1. **Functional Description**

User Requirement

Every time, a Maintenance Plan or Item is saved, the system has to check if the maintenance plan is CMX relevant. If yes, transfer data to CMX.

Identification of Maintenance plan relevant for CMX interface:

It is not requested that the transfer is done real-time at the moment when the maintenance plan is saved. Periodical transfer (for example, every hour) is also acceptable.

Maintenance Plan with Functional Location that are CMX-relevant and Order Type “YA07” in the Maintenance Item have to be transferred to CMX. The selection criteria such as the order type may change, so they need to be parametric, not fixed.

Identification of Functional Locations relevant for CMX interface: the Functional Location is assigned with characteristic INTERFACE with value “CMX”.

Maintenance Plan with Equipment that are CMX-relevant and Order Type “YA07” in the Maintenance Item have to be transferred to CMX. The selection criteria such as the order type may change, so they need to be parametric, not fixed.

Identification of Equipment relevant for CMX interface: the Equipment is assigned with characteristic INTERFACE with value “CMX”.

Plant and order type should be among the selection parameters for maintenance plans, with the flexibility to change them in S/4HANA.

- A log must be readily accessible to Lonza IT S/4HANA PM support team to facilitate error identification during message transmission. It should support diagnostic capabilities by clearly indicating the point of failure (e.g., SAP, iSuite, CMX).

- On error detection, an automated email notification should be triggered to a predefined distribution list (e.g., IT support team)

- Reprocessing functionality should be available for transfers that ended in error.

- One unique point of access to display all errors for the different CMX outbound and inbound interfaces should be made available

Functional Description

If the Maintenance Plan Item is assigned to a Functional Location or Equipment that is CMX-relevant and Order Type “YA07” in the Maintenance Item, transfer data to CMX initial and after change.

The possibility to re-send maintenance plans with errors must be there.

Processing

After save Maintenance Plan transfer data to CMX Position.

Functional Location number (respect alternative labelling)

Functional Location with base label or alternative label_internal unique number (separator is _ “underscore”)

Equipment number (If Maintenance Item is assigned to an Equipment)

Cycle

Internal Unit shall be translated in English.

Order type, plant and characteristic value should be set as parameters, to be easily changed directly in S/4HANA.

*If there is the possibility to transfer the orders real-time, without impacting the performance of the system while the user is saving the plan, this is the preferred method. As an alternative, a delay of transfer every hour is also acceptable.

The program should allow re-execution, in case of errors during the transfer. To allow this flexibility, the “last time the program ran” should also be flexible, for example through the usage of a dynamic date, but manually changeable.

The new interface in S/4 HANA will be triggered by a background job that will run at regular intervals (or on demand) and which will evaluate all of the conditions described before and send the plan data that meet them, independently of whether the plan itself was updated or not.

Search Algorithms

A program will run with the following selection criteria:

Field	**Mandatory**	**Data Element**	**Default**	**Format / Options**
Plant	Yes	IWERK	None	Multiple Selection
Maintenance Plan		WARPL	None	Multiple Selection
Maintenance Item		WAPOS	None	Multiple Selection
Order Type	Yes	AUART	None	Multiple Selection
Main Work Center		GEWRK (ARBPL)	None	Multiple Selection
Functional Location		TPLNR	None	Multiple Selection
Equipment		EQUNR	None	Multiple Selection

Characteristic	Yes	ATINN	None	Multiple Selection
Characteristic Value	Yes	ATWRT	None	Multiple Selection
Check from Date	Yes	SY-DATUM	System date	Single value
Check from Time	Yes	SY-UTIME	00:00:00	Single value
Test Run		NA	None	Check Box

The interface shall only get data based on the selection criteria, for example, for Order Type, the current selection criteria is only for “YA07” and in the future, other order type can be added. This means the interface shall dynamically pick-up the changes made in the selection parameter.

CMX Message type CREATE or CHANGE

Communication:

The Interfaces are realized following the Documentation “Business Bridge Configuration” provided by Beamex.

SAP Field Mapping and Logic

Note: Double Asterisk(**) initial criteria relevant to data transfer to CMX. Fields with Asterisk(*) are key fields in order to joined the table. Fields with red text are common field name to rename with extended name MI, MP, TL and SC, ST, FL, EQ as shown in the table below to identified which table they came from.

S. No.	Description	SAP Backend Table	SAP Field	SAP CDS Views or API/Entity	SAP Odata Field	Logic
						Get System ID (T30,Q30,P10,Q10…) from the API Odata Service url.
1	Maintenance Plan Status		'CREATE' or 'CHANGE'	C_MAINTENANCEITEMDEX C_MAINTENANCEPLANDEX I_FUNCTIONALLOCATION I_FUNCTIONALOCATIONLABEL I_EQUIPMENT I_CHANGEDOCUMENT I_CHANGEDOCUMENTITEM		**For create status:** Check UDATE and UTIME of Maintenance Plan (MPLAN Object) in the CDHDR table and when it is BLANK it means it is newly created plan. If true passed the data to CMX **For change status:** Check UDATE and UTIME of Maintenance Plan (MPLAN Object) in the CDHDR table and get all the latest change and when it there is a value greater than in the selection criteria "Check from Date / Check from Time" then check in the CDPOS for the table MMPT_CD in field names ZYKL1 and CD_ZYKL1_OFFSET_UNIT if has new value. This

						means there is a changes in cycle and cycle unit. If true passed the data to CMX If true Get Equipment, if Equipment = "no value" get Functional Location else get Equipment, Package cycle (in seconds) and Unit, convert the cycle value based on unit and round-off to whole number Else If true, Get Equipment, if Equipment = "no value" get Functional Location else get Equipment, Package cycle (in seconds) and Unit, convert the cycle value based on unit and round-off to whole number
2	Main Work Center	MPOS	GEWRK (ARBPL)	C_MAINTENANCEITEMDEX	MAINWORKCENTER	Get data
3	Maintenance Item	MPOS	WAPOS	C_MAINTENANCEITEMDEX	MAINTENANCEITEM	Get data

4	Maintenance Plan	MPOS MPLA	WARPL	C_MAINTENANCEITEMDEX C_MAINTENANCEPLANDEX	MAINTENANCEPLAN*	Join the table C_MAINTENANCEPLANDEX to the main table and match the field Maintenance Plan as the key field then get the data required.
5	Last Change DateTime in Maintenance Item (Short Time Stamp)	MPOS	TSTMP_BW	C_MAINTENANCEITEMDEX	LASTCHANGEDATETIMEMI	Extend the field name then get data
6	Maint. item text	MPOS	PSTXT	C_MAINTENANCEITEMDEX	MAINTENANCEITEMDESCRIPTION	Get data
7	Order Type	MPOS	AUART	C_MAINTENANCEITEMDEX	MAINTENANCEORDERTYPE**	**Selection Criteria:** MAINTENANCEORDERTYPE = YA07 (Based on the selection criteria selected on the program)
8	Maintenance Plant	MPOS	IWERK	C_MAINTENANCEITEMDEX	MAINTENANCEPLANT	**Get data**
9	CMX-relevant Functi	IFLOT AUSP	TPLNR ATINN	I_FunctionalLocation	FunctionalLocation	**Selection Criteria:** FunctionalLocation with

	onal Location			I_ClfnObjectCharcValueDEX	CLFNOBJECTID CHARACTERISTIC** CHARCVALUE**	CHARACTERISTIC** = INTERFACE with CHARCVALUE** = CMX (Based on the selection criteria selected on the program)
10	Functional Location	MPOS MPLA IFLOT	TPLNR OBJNR	C_MAINTENANCEITEMDEX I_FUNCTIONALLOCATION I_FUNCTIONALOCATIONLABEL	FUNCTIONALLOCATION* FUNCTIONALOCATIONLABLENAME MAINTOBJECTINTERNALIDFL	Join the table I_FUNCTIONALLOCATION and I_FUNCTIONALOCATIONLABLE to the main table and match the field FUNCTIONALLOCATION as the key field then get the data required. a. IF FUNCTIONALLOCATION have same value with FUNCTIONALOCATIONLABLENAME GET FUNCTIONALLOCATION value then concatenate with “MAINTOBJECTINTERNALID” value with underline (_) separator. Example: Y11-AHU-RMS-PDT412370 is to Y11-AHU-RMS-PDT412370

						Result: Y11-AHU-RMS-PDT412370_IF00000000000000000004 b. IF FUNCTIONALLOCATION have different value with FUNCTIONALOCATIONLABLENAME GET FUNCTIONALOCATIONLABLENAME value then concatenate with “MAINTOBJECTINTERNALID” value with underline (_) separator. Example: Y11-BF6-FCV361221 to Y11-BF6-FCV361221-ALTLABEL01234567890123 Result: Y11-BF6-FCV361221-ALTLABEL01234567890123_IF?0100000000000000001
11	CMX-relevant Equipment	EQUI AUSP	EQUNR ATINN	I_Equipment I_ClfnObjectCharcValueDEX	EQUIPMENT CLFNOBJECTID CHARACTERISTIC**	**Selection Criteria:** FunctionalLocation with CHARACTERISTIC** = INTERFACE with CHARCVALUE** = CMX (Based on the selection

					CHARCVALUE**	criteria selected on the program)
12	Equipment	MPOS MPLA EQUI	EQUNR OBJNR	C_MAINTENANCEITEMDEX I_EQUIPMENT	EQUIPMENT* MAINTOBJECTINTERNALIDEQ	Get data and concatenate EQUIPMENT_MAINTOBJINTERNALIDEQ (underline "_" as separator)
13	Created on in Maintenance Item	MPOS	ERSDT	C_MAINTENANCEITEMDEX	CREATIONDATEMI	Extend the field name then get data
14	Changed On in Maintenance Item	MPOS	AEDAT	C_MAINTENANCEITEMDEX	LASTCHANGEDATEMI	Extend the field name then get data
15	Changed By in Maintenance Item	MPOS	AENAM	C_MAINTENANCEITEMDEX	LASTCHANGEDBYUSERMI	Extend the field name then get data
16	Last Change DateTime in Maintenance Plan (Short Time Stamp)	MPLA	CHANGEDDATETIME	C_MAINTENANCEPLANDEX	LASTCHANGEDATETIMEMP	Extend the field name then get data

17	Maintenance PlanText	MPLA	WPTXT	C_MAINTENANCEPLANDEX	MAINTENANCEPLANDESC	Get data
18	Package cycle – Single Cycle	MMPT	ZYKL1	C_MAINTENANCEPLANDEX	MAINTPLANCYCRCRRCINTERVALQTY	Get data
19	Unit – Single Cycle	MMPT	ZEIEH / CD_ZYKL1_OFFSET_UNIT	C_MAINTENANCEPLANDEX	MAINTPLANCYCRCRRCINTERVALUNIT	Get data
20	Created On in Maintenance Plan	MPLA	ERSDT	C_MAINTENANCEPLANDEX	CREATIONDATEMP	Extend the field name then get data
21	Changed On In Maintenance Plan	MPLA	ERNAM	C_MAINTENANCEPLANDEX	LASTCHANGEDATEMP	Extend the field name then get data
22	Change By in Maintenance Plan	MPLA	AENAM	C_MAINTENANCEPLANDEX	LASTCHANGEDBYUSERMP	Extend the field name then get data
23	Change Docu	OBJECTCLAS	CDHDR	I_CHANGEDOCUMENT	CHANGEDOCOBJECTCLASS	To be used in the selection criteria.

	ment Object					CHANGEDOCOBJECTCLASS = MPLAN
24	Object Value	OBJECTID	CDHDR	I_CHANGEDOCUMENT	CHANGEDOCOBJECT	To be used in the selection criteria. Same value with Maintenance Plan.
25	Document Number	CHANGENR	CDHDR	I_CHANGEDOCUMENT	CHANGEDOCUMENT	To be used in the selection criteria
26	Date	UDATE	CDHDR	I_CHANGEDOCUMENT	CREATIONDATE	To be used in the selection criteria
27	Time	UTIME	CDHDR	I_CHANGEDOCUMENT	CREATIONTIME	To be used in the selection criteria
28	Table Name	TABNAME	CDPOS	I_CHANGEDOCUMENTITEM	DATABASETABLE	To be used in the selection criteria DATASETTABLE = MMPT_CD
29	Field Name	FNAME	CDPOS	I_CHANGEDOCUMENTITEM	CHANGEDOCDATABASETABLEFIELD	To be used in the selection criteria CHANGEDOCDATABASETABLEFIELD = ZYKL1 and CD_ZYKL1_OFFSET_UNIT
30	New Value	VALUE_NEW	CDPOS	I_CHANGEDOCUMENTITEM	CHANGEDOCNEWFIELDVALUE	To be used in the selection criteria

Note: Both Backend Tables and CDS Views can be viewed in Tcode SE16H.

CMX Fields and SAP Field Mapping

Only the fields below will be sent to CMX.

S. No.	CMX Fields	SAP Fields	Sample Value
1	MaintenancePlan_Order_ Status	Based on Logic	Create or Change
2	MaintenancePlan_FLoc_ Number	FUNCTIONALLOCATION_ MAINTOBJECTINTERNALID Or EQUIPMENT_ MAINTOBJECTINTERNALID	Y11_F6_SC21111_IF00000000000000000033 Or 10000119_ IE000000000010000119
3	MaintenancePlan_Cycle	MAINTPLANCYCRCRRCINTERVALQTY	3
4	MaintenancePlan_Unit	MAINTPLANCYCRCRRCINTERVALUNIT	MON
5	MaintenancePlan_Item_Description	MAINTENANCEITEMDESCRIPTION	6538 Test Data - CALIB SCALE 32KG 3M
6	System ID	SY-SYSID	T30, Q30, P10, Q10 etc.