SAPINSIDER SUMMITSERIES Finance & Innovation

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What You Need to Know About Material Ledger in SAP S/4HANA

Paul Ovigele
Founder, ERPfixers

Speaker Bio



Paul Ovigele has worked as an ERP financials consultant since 1997 in both North America and Europe, specializing in implementing the FI and CO modules along with their integrated areas for companies in various industries.

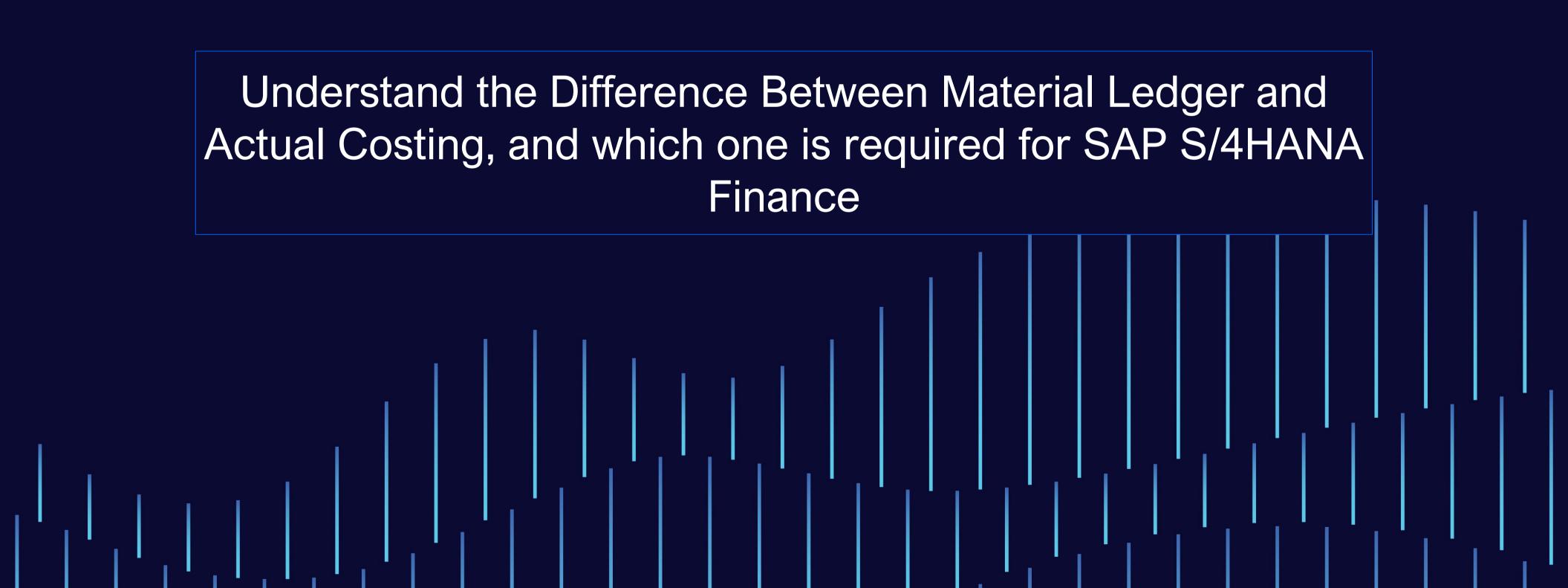
Paul speaks at numerous SAP conferences, offers strategic and functional-level trainings to companies, and is considered one the leading experts on Material Ledger. Paul is the author of:

- 100 Things You Should Know About Financial Accounting
- Reconciling CO-PA to the General Ledger
- Introducing the Material Ledger in S/4 HANA,
- Material Ledger in S/4HANA 1st & 2nd Edition



What We'll Cover

- Understand the Difference Between Material Ledger and Actual Costing, and which one is required for SAP S/4HANA Finance.
- Learn what to consider from a design perspective before transitioning to Material Ledger with SAP S/4HANA Finance.
- Discover the improvements that have been made to the Actual Costing closing cockpit.
- Analyze the significantly improved reporting that exists for Material ledger within SAP S/4HANA Finance.
- Learn the functionality of Material Ledger with Universal Parallel Accounting
- . Wrap-up



What is SAP Material Ledger

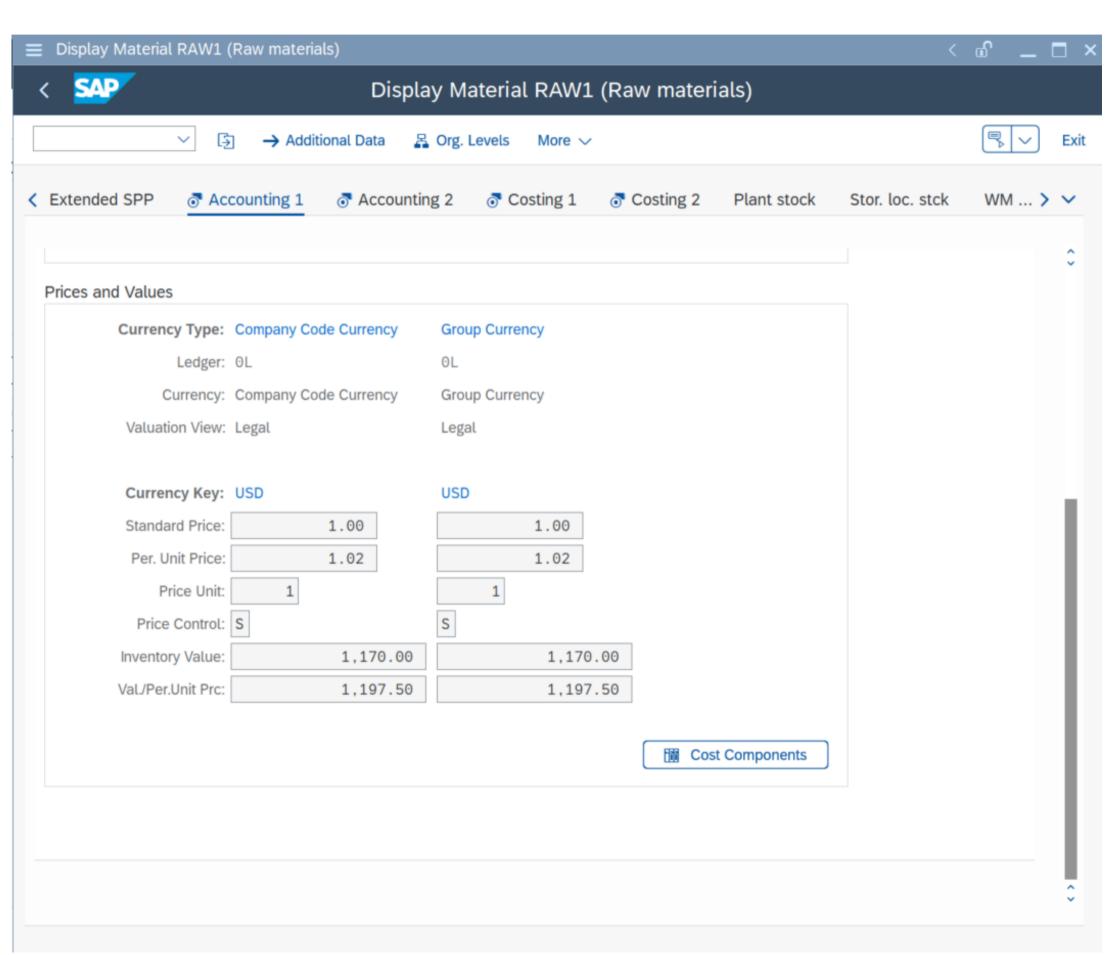
- Material Ledger is a set of tables that collects transaction data for materials in SAP. In essence, it is the subledger for inventory
- It allows you to store inventory in multiple valuation views and currency types
- It also allows you to valuate inventory at Actual Cost

Material Valuation & Related Tables	S/4 Material Ledger & Related Tables
MBEW/H – Material Valuation (H = History)	CKMLHD – Material Ledger: Header Record
OBEW/H – Valuated Stock with Subcontractor	CKMLCR – Material Ledger: Period Record
EBEW/H – Sales Order Stock Valuation	CKMLPR – Material Ledger: Prices
QBEW/H – Project Stock Valuation	CKMLPP – Material Ledger Period Total Records Qty
MSEG – Document Segment: Material	MATDOC – Material Documents
	ACDOCA – Universal Journal Entry Line Items
	MLDOC – Material Ledger Document
	MLDOCCS - Material Ledger Document Cost Component Split

Functionality – Actual Costing

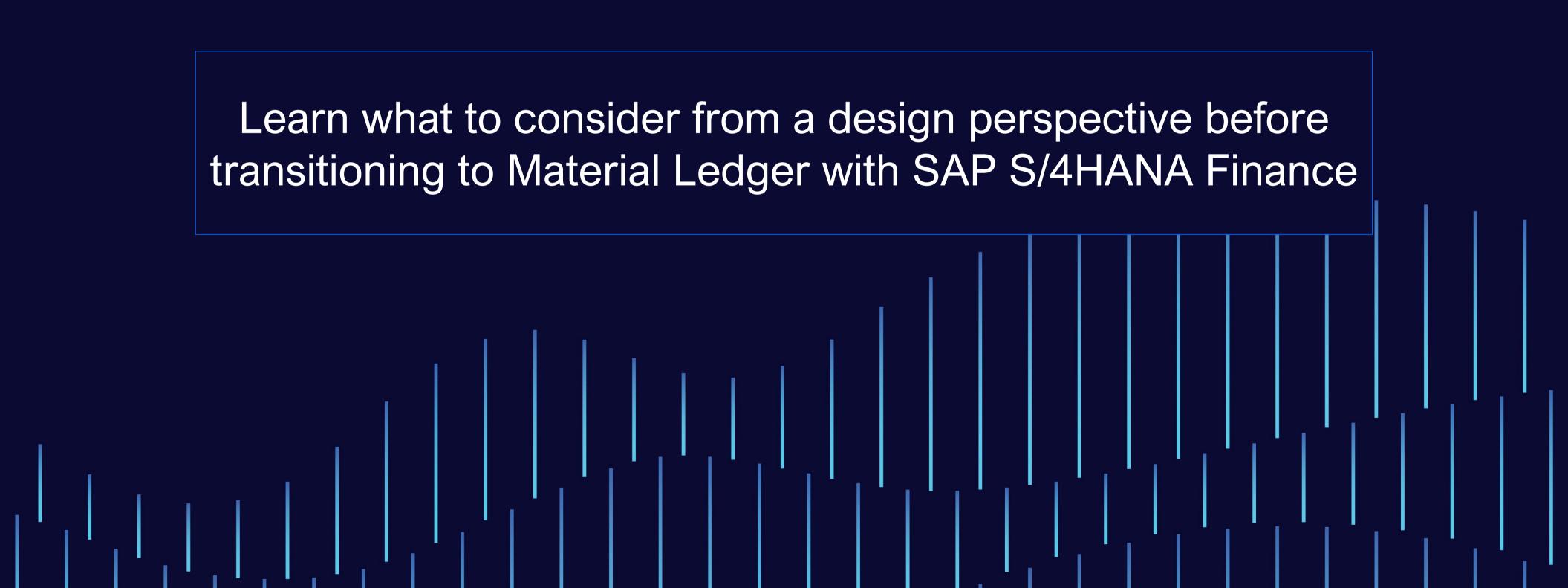
Actual Costing (optional)

- SAP valuates all goods movements within a period at the standard price. At the same time, all price and exchange rate differences for a material are collected in the material ledger.
- At the end of the period, in actual costing the price and exchange rate differences are used to calculate an actual average price for the period (periodic unit price).

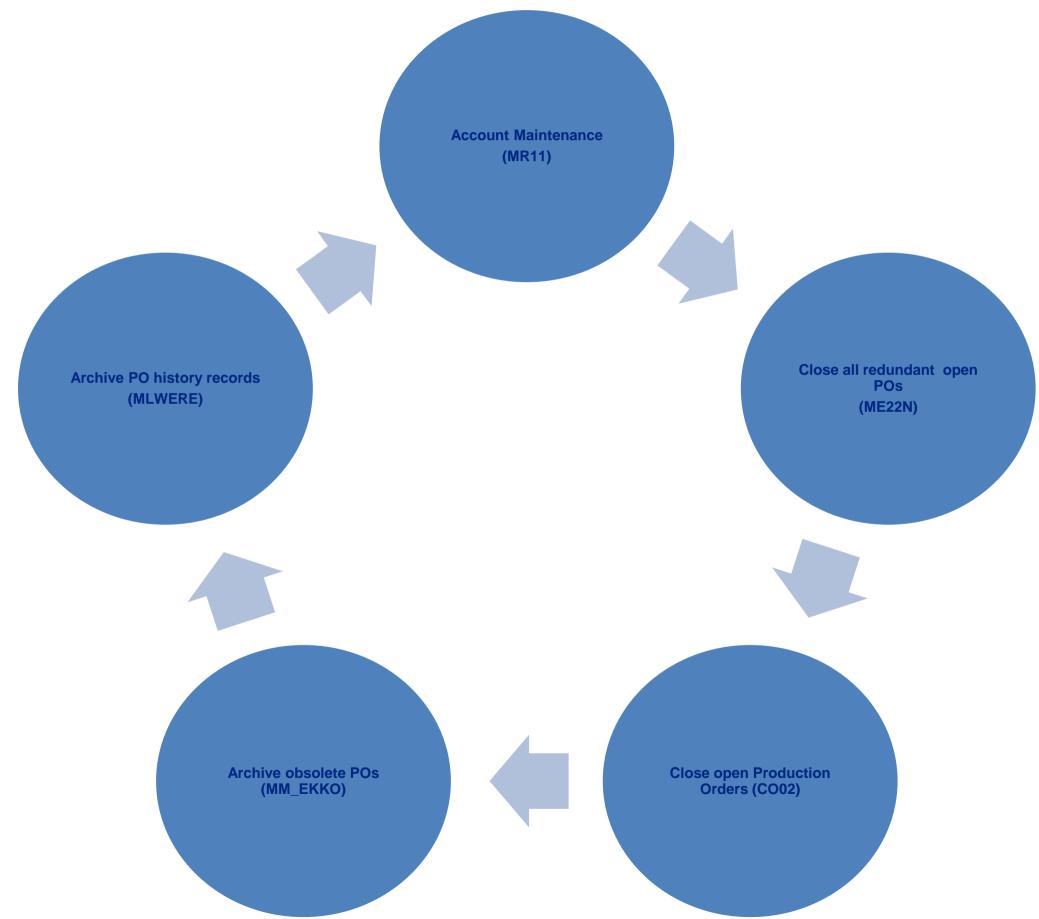


Advantages of Material Ledger Actual Costing

- Accurate Profitability Analysis More precise picture of cost of goods sold and margins by product.
- Closer alignment with financial reporting requirements Actual costing values are closer to true cost. Adjustments to
 valuation to comply with US GAAP or other regulatory standards should no longer be required.
- Inventory Valuation More accurate valuation of inventory. Variances are incorporated in the valuation in the period they are incurred and rolled to the related higher-level materials/products as consumed.
- Inventory related calculations Working capital and Inventory turnover calculations based upon these inventory valuations are more accurate.
- Automation of financial processes Less reliance on manual calculations for inventory valuation adjustments.



Reducing Existing Data Volumes



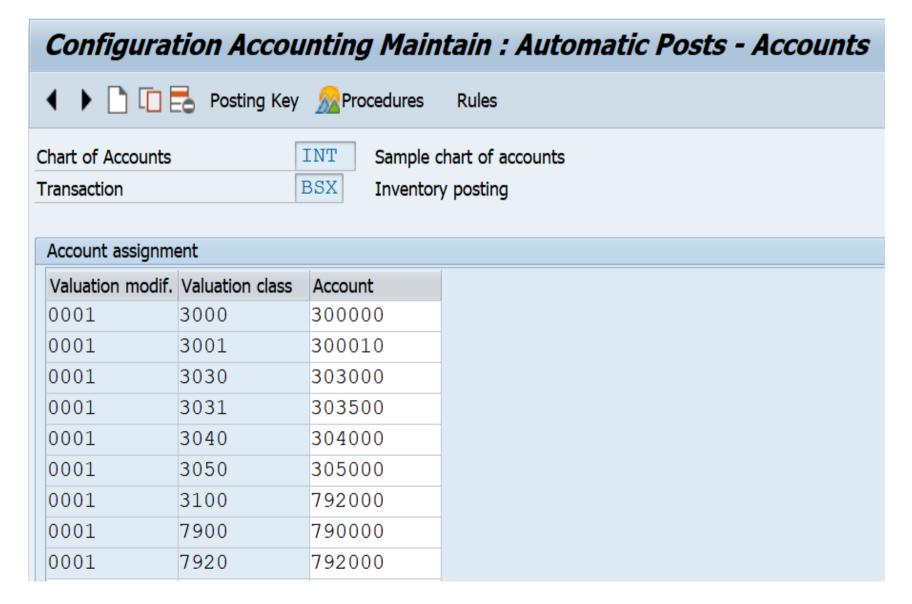
Update Exchange Rates

- Make sure that the exchange rates between the company code Local and Parallel currencies are updated
- Failing to do so may lead to issues with the conversion program

Chan	Change View "Currency Exchange Rates": Overview									
6⅔ New	Entries []									
ExRt	ValidFrom	Indir.quot	X	Ratio(from)	From	=	Dir.quot.	X	Ratio (to)	То
M	03/08/2015	15.45750	X		1 MXN	=	·	X		1USD
M	03/01/2015	15.27120	X		1 MXN	=		X		1USD
M	02/22/2015	14.97610	X		1 MXN	=		X		1USD
M	02/15/2015	15.00610	X		1 MXN	=		X		1USD
M	02/08/2015	14.91790	X		1 MXN	=		X		1USD
M	02/01/2015	14.80680	X		1 MXN	=		X		1USD
M	01/25/2015	14.84950	X		1 MXN	=		X		1USD
M	01/18/2015	14.64070	X		1MXN	=		X		1USD
M	01/11/2015	14.64780	X		1 MXN	=		X		1USD
M	01/04/2015	14.64090	X		1 MXN	=		X		1USD
M	12/28/2014	14.78920	X		1 MXN	=		X		1USD
M	12/21/2014	14.70970	X		1 MXN	=		X		1USD

