact your UCC team.

Global Bike client
version

Global Feedback

Do you have any suggestions or feedback about Global Bike? Please send it to our new email-address **gbi@ucc.ovgu.de** which is used to gather feedback globally. All emails will be evaluated by the persons responsible for the curriculum bi-weekly. This way your feedback might influence future releases directly.

Please note that any support requests send to this email-address will be ignored. Please keep using the common support channels for your support requests.



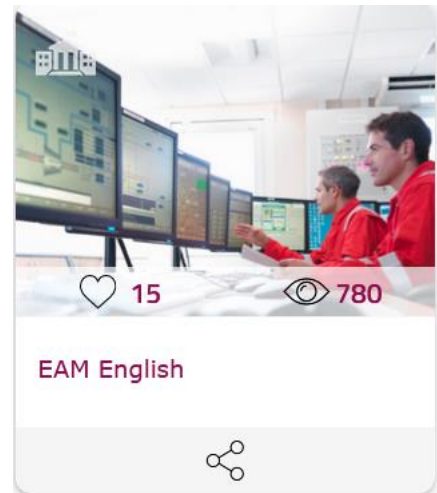
Learning Snacks EAM

Note With the Learning Snacks EAM you can check your learning success in the module EAM.

What is Learning Snacks ?

Learning Snacks offers the possibility to check the knowledge gained during the case studies and exercises by means of small single-choice questions. Depending on the selected module, you can play through a Learning Snacks (EAM here). Learning Snacks can be used with or without prior registration. By having your own account, you can create snacks yourself, like other snacks and receive some kind of points for each question you answer correctly.

You can find detailed instructions on Learning Snacks in the module "98 Cross-Module".



Student Assessment

Note With the transactions listed below you can check and correct master and transactional data that your students have created during your course.

Master Data

App	Display Equipment
-----	-------------------

Transactional Data

App	Display PM orders
-----	-------------------

Global Bike Monitoring Tool (beta)

Also we are developing a GBI Monitoring Tool, which is available for the Global Bike release. Since it is still in development the beta version does not support all case studies yet.

A detailed tutorial for this tool is available in the module *99 Instructor Tools* of the current Global Bike curriculum.

Please keep in mind that this transaction is an additional functionality designed by the UCC Magdeburg and still in development. Therefore, we kindly ask you to send any feedback or detailed error descriptions to the following address: gbi@ucc.ovgu.de



Monitoring: Display PM orders

Note The following transaction allows you to check if the participants have successfully finished the case study.

Display Plant Maintenance Orders

Use the Fiori app **Display PM orders** to display all the PM-Orders.

Fiori App

Display PM orders

In the screen *Display PM orders: Selection of Orders* select **Outstanding, In process, Completed** and **Historical** in the section Order status










Order status

☒ Outstanding ☒ In process ☒ Completed ☒ Historical

Add more relevant information. For an unambiguous determination the fields **Entered by** in the section General Data/Administrative Data should be filled. In the following screenshot an example for the user **LEARN-001** to **LEARN-010** is shown.

LEARN-### to LEARN-###

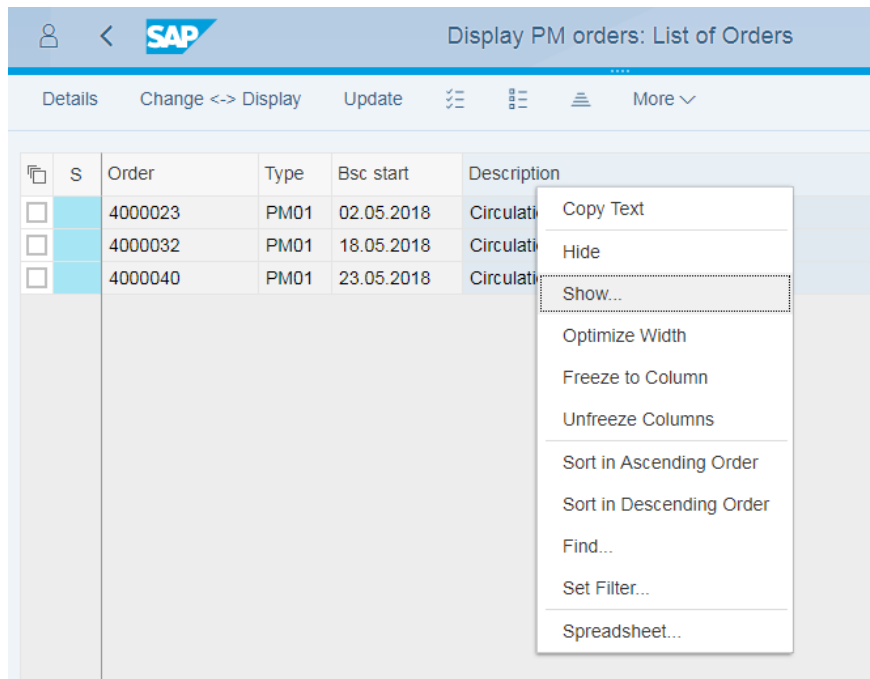
General Data/Administrative Data

incl. object list: <input type="checkbox"/>		
Leading Order:	<input type="text"/>	to: <input type="text"/> 
Superior Order:	<input type="text"/>	to: <input type="text"/> 
Planning Plant:	<input type="text"/>	to: <input type="text"/> 
Priority:	<input type="text"/>	to: <input type="text"/> 
Entered By:	<input type="text" value="LEARN-001"/>	to: <input type="text" value="LEARN-010"/> 
Created On:	<input type="text"/>	to: <input type="text"/> 
Status inclusive:	<input type="text"/>	to: <input type="text"/> 
Status exclusive:	<input type="text"/>	to: <input type="text"/> 
Description:	<input type="text"/>	to: <input type="text"/> 

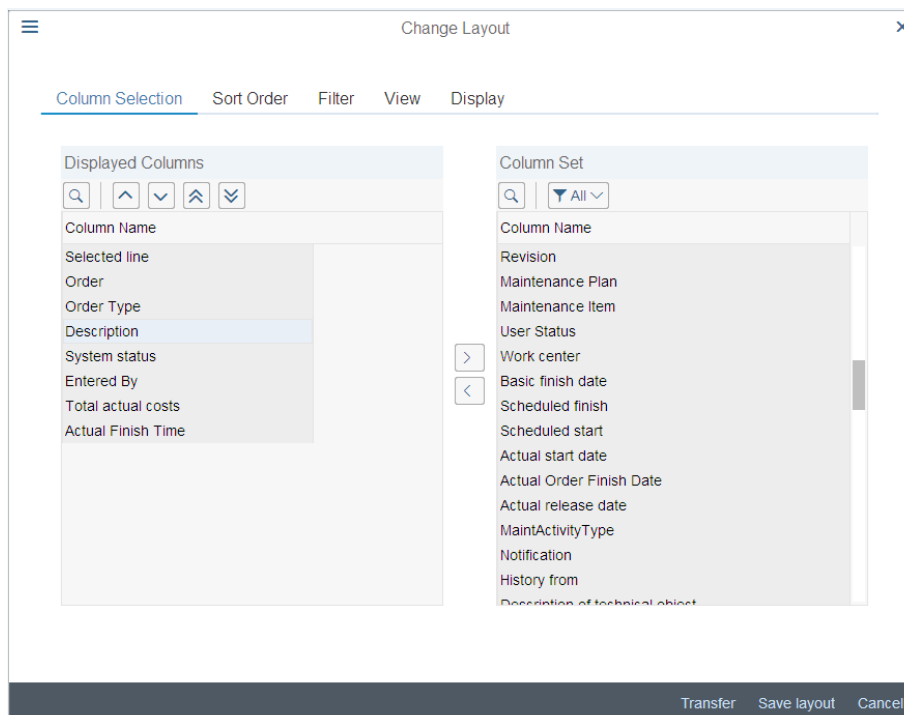
Note The Order- or the Equipment numbers can be used as well, if known.

Confirm your entries by clicking on .

In the screen *Display PM orders: List of Orders* you will find a list with all selected orders. Choose via the context menu the command show to get displayed more relevant information like shown in the following screenshot.

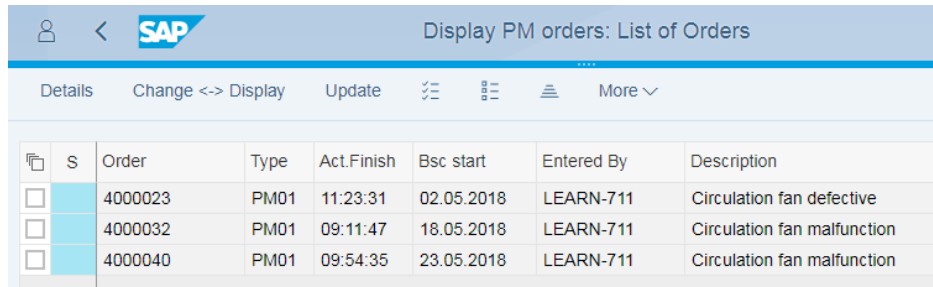


Select all relevant information you need and push it to Displayed Columns. Relevant columns are **Entered by**, **Total actual costs** and **Actual Finish Time**.



Click on **Transfer** to return to the previous screen. Now you can see all relevant information listed in your table. A maintenance order is completed if there are costs assigned to the total actual costs. It is also important that the

maintenance order has an actual finish. Via the system status you can find more relevant information. In the following screenshot you can see on the one hand a complete maintenance order and on the other hand maintenance order which is in progress.



The screenshot shows the SAP 'Display PM orders: List of Orders' interface. At the top, there is a header bar with the SAP logo and the title 'Display PM orders: List of Orders'. Below the header, there is a navigation bar with buttons for 'Details', 'Change <-> Display', 'Update', and a 'More' dropdown menu. The main area contains a table with the following columns: 'S' (checkbox), 'Order', 'Type', 'Act.Finish', 'Bsc start', 'Entered By', and 'Description'. The table lists three maintenance orders, all of type PM01, entered by LEARN-711. The first order (4000023) is complete with an actual finish date of 11:23:31 on 02.05.2018. The second (4000032) and third (4000040) orders are in progress, with actual finish dates of 09:11:47 and 09:54:35 on 18.05.2018 and 23.05.2018 respectively.

S	Order	Type	Act.Finish	Bsc start	Entered By	Description
<input type="checkbox"/>	4000023	PM01	11:23:31	02.05.2018	LEARN-711	Circulation fan defective
<input type="checkbox"/>	4000032	PM01	09:11:47	18.05.2018	LEARN-711	Circulation fan malfunction
<input type="checkbox"/>	4000040	PM01	09:54:35	23.05.2018	LEARN-711	Circulation fan malfunction

Problem: Automatic opening of a window

Symptom While posting the outgoing payment no open items can be found.

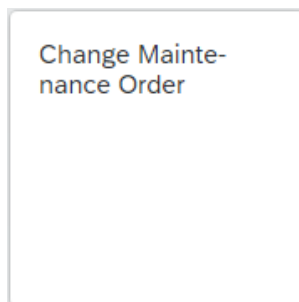
Reason The cursor was moved over the entry Service for Object

Solution Move the cursor from the bottom to the entry Extras

Error

In the App **Change Maintenance Order**.

Fiori App



Enter your **order number** and press Enter. In order to view the credit entry for the order via the settlement, you need to select **More ► Extras ► Cost reports ► Planned/Actual comparison**. But when you move with the Courser over **More ► Service for Object**, the window *Choose an object* automatically opens.

Order number

The screenshot displays the SAP Fiori app interface for 'Change Maintenance order 4000040: Central Header'. The 'More' menu is open, showing options like 'Maintenance object address (F6)', 'Permits... (Ctrl+F8)', 'Notification (Shift+F1)', 'Complete (business) (Ctrl+Shift+F12)', and 'Services for Object'. The 'Services for Object' option is selected, leading to a sub-menu with 'Order', 'Edit', 'Goto', 'Extras', 'Environment', 'System', 'Help', and 'GUI Actions and Settings'. The background shows various fields for the maintenance order, including Order (PM01), Sys. Status (TECO), HeaderData, Person responsible (PlannerGrp: P00, Mn.wk.ctr: MANT10, Person respo...: 0), Dates (Bsc start: 23.05., Basic fin.: 23.05.), and Reference object (Func. Loc.: DL00-S-SHFL1000, Equipment: 10000000, Assembly:).

Solution

Move the cursor from the bottom to **More** ► **Extras** ► **Cost reports** ► **Planned/Actual comparison**.

The remaining steps of the transaction you can perform as described in the solution of the challenge.



Solution: EAM Challenge

Learning Objective: Understand and perform an integrated EAM process.

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.

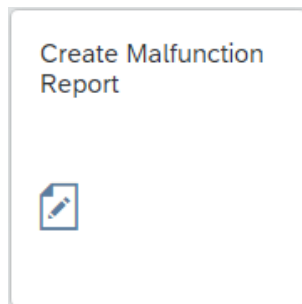
Scenario There are problems with the circulation fans in your company. One of them has malfunctioned in the Shop Floor. In this case, one of the impellers has been worn out due to long continuous operation. If you decide to repair it, the maintenance process would take 1.50 hours and the function test 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.

Gather a malfunction report

Open the Fiori app **Create Malfunction Report**.

Fiori App



Now you can see the following screen.

In the description field enter **Circulation fan malfunction** besides the notification. Fill in the Functional loc. field in the Reference object. Use F4-Help for this purpose and select **Shop Floor** as you have already learned in the case study.

Select **10000###** as Equipment (replace ### with your number, e.g. 012) and press Enter in order to confirm your entries.

Carry out the following entries in the Notification tab. In the Subject area enter for Subject Long Text **Circulation fan doesn't work anymore** with the request **Repair impeller**.

Circulation fan
malfunction

Shop Floor

10000###

Circulation fan doesn't
work anymore
Repair impeller

SAP Create PM Notification: Malfunction Report

Notification: %000000000001 M2 Circulation fan malfunction

Notific. Status: OSNO

Order:

Reference Object

Functional loc.: DL00-S-SHFL1000 Shop Floor

Equipment: 10000400 Circulation Fan

Assembly:

Subject

Coding:

Description: Circulation fan malfunction

Subject Long Text

Circulation fan doesn't work anymore

Repair impeller

In the Responsibilities area select **P00/DL00** as Planner group, **MANT1000/DL00** as Main WorkCtr and **LEARN-###** as reported by.

Afterwards enter **VENT/1002** (Circulation Fan Objects / Rotor Blade) as an Object part in the Item area and add **VENT/1001** (Torn Rotor Blade) as Damage. Add **PM-1000/1000** as a Cause Code and specify **Long continuous operation** as a Cause text. Compare your entries with the following screenshot.

D00/DL00
MANT1000/DL00
LEARN-###

VENT/1002
VENT/1001

PM-1000/1000

Long continuous
operation

Responsibilities

Planner Group: D00 / DL00 Dallas Group

Main WorkCtr: MANT1000 / DL00 DL Maintenance

Department resp:

Person respons.:

Reported By: LEARN-400

Malfunction Data

Malfunc. Start: 06/21/2022 10:37:53 ☐ Breakd

Malfunc. End: 00:00:00 Br

Item

Object Part: VENT 1002 Rotor Blade

Damage: VENT 1001 Torn Rotor Blade

Text:

Cause: PM-1000 1000 Overload

Cause Text: Long continuous operation

In the Activities tab select **PM01** as a Code group and at the same time, use the Activity code text **Repair**. As an Activity text specify that the **Impeller repair** should go smoothly.


PM01
Repair
Impeller Repair

No.	Code gr...	Acti...	Activity code text	Activity Text	A...	Q...	Start date	Time
1	PM01	1	Repair	Impeller repair				00:00

Click Enter without leaving the screen.

Open a maintenance order from the malfunction report

If you are in the Fiori Launchpad, repeat the step **Gather a malfunction report**.

In order to open a maintenance order from the malfunction report, click on , which is right near the Order field.

In the Create Order window, specify **PM01** (Repair Order) as the Order type. Make sure that the following entries have been specified: **DL00** as the Planning plant, **BI00** as the Business area and **MANT1000/DL00** as the Main work center. Confirm with Enter.

PM01
DL00
BI00
MANT1000 / DL00

Create Order

* Order Type: PM01

Planning Plant: DL00

Business Area: BI00

* Main Work Center: MANT1000 * DL00 DL Maintenance

✓ ✗

Switch to the *Operations* tab and replace the original name Circulation fan malfunction with **Repair impeller now**. Specify the Work as **1.5**, the unit as **H**, Number **1**, Dur. **1.5** and one more time **H** as the unit. Select **Calculate duration** from the dropdown menu and enter **MLABOR** as activity type.

Repair impeller now
1.5 HR
1
1.5 HR
Calculate duration
MLABOR

Create an additional operation by opening a new row. For this purpose, use the row with operation number **0020**. Specify **Unit testing** as short text for the next operation and plan duration of **15 MIN** for the work. Select Number **1**

0020
Unit testing
15 MIN
1
15 MIN
Calculate duration
MLABOR

and plan additional **15 MIN** for the duration of the process. Enter **Calculate duration** as the Calculation key and **MLABOR** as the Activity type.

HeaderData Operations Components Costs Partner Objects Additional Data Location Planning Control																
General Internal External Dates Act. Data Enhancement Ex. Factor Catalog																
Act.	S...	Work Ctr	Plant	Con...	S...	S...	Operation Short Text	Lo...	A...	Work	Un	Nu...	Dur.	Un	C.Key	ActType
<input type="checkbox"/> 0010		MANT1000	DL00	PM01			Repair impeller now		0	1.5	H	1	1.5	H	1 Calculate dura...	MLABOR
<input type="checkbox"/> 0020		MANT1000	DL00	PM01			Unit testing		0	15	MIN	1	15	MIN	1 Calculate dura...	MLABOR

Press Enter in order to confirm your entries.

Now mark both of your operations and select **Internal**. You are automatically redirected to the process **0010**. Use F4-Help, in order to select your corresponding spare parts from the Components field. To do so, select the tab Material Number/Material Description from and enter **LWSH1###** (replace ### with your number) as a material. Repeat the process for **0020** and **0030** with materials **BOLT1###** and **HXNT1###** respectively.

0010
LWSH1###

0020
BOLT1###

0030
HXNT1###

Select **2** as Reqmt Qty for material 010 (Lock Washer) and **1** as demand quantity for the other two materials. Change IC (Item category) to **L** (stock item). As a storage location (Sloc) select Raw Materials (**RM00**) via the F4-Help. As a result the plant in Dallas appears automatically. Make sure that the entered quantity has a positive value.

2
1
L
RM00

Components Relationships											
Gen. Data Purch. List Graphics Assembly											
Item	Component	Description	LT	Reqmt Qty	Un	IC	S...	SLoc	Plnt		
<input type="checkbox"/> 0010	LWSH1400	Lock Washer 5 mm		2	EA	L		RM00	DL00		
<input type="checkbox"/> 0020	BOLT1400	Socket Head Bolt 5x20mm		1	EA	L		RM00	DL00		
<input type="checkbox"/> 0030	HXNT1400	Hex Nut 5 mm		1	EA	L		RM00	DL00		

Click Enter and click afterwards **Save** in order to confirm the order. Write down your order number.

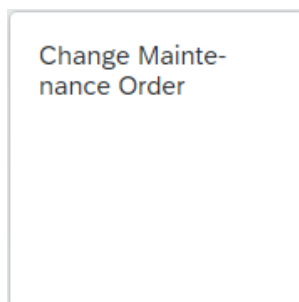
Order number:

Click on the home icon to return to the Fiori Launchpad overview.

Release an order and display documents


Open the Fiori app **Change Maintenance Order**.

Fiori App




Enter your order number in the following screen.


< **SAP** **Change Order: Initial Screen**


Header data Operations Components Costs Additional data Planning Control  More ▾

* Order:

Press Enter to go to the next page.

Click on  in order to release the order.

Release your order as final by clicking on .

Click on the home icon  to return to the Fiori Launchpad overview.

Confirm the order

Open the Fiori app **Overall Completion Confirmation**.


Fiori App

Overall Completion Confirmation

Enter your **order number** and **0010** as Activity and press Enter to confirm your entries.





































order number
0010

< **SAP** **Overall Completion Confirmation**

Times Goods Movements Causes Measurement/Counter Readings  Services for Object ▾ Mor


Order: Circulation fan malfunction
Activity: Repair impeller now

Time confirmation


                                   

Time confirmation, goods movements and causes will be automatically completed. Enter **1.5 H** in the Act. Work field and select **Final Confirmation** and also **No Remain Work**.

1.5 H
Final Confirmation
No Remain Work

Select **Save**, followed by  in order to save the process. Repeat the steps for process **0020**. Enter **15 MIN** as Act. Work, select **Final Confirmation** as well as **No Remain Work**. once again and save.

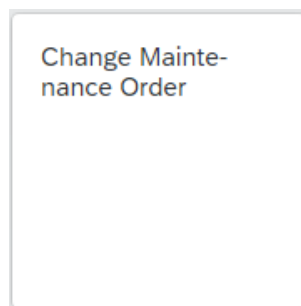
Repeat for 0020
15 MIN
Final Confirmation
No Remain Work

Click on the home icon  to return to the Fiori Launchpad overview.

Analyze final costs and technical completion

Open the Fiori app **Change Maintenance Order**.


Fiori App




Enter your order number. Now select the **Costs** button so that the costs for the order are displayed. You will receive an overview of the current planned and actual costs.

The screenshot shows the SAP Fiori app interface for 'Change Repair Order 4000021: Cost Overview'. The header includes the SAP logo and navigation icons. The main area displays the order number 'PM01 4000021' and the description 'Circulation fan malfunction'. Below this, there are tabs for 'HeaderData', 'Operations', 'Components', 'Costs' (selected), 'Partner', 'Objects', 'Additional Data', and 'Location'. The 'Costs' tab shows 'Estimated costs: 0.00 USD' and two radio buttons for 'Val.in Object Curr.' (selected) and 'Val.in CoAreaCurr.'. Below these are buttons for 'Rep. Plan/Act.' and 'Rep. Budget/Commit.'. At the bottom, there is a table with columns 'Group/Descrptn', 'Est. costs', 'Plan costs', 'Act. costs', and 'C...'. The table lists 'Costs' with a total of 0.00, 0.41, and 19.99 respectively, and sub-items like 'Internal Labor', 'Overhead Rates', and 'Stock Material'.

Group/Descrptn	Est. costs	Plan costs	Act. costs	C...
Costs	0.00	0.41	19.99	US
Internal Labor	0.00	0.00	19.69	US
Overhead Rates	0.00	0.11	0.00	US
Stock Material	0.00	0.30	0.30	US

In order to end the technical order, select  (Complete technically).

In the dialog box enter the **current date** and the **current time** as end of the malfunction (MalfEnd) and confirm your entries with .

Current date
Current time

Complete ×

* Reference date:


Reference time:

☒ Complete notifictns

Notification

Malfnctn data	Damage	Notif. dates
Malfnctn Start: <input type="text" value="06/21/2022"/>	<input type="text" value="10:37:53"/>	<input type="checkbox"/> Breakdown
Malfnctn End: <input type="text" value="06/21/2022"/>	<input type="text" value="11:14:39"/>	Breakdown dur.: <input type="text"/> <input type="text" value="H"/>

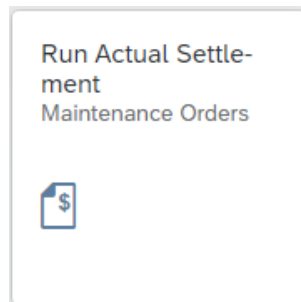
✓ Usage list ✗

Click on the home icon  to return to the Fiori Launchpad overview.

Account for the order

Open the Fiori App **Run Actual Settlement**.

Fiori App



Select **More** ► **Extras** ► **Set Controlling area** and enter **NA00** as Controlling area.

NA00

Enter your order number. Afterwards, specify the **Current month** as settlement period and select the **Current year** as fiscal year. Make sure that the processing type has been specified as **Automatic**. Unselect **Test Run**.

Current month
Current year
Automatic
Test Run

Click on **Execute**.

< **SAP** Actual Settlement: Order Basic list

☰ ⓘ More ▾

Selection

Selection Parameters	Value	Name
Order	4000021	Circulation fan malfunction
Period	006	
Posting Period	006	
Fiscal Year	2022	
Processing Type	1	Automatic
Posting Date	06/30/2022	
Controlling Area	NA00	Global Bike North America
Currency	USD	United States Dollar
Value Date	06/30/2022	


Processing Options

Selection Parameters	Value
Execution Type	<u>Settlement Executed</u>
Processing Mode	<u>Update run</u>

Processing completed with no errors

Statistics

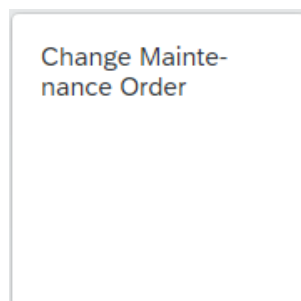
Processing Category	Number
<u>Settlement Executed</u>	1
<u>No Change</u>	
<u>Not Relevant</u>	
<u>Inappropriate Status</u>	
<u>Error</u>	

Click on the home icon  to return to the Fiori Launchpad overview.

Analyze costs and finish an order

Open the App **Change Maintenance Order**.


Fiori App





Enter your **order number** and press Enter. In order to view the credit entry for the order via the settlement, select **More ► Extras ► Cost reports ► Planned/Actual comparison**

Order number

SAP Plan/Actual Comparison						
Order 4000021 Circulation fan malfunction Order Type PM01 Repair Order Plant DL00 Plant Dallas Plan Version 0 Plan/Act - Version <i>Cumulative Data</i> <i>Legal Valuation</i> <i>Company Code Currency/Object Currency</i>						
Cost Element	Cost Element (Text)	Total Plan Costs	Total Actual Costs	Plan/actual variance	P/A var(%)	Currency
5001000	Raw Material Consumption Expense	0.10	0.10	0.00		USD
5001000	Raw Material Consumption Expense	0.10	0.10	0.00		USD
5001000	Raw Material Consumption Expense	0.10	0.10	0.00		USD
8004000	EAM Cost Allocation	0.00	19.69	19.69		USD
8013000	Admin. Overhead	0.05	0.00	0.05-	100.00-	USD
8015000	Material Overhead	0.06	0.00	0.06-	100.00-	USD
Debit		0.41	19.99	19.58		USD
8005000	EAM Settlement	0.00	0.10-	0.10-		USD
8005000	EAM Settlement	0.00	0.10-	0.10-		USD
8005000	EAM Settlement	0.00	0.10-	0.10-		USD
8005000	EAM Settlement	0.00	19.69-	19.69-		USD
Settlement		0.00	19.99-	19.99-		USD
		0.41	0.00	0.41-		USD

Select  in order to go back to the previous screen.

Now click  in order to update and save the order system status.

Click on the home icon  to return to the Fiori Launchpad overview.