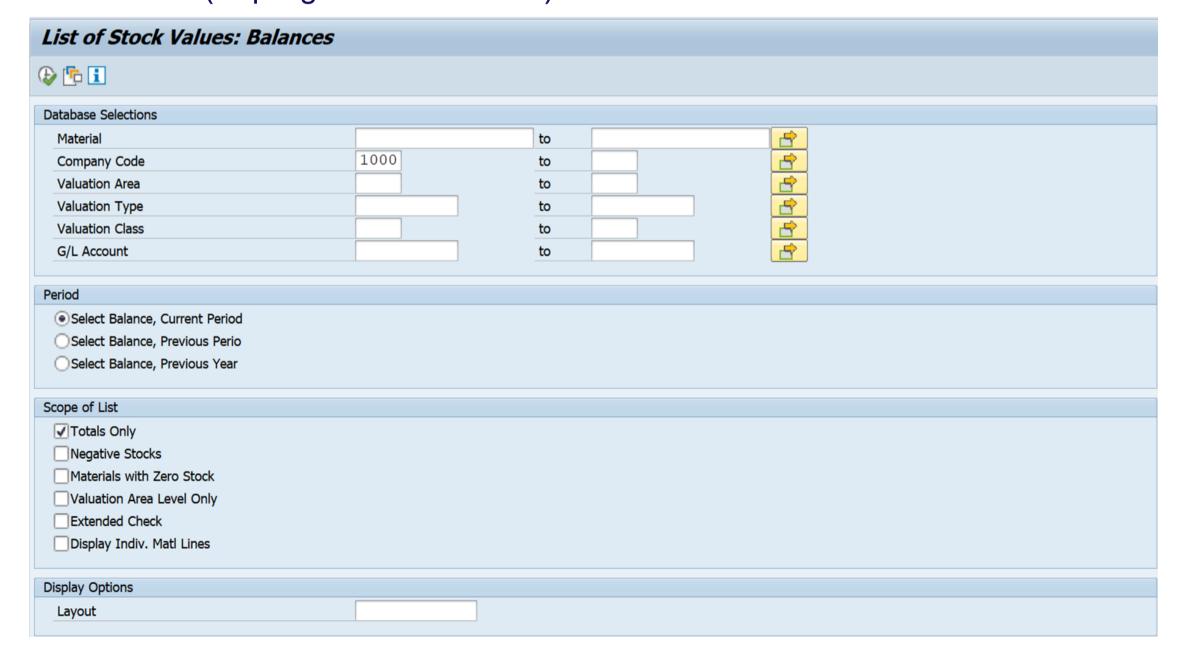
MM-FI Integration OBYC

- Make sure that there are no missing General Ledger accounts in the Account determination between FI and MM (transaction OBYC)
- For example, an account that exists for a Valuation Class that has not been used, may not have been set up



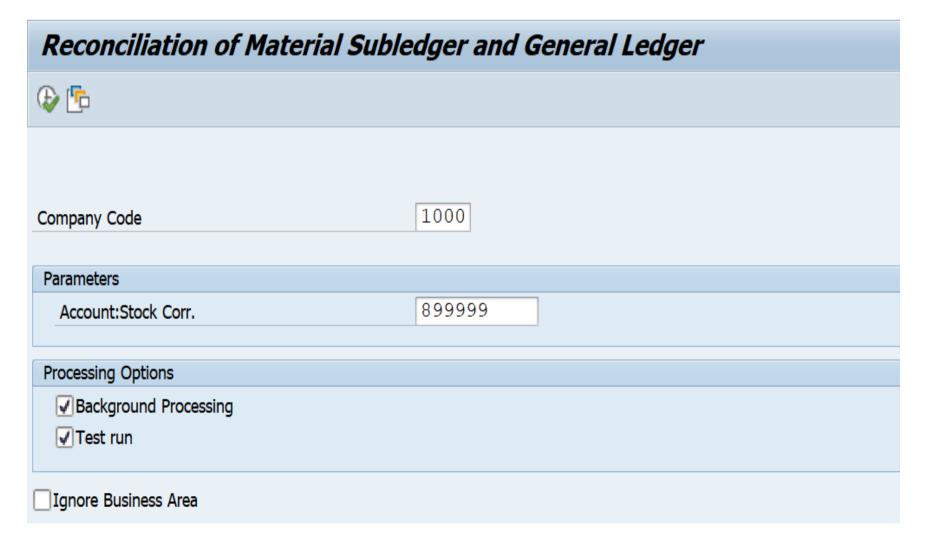
MM-FI Balance Reconciliation

 Before running the Material Ledger conversion program, ensure that the Inventory balances in FI and MM are reconciled by using transaction MB5L (or program RM07MMFI)



Reconciliation of Inventory Balances cont.

- If you plan to have parallel currencies in Material Ledger, the conversion program reconciles the first local currency to the second and third local currencies
- Transaction CKMADJUST (or FAGL_ML_ADJUST if you have New G/L) is used to reconcile these Currency Type



Preparations and Migration of Customizing for General Ledger

- There are two Data Preparation activities that need to be completed before you start the process for converting to Material Ledger
- The first is the "Preparations and Migration of Customizing for General Ledger"
- Preparations and Migration of Customizing · B Check Customizing Settings Prior to Migration • Define Message Types for Posting Before and During Migration Set Number of Jobs for Activities in Mass Data Framework Preparations and Migration of Customizing for General Ledger · Check and Adopt Fiscal Year Variants • Define Currency Settings for Migration · B Migrate General Ledger Customizing • Define Settings for Ledgers and Currency Types · 🗟 🗘 Review the Assignment of Ledger and Company Code to Acc.-Principles • Define Ledger for CO Version • Define Document Types for Postings in Controlling · Define Document Type Mapping for CO Business Transactions · 🗟 🗘 Check and Define Default Values for Postings in Controlling · Define Offsetting Account Determination Type • Define Source Ledger for Migration of Balances

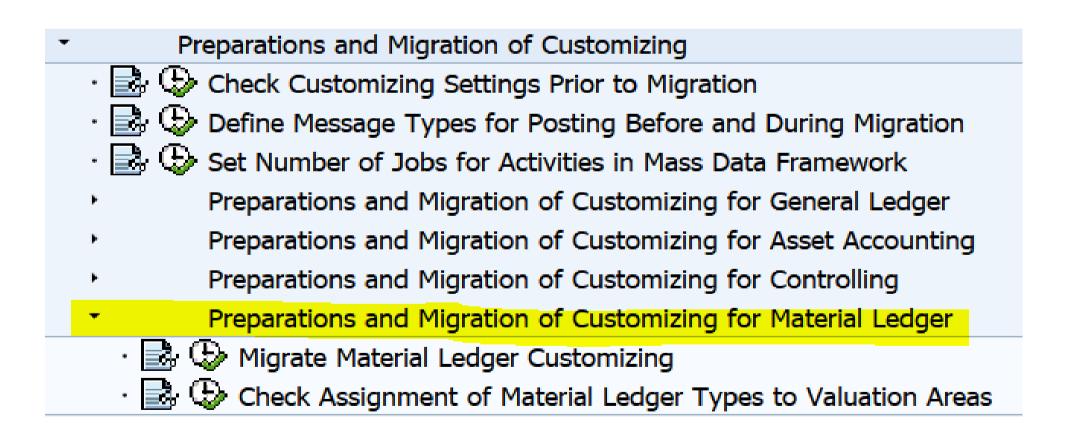
· 🗟 🗘 Check and Define Settings for Substitution for Cost-of-Sales Accounting

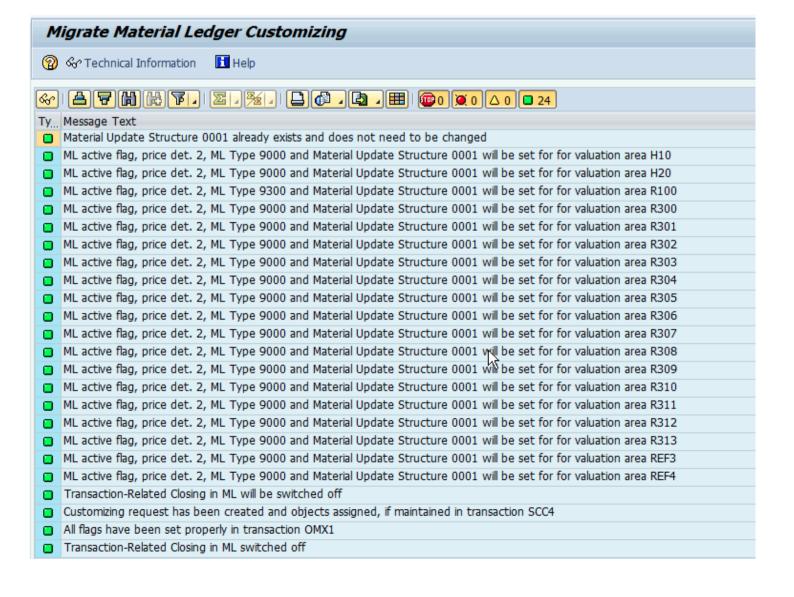
· B Check and Define Settings of Controlling Area

• Execute Consistency Check of General Ledger Settings

Preparing Migration of Customizing for Material Ledger

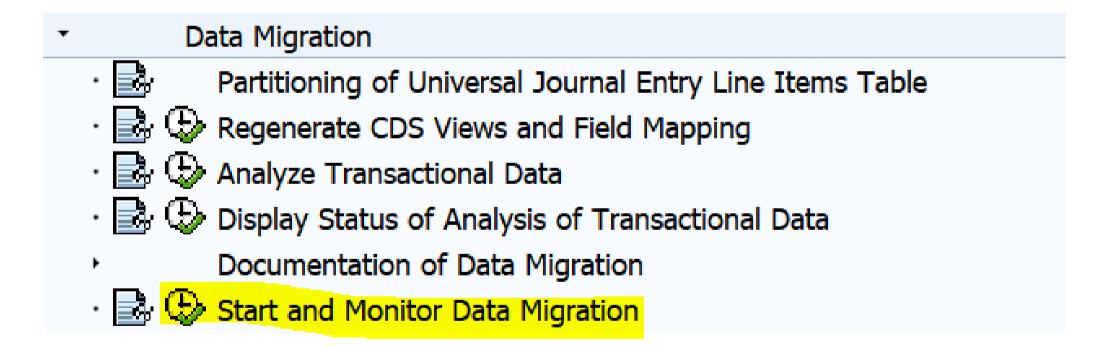
• The second step is the "Preparations and Migration of Customizing for Material Ledger"





Preparing Migration of Customizing for Material Ledger

• Once these preparation activities are completed, then you can run the steps to Start and Monitor the Data Migration



M10: Migrate Material Ledger Master Data

- This activity populates data in the Material Ledger tables CKMLHD, CKMLPR, CKMLPP and CKMLCR in all Material Ledger currencies, from the last period of the previous year to the current period and activates Material Ledger in all Valuation Areas (Plants).
- Also, all the data in the Inventory Valuation tables xBEW(H) and Material Ledger tables CKMLPP and CKMLCR (if you already use Material Ledger) are migrated into the universal journal entry tables ACDOCA and ACDOCA_M_EXTRACT, from the last period of the previous year to the current period.

Other Migration Steps

- M11: Migrate Material Ledger Order History:
 - This activity converts all existing purchase order history tables (EKBE, EKBEH, EKBZ, EKBZH) and production order history tables (MLAUFCR and MLAUFCRH) into the Material ledger currencies.
- M20: Check Material Ledger Master Data:
 - This activity checks and verifies the migrated data by comparing values from the inventory and material ledger tables with the Universal Journal table ACDOCA.
- M21: Check ML Production Order and Purchase Order History:
 - This activity verifies that all production and purchase order history records have been converted into the material ledger currencies.

Change Price Indicator in the Material Master

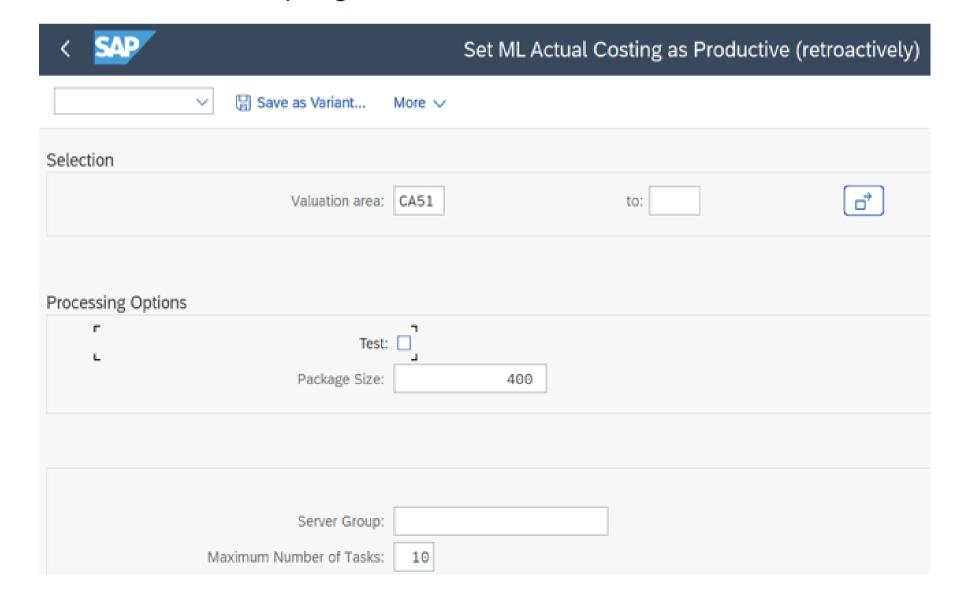
• If you plan to use Actual Costing, you will need to change the Price Determination from "2" to "3" by running transaction

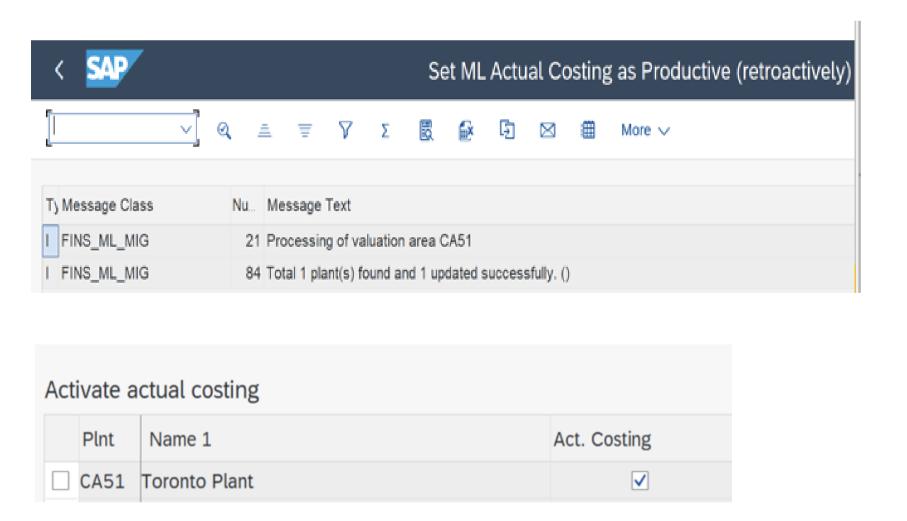
CKMM

Change Material Price Determination for Material Legder			
(
Material		to	
Plant	1000	to	-
Valuation Type		to	-
Sales Document		to	4444
Item (SD)			
WBS Element		to	
Material Type		to	
Material Group			
Valuation Class		to	
Valuation Category		to	-
Price Control	S	to	<u> </u>
Restrict Material Stock			
Stock Material	•		
Special Stock	0		
Program Definitions			
Old Price Determination	2		
New Price Determination	3		
New Price Control	S		

Activating Actual Costing Retroactively

- To activate actual costing after moving to SAP S/4HANA:
 - Activate Actual Costing for the relevant plant(s)
 - Execute program FCML4H_STARTUP

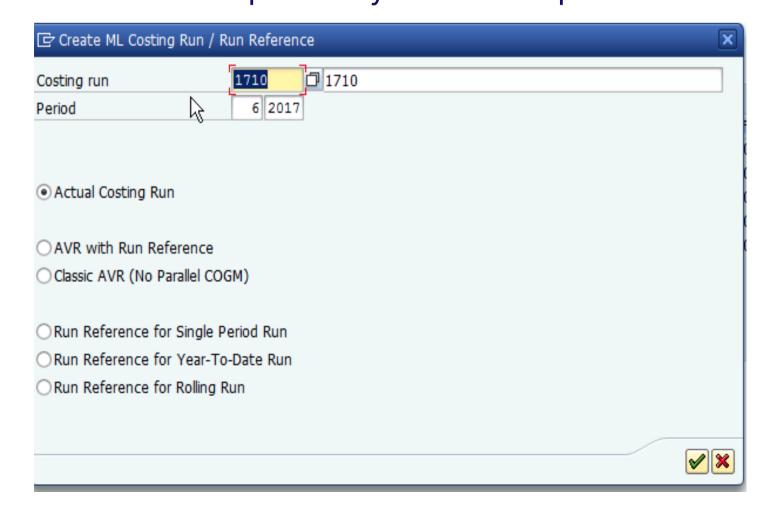


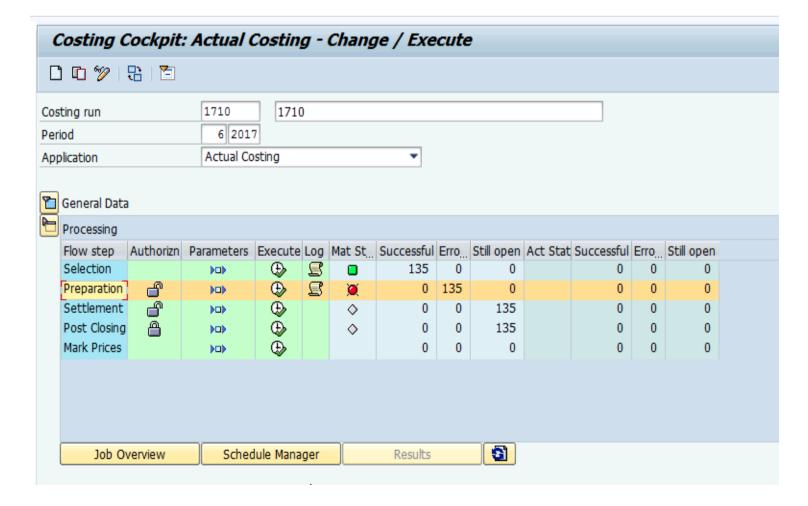




Additional Features with SAP S/4HANA

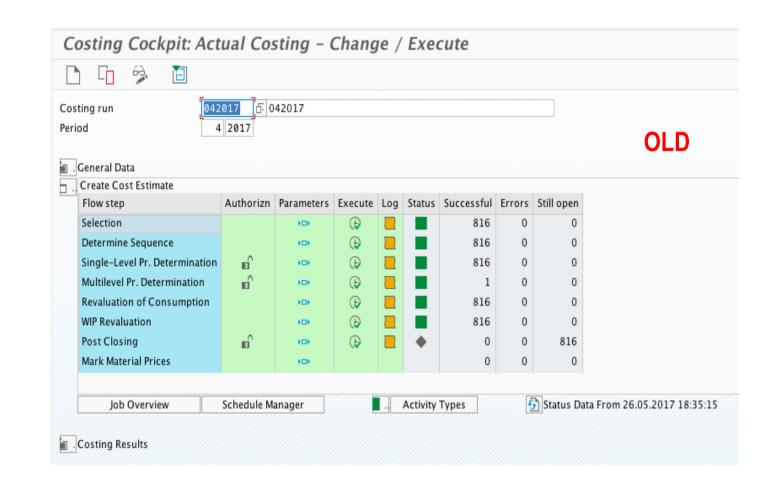
- CKMLCP
 - Same transaction for actual closing and AVR, instead of CKMLCP and CKMLCPAVR
 - New process called preparation
 - Single Level Price Determination, Multilevel Price Determination, Revaluation of Consumption and WIP Revaluation have been replaced by the new step settlement

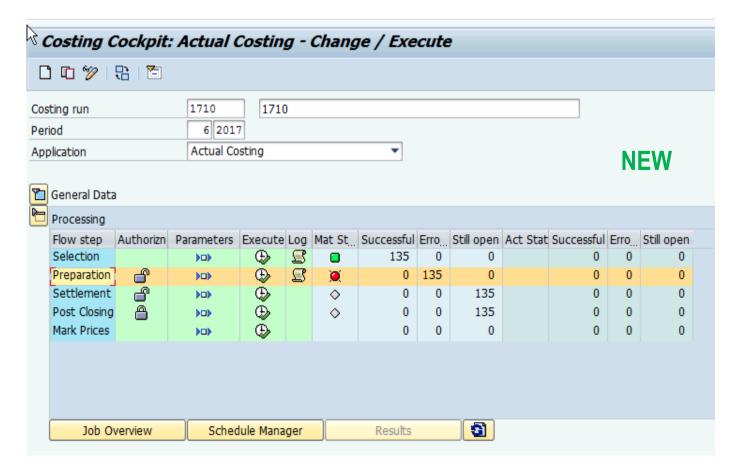




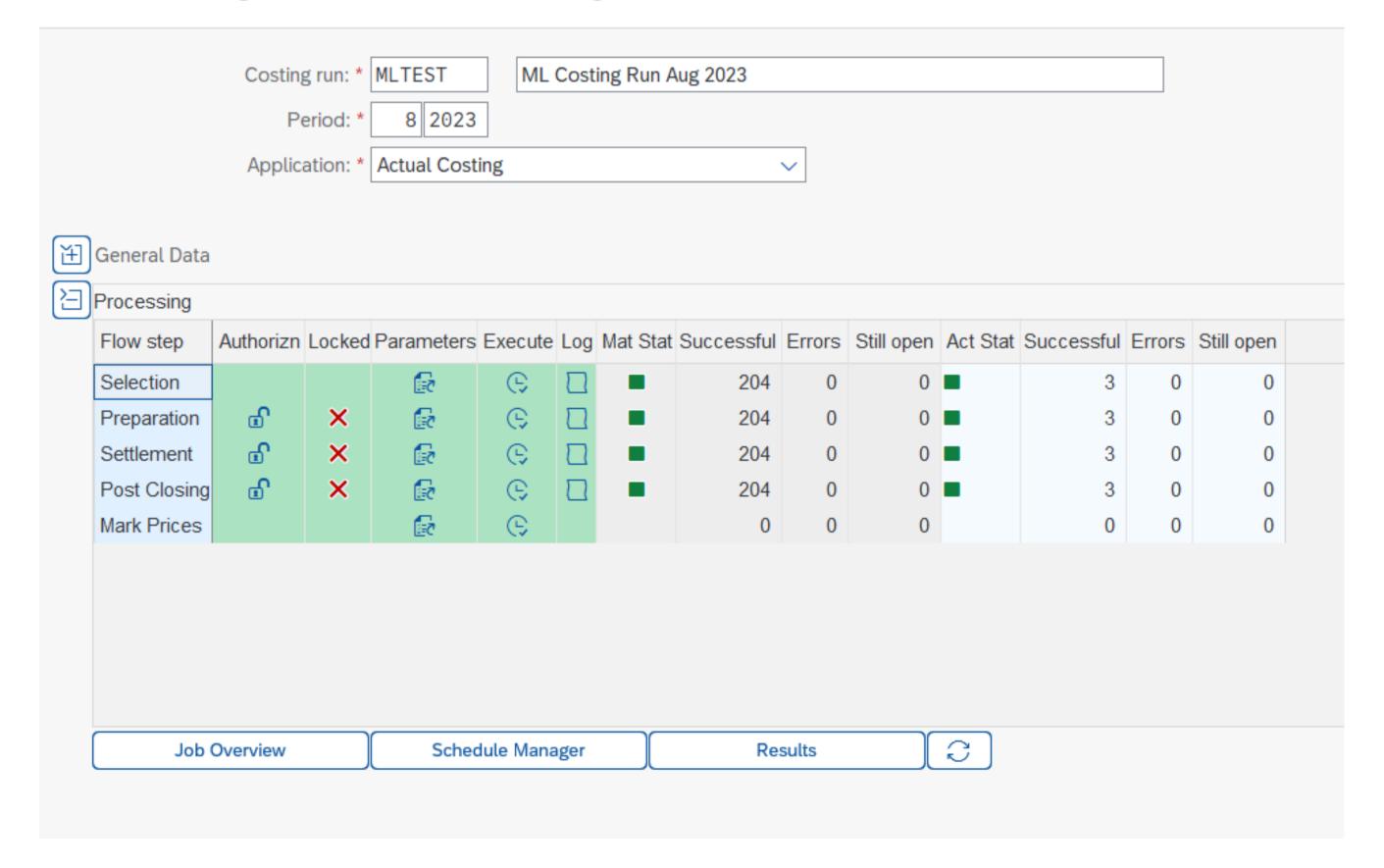
Additional Features with SAP S/4HANA (cont.)

- CKMLCP
 - Selection (program FCML4H_SELECTION)
 - Preparation (program FCML4H_PREPROCESSOR)
 - Settlement (program FCML4H_SETTLEMENot)
 - Post Closing (program FCML4H_POST_CLOSING)
- Does Not distinguish anymore between single and multilevel price difference in accounting
 - PRV and KDV are obsolete
 - AUI must be without valuation class
 - New Key PRL





Actual Costing Run – Costing Cockpit



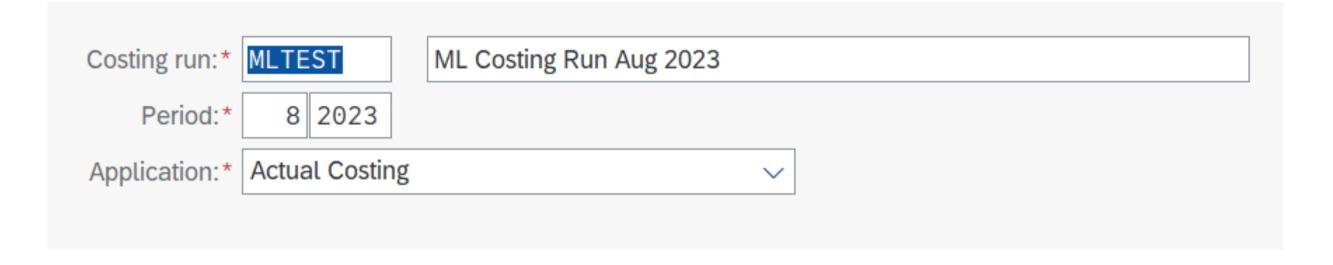
Preparation Steps

- Ensure all goods movements are completed for the period
- Verify all price variances are posted for the period
 - Including Production Variances, Purchase Price Variances and Exchange Rate Variances
- Adjust variance accounts as needed using MR22
- Calculate and/or update actual activity prices
- Open the New Period

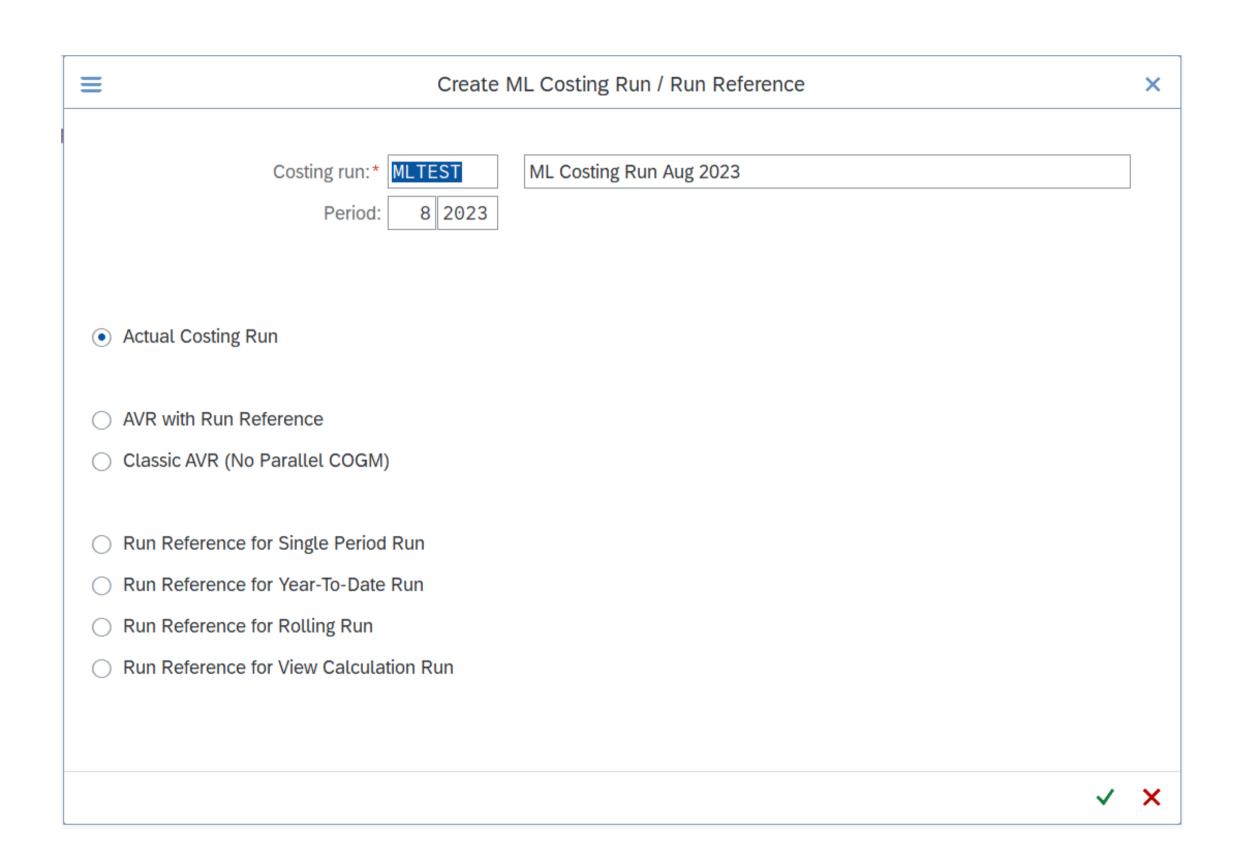
T-Code: CKMLCP for S/4 Version 1610 and higher

Enter the following:

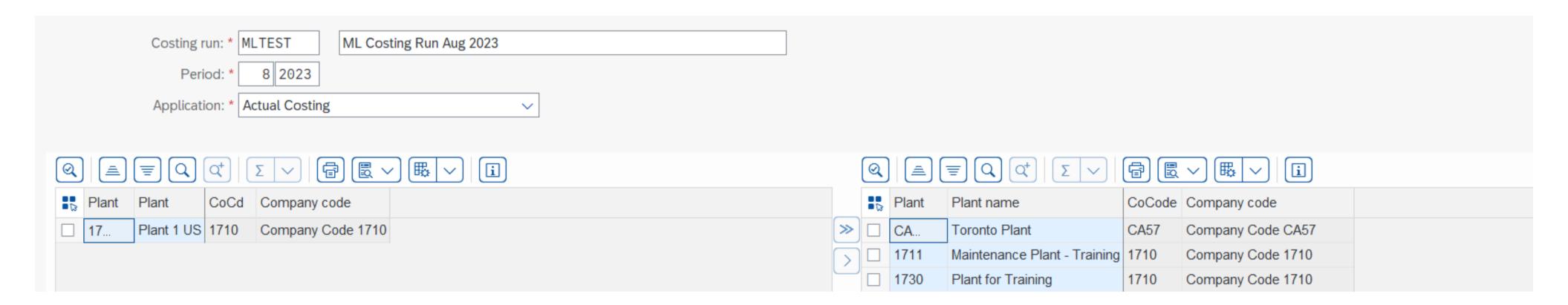
- Costing Run Name
- Period
- "Actual Costing Run"



Create Run



Create Run – Assign Plants



- Update Selection Variant
- Execute Selection Step

Costing Run	
Costing run: Posting period:	
Fiscal Year: Application:	
Processing Options	
Background Processing:	✓
Save Log:	
Parallel Processing	
Server Group: Maximum Number of Tasks:	

- Update Preparation Variant
- Execute Preparation Step

Do not process	Process Again
Processing Options	
Backgrou	und Processing: 🗸
	Save Log: ✓
Parallel Processing	
	Server Group:
Maximum Nu	umber of Tasks:
rocess only selected Materials	s/Activities
** Process	selected Materials / no Activities
* Process	selected Activities / no Materials
Status Check for Previous Perio	od
Allow Open Status for Provis	ous Period (Exceptional Processing -> F1)

- Update Settlement Variant
- Execute Settlement Step

Treating Materials/Activities Already Processed
Do not process Process Again
Stock Coverage Check
No Stock Coverage Check:
Automatic Error Management
✓ Negative Price: Alternative Price Strategy
✓ No Convergence with Cycle: Cut Critical Connections
Processing Options
Background Processing: ✓
Save Log: ✓
Parallel Processing
Server Group:
Maximum Number of Tasks:
Process only selected Materials/Activities
Process selected Materials / no Activities
Process selected Activities / no Materials

- Update Post Closing Variant
- Execute Post Closing Step

Processing type	
Execute	○ Reverse
Parameters	
Revaluate Material	
Revaluate Consumption	
Set CO Account Assignment	
Processing Options	
Background Processing	
Test Run	
Save Log	
No. of Materials in ML Doc.	
Parallel Processing	
Server Group	
Maximum Number of Tasks	
Process only selected Materials/Activities	
Process selected Mate	rials / no Activities
Process selected Activi	ities / no Materials

Optional

- Update Mark Prices Variant
- Execute Mark Prices Step

Validity of marking	
Manual Date	
Beginning of Following Period	
Processing options	
Background Processing:	
Save Log:	✓
Parallel Processing	
Server Group:	
Maximum Number of Tasks:	
P_PKSIZE:	250

Material Ledger Helpdesk

Prior to S/4HANA 1610

- SAP Note 364368 Material Ledger help desk
- CKMHELP

From SAP S/4HANA 1610

- 2433733 ML Helpdesk tool in SAP S/4HANA
- Require password or debug access to change mode in execution
- FCMLHELP

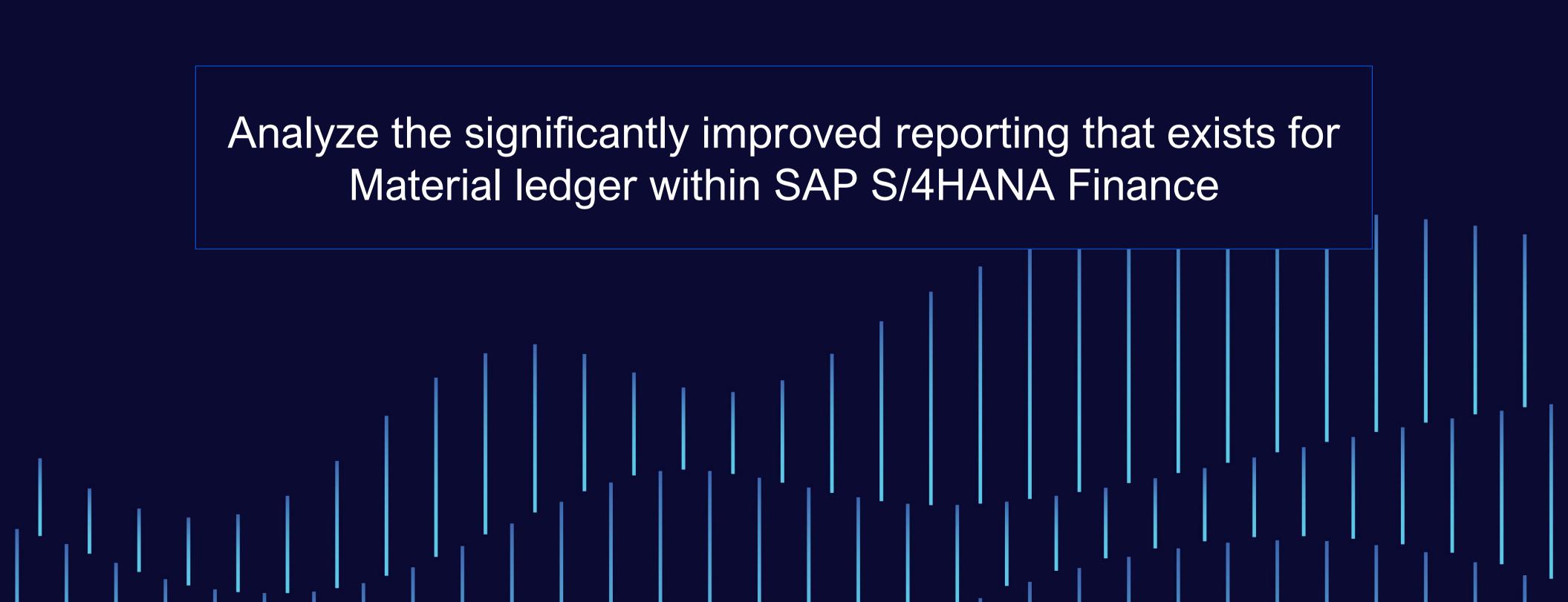
Material Ledger Helpdesk (cont.)

ML HelpDesk Version 1.9 (R/3 Enterprise,	MySAP ERP 2004/2005/2005s)
(3)	
Material Ledger Overview	
HelpDesk for transaction data	
HelpDesk for master data	OLD
HelpDesk for actual cost component split	OLD
O HelpDesk for miscellaneous	
HelpDesk for purchase order history	
HelpDesk for balance sheet valuation	
O HelpDesk for Alternative Valuation Run	
HelpDesk for Distribution Of Usage Variances (DUV)	
O HelpDesk for Deleting ML Documents	
Administration	

delpDesk for master data	
ecks and correction of master data database	
MLHELP_MLMASTER_CREATE	Create ML-header and ML-period data
MLHELP_MBEW_CONSISTENCY	Checks Consistency Customizing-MBEW
MLHELP_SAPRCKMU (CKMC)	Checks Consistency between Material Master and Material Ledger
MLHELP_SET_MEINS_WAERS	Set ckmlpp-meins and ckmlcr-waers
MLHELP_AUFK_ML_ORDER_CONNECT	Creates data records/links for order connection between ML and AUFK
MLHELP_CHECK_MULTIPLE_CKMLHD	Remove multiple CKMLHD records of a material (and corresponding CKMLxx)
MLHELP_REPAIR_TABLES	Repairs CKMLPR/CKMLPP/CKMLCR Material Ledger tables
eriod status	
MLHELP_SET_PP_STATUS	Change period status
MLHELP_SET_PP_STATUS_70	Change period status to '70'
MLHELP_RESET_PP_STATUS	Reset period status to '10'
splay of master data database	
ML_DISPLAY_TABLES	Technical view of ML master data and period totals
ONE_MAT_MBEW_ML_COMPARISON	Comparison of material master valuation record with ML data
ML_DISPLAY_ACTIVITY	Technical view of ML activity type/ buss. proc. master and period data
t of data base views	
MLHELP_MLMASTER	Join: CKMLHD x CKMLPR x CKMLPP x CKMLCR
MLHELP_ML_MBEW	Join: MBEW with CKMLHD/CKMLPP/CKMLPR/CKMLCR
MLHELP_ML_MARA_C	Join: MARA/MARC with CKMLHD/CKMLPP/CKMLPR/CKMLCR
MLHELP_CCS_PRICE	Join: CKMLHD/CKMLCR with CKMLPRKEKO/CKMLPRKEPH
MLHELP_MLCD_CCS	Join: CKMLHD with MLCD/CKMLKEPH

Material Ledger HelpDesk	
Φ	
● Mate	
○ HelpDesk for transaction data	
OHelpDesk for master data	
OHelpDesk for actual cost component split	:
OHelpDesk for miscellaneous	
OHelpdesk for Production Orders	NEW
OHelpDesk for purchase order history	
OHelpDesk for balance sheet valuation	
OHelpDesk for Alternative Valuation Run	
OHelpDesk for Distribution Of Usage Varian	ices (DUV)
OHelpDesk for WIP	
OHelpDesk for Deleting ML Documents	
○ Administration	

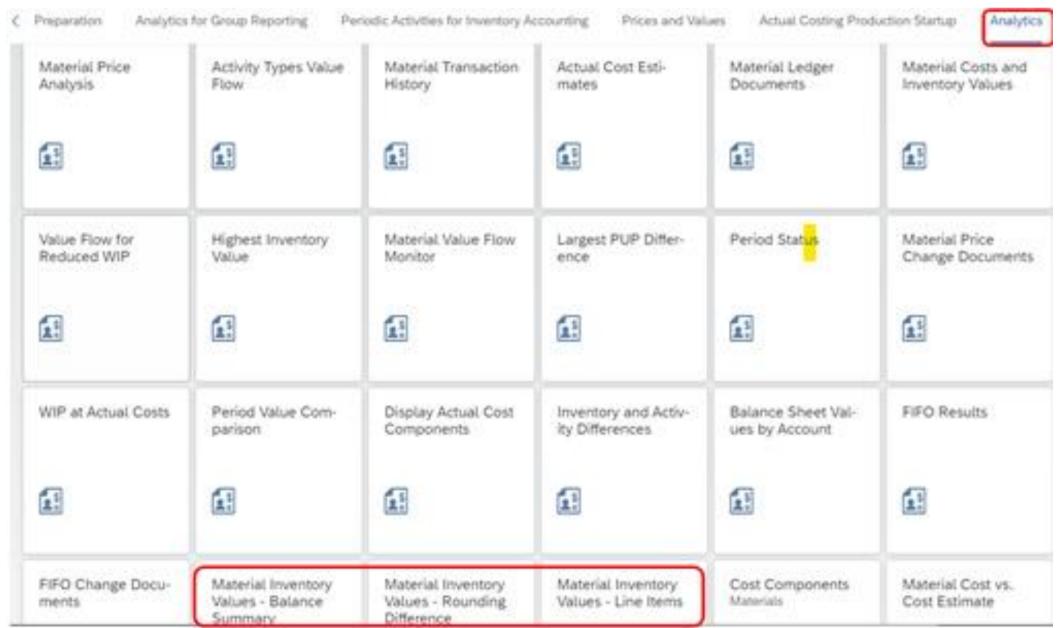
HelpDesk for master data	
(b)	
checks and correction of master data database	¬
FCMLHELP_MLMASTER_CREATE	Create ML-header and ML-period data
○ FCMLHELP_MBEW_CONSISTENCY	Checks Consistency Customizing-MBEW
○ FCMLHELP_SAPRCKMU (CKMC)	Checks Consistency between Material Master and Material Ledger
○ FCMLHELP_SET_MEINS_WAERS	Set ckmlpp-meins and ckmlcr-waers
○ FCMLHELP_AUFK_ML_ORDER_CONNECT	Creates data records/links for order connection between ML and AUFK
OFCMLHELP_CHECK_MULTIPLE_CKMLHD	Remove multiple CKMLHD records of a material (and corresponding CKMLxx)
OFCMLHELP_REPAIR_TABLES	Repairs CKMLPR/CKMLPP/CKMLCR Material Ledger tables
OFCMLHELP_SHIFT_ML_PERIOD	Shift ML period
period status	
OFCMLHELP_SET_PP_STATUS	Change period status
OFCMLHELP_RESET_PP_STATUS	Reset period status to '10'
display of master data database	
OML_DISPLAY_TABLES	Technical view of ML master data and period totals
ONE_MAT_MBEW_ML_COMPARISON	Comparison of material master valuation record with ML data
OML_DISPLAY_ACTIVITY	Technical view of ML activity type/ buss. proc. master and period data
list of data base views	
○ FCMLHELP_MLMASTER	Join: CKMLHD x CKMLPR x CKMLPP x CKMLCR
○ FCMLHELP_ML_MBEW	Join: MBEW with CKMLHD/CKMLPP/CKMLPR/CKMLCR
○FCMLHELP_ML_MARA_C	Join: MARA/MARC with CKMLHD/CKMLPP/CKMLPR/CKMLCR
O FOMULEUR COC RRICE	Toins CVMLUD/CVMLCD with CVMLDDVEVO/CVMLDDVEDU



Material Ledger Fiori Apps

There are several SAP Fiori apps that allow you to analyze Material Ledger inventory values such as:

- Material Inventory Values Balance Summary
- Material Inventory Values Rounding Differences
- Material Inventory Values Line Items



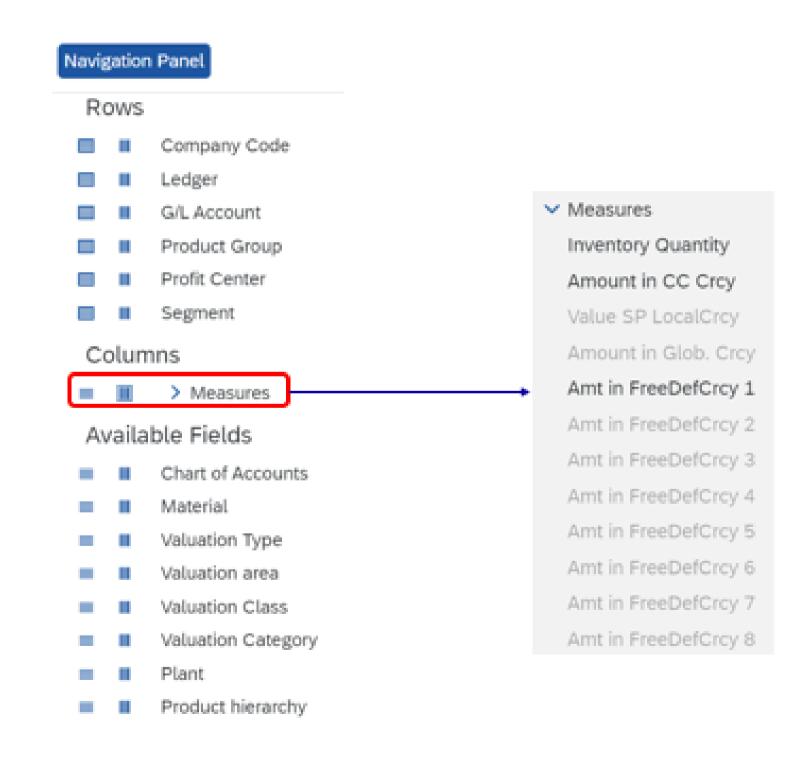
Material Inventory Values

The report shows the inventory quantity and amount in the company code currency (Amount in CC...) and the freely defined currencies 1 (Amt in FreeDefCrcy1)

Company Code	Ledger	G/L Account 🗈	Product Group ≜	Profit Center 🚊	Segment	Inventory Quantity	Amount in CC	Amt in FreeDefCrcy 1
		YCOA/113112	CHAIR	AJ00/#	#	5 KG	5.00 EUR	\$ 6.00
DE00	OL	YCOA/13100000	01	AJ00/DE00PC1	#	20 PC	400.00 EUR	\$ 480.00
			L002	AJ00/DE00PC1	GBA1	*	1,407,770.00	\$ 272,790.00
					JER_MAI	1,000 PC	21,260.00 EUR	\$ 25,510.00
					SEG.9	-1 KG	-100.00 EUR	\$ -125.00
					Z9999	*	438,600.00 EUR	\$ -1,750.00
					ZAB1	*	2,615,880.00	\$ 2,068,315.00
					#	*	957,660.00 EUR	\$ 69,715.00
				AJ00/DE00PC2	#	10 KG	1,000.00 EUR	\$ 1,250.00

Reporting Dimensions and Measures

Additional Dimensions (Fields) and Measures (Key Figures) can be added to the report by navigating the left-hand panel



Displaying the Balances Report with Material and Valuation Area Dimensions Added

By adding the Material and Valuation Area dimensions by dragging and dropping them from the DIMENSIONS section to the ROWS section. The report will now looks as shown

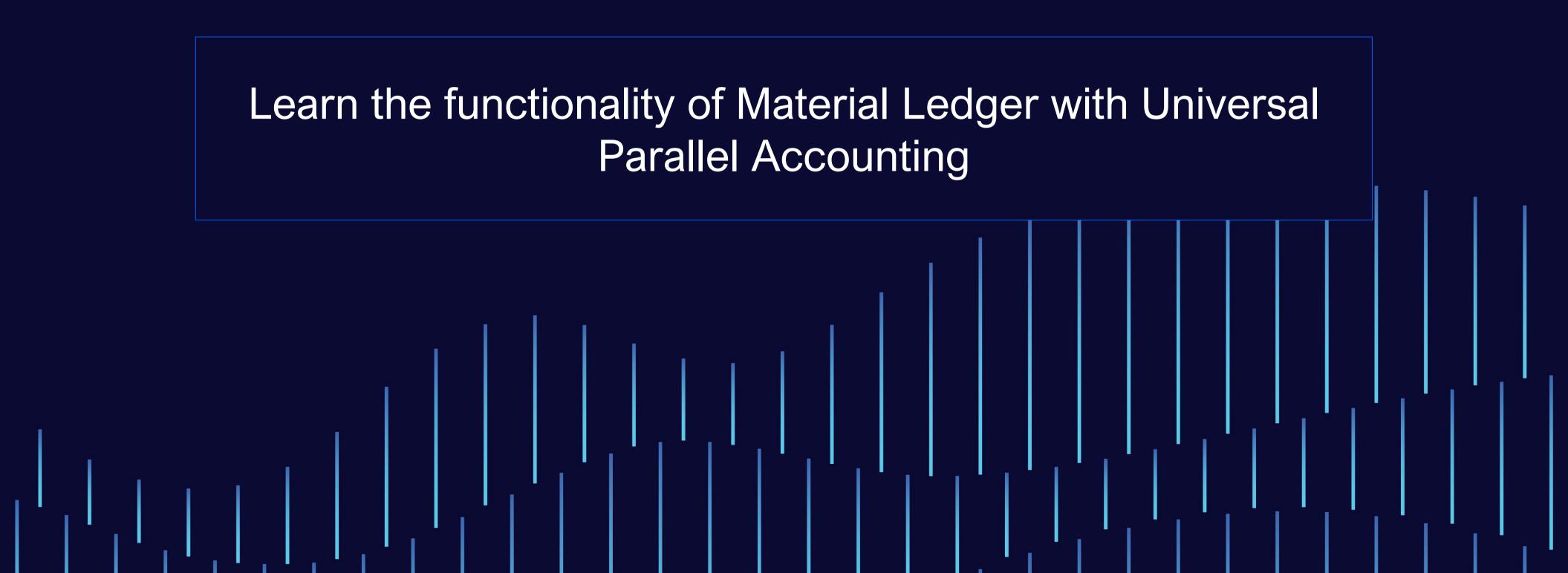
Profit Center	Segment	Material	Valuation area	Inventory Quantity	Amount in CC Crcy	Amt in FreeDefCrcy 1
AJ00/#	#	1813	DE01	5 KG	5.00 EUR	\$ 6.00
AJ00/DE00PC1	#	70000352	DE01	20 PC	400,00 EUR	\$ 480.00
AJ00/DE00PC1		DEMO_RM1	DE01	1,180 KG	1,180,000.00 EUR	\$ 0.00
	GBA1	RM_PLASTIC1	DE01	1 KG	100.00 EUR	\$ 120.00
	GBAI	RM_PLASTIC2	DE01	15 KG	2,670.00 EUR	\$ 2,670.00
		TYRE_1	DE01	150 PC	225,000.00 EUR	\$ 270,000.00
	JER_MAN	1192	1707	1,000 PC	21,260.00 EUR	\$ 25,510.00
	SEG.9	1871	DE01	-1 KG	-100,00 EUR	\$ -125.00
		1869	DE01	10 KG	1 000 00 FUR	\$ 1 250 00

Downloading Report to Microsoft Excel

You can display the report Microsoft Excel by clicking the Export to Microsoft Excel button in the top-right part of the screen, as shown



1	2	3	4	5	6	7	8	9	10	11	
21 Company Code	Ledger	G/L Account	Product Group	Profit Center	Segment	Material		Valuation area	Inventory Quantity	Amount in CC Crcy	
22 DE00	DE00 OL	YCOA/113112	CHAIR	AJ00/#	#	1813	test	DE01	5 KG	5.00 EUR	
3		YCOA/1310000	001	AJ00/DE00PC1	tt .	70000352	raw material	DE01	20 PC	400.00 EUR	
24			L002	AJ00/DE00PC1	JER_MAN SEG.9	DEMO_RM1	DEMO Raw Material 1	DE01	1,180 KG	1,180,000.00 EUR	
25						RM_PLASTIC1	DEMO Raw Material 1	DE01	1 KG	100.00 EUR	
26						RM_PLASTIC2	Raw Material plastic 2	DE01	15 KG	2,670.00 EUR	
27						TYRE_1	Tyre_RM1	DE01	150 PC	225,000.00 EUR	
28						1192	ROH 18	1707	1,000 PC	21,260.00 EUR	
29						1871	Repetitive Manufacturing ROH	DE01	-1 KG	-100.00 EUR	
30					Z9999	1869	Repeatative Manufacturing ROH	DE01	10 KG	1,000.00 EUR	
31						1871	Repetitive Manufacturing ROH	DE01	26 KG	2,600.00 EUR	
32						70000355	Repeatative Manufacturing ROH	DE01	-50 KG	-5,000.00 EUR	
33						MOBILE_BATTER	MOBILE_BATTER_DC	DE01	44.000 EA	88,000.00 EUR	
34						MOBILE_BODY	MOBILE_BODY_DC	DE01	44.000 EA	220,000.00 EUR	
35						MOBILE_SCREEN	MOBILE_SCREEN_DC	DE01	44.000 EA	132,000.00 EUR	
36							ZAB1	70000291	Test - ROH	DE01	73 KG



Universal Parallel Accounting



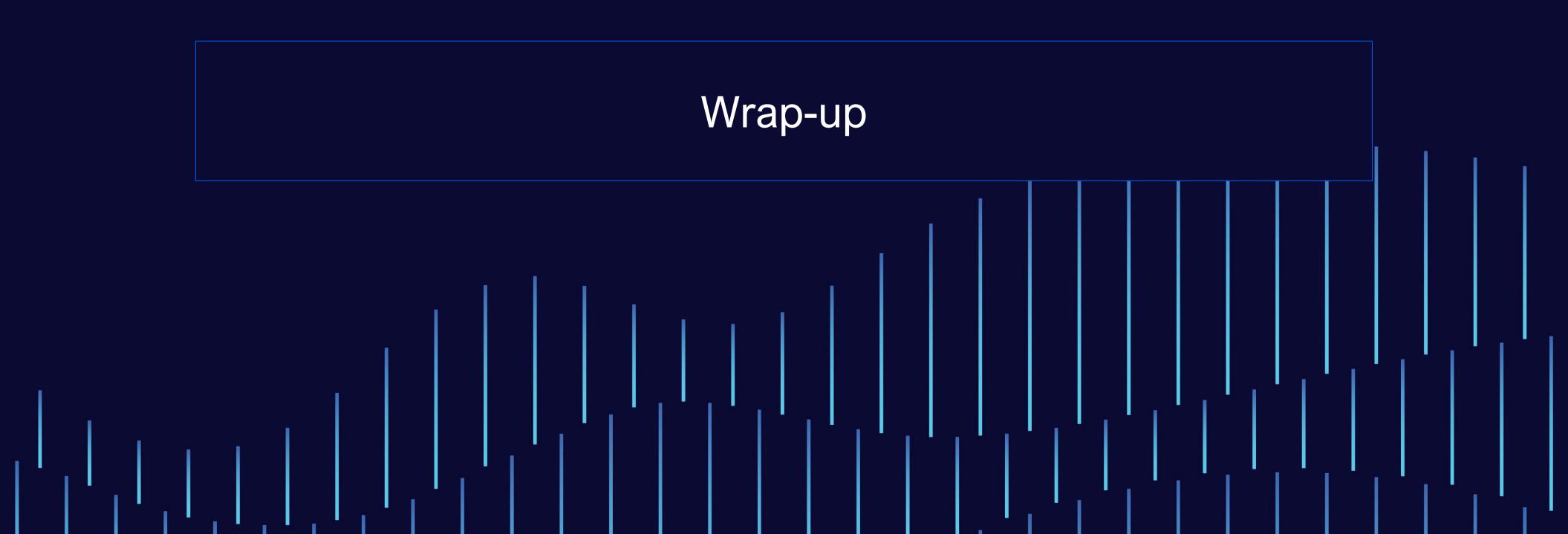
 New SAP features that allows end-to-end view of parallel accounting across different functions such as Asset Accounting, Overhead Accounting, Inventory Accounting and Product Cost Accounting.

Functionality

- Allows separate Valuation Views (Legal and Group) per Ledger (i.e., Single Valuation Ledger approach)
- Uses same Accounting Principle for Leading Ledger (for Legal Valuation) and Parallel Ledger (in Group Valuation)
- Consolidated View (in Group Valuation) eliminates intercompany revenue and COGS as well as intercompany profit in inventory (Advanced Intercompany Sales process)

Limitations

- Only available for greenfield implementations. Migration programs still being developed
- Only available in S/4HANA Cloud (from 2105) and S/4HANA 2022



Your comprehensive guide to the Material Ledger in SAP S/4HANA!

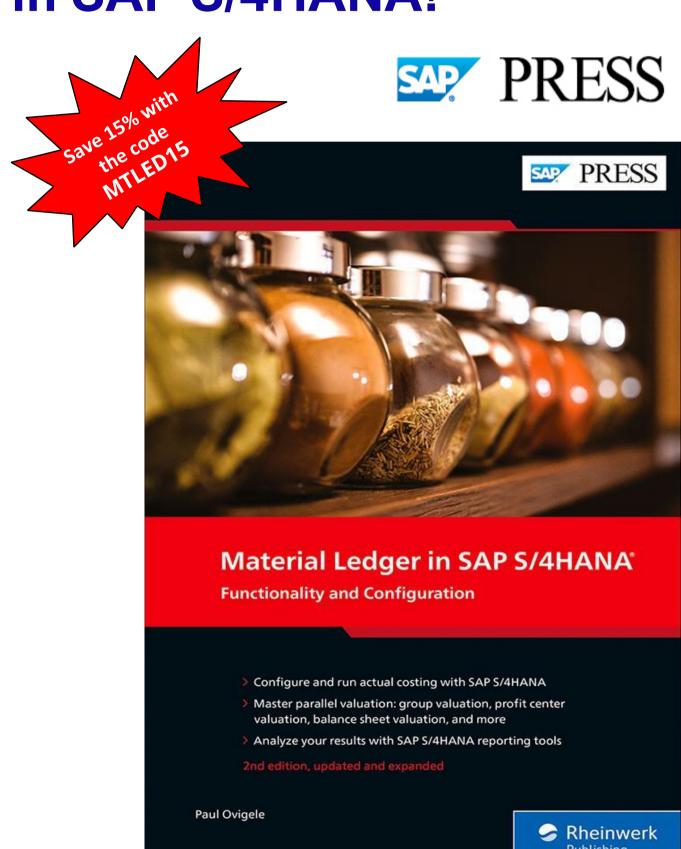
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Where to Find More Information

- ERPfixers Blog Series
 - https://www.erpfixers.com/blog-series
 - Bi-weekly blogs on various SAP S/4HANA topics
- ERPfixers Ask a Fixer Webcasts
 - https://www.erpfixers.com/ask-a-fixer-webcast
 - Monthly webcasts on various SAP topics including Universal Allocation

Key Points to Take Home

- Material Ledger is a subledger for inventory that collects transaction data for materials in SAP tables.
- Close all redundant Purchase and Production Orders to help reduce runtime of conversion program.
- Several Steps in the Actual Costing Cockpit have been replaced with one step called "Settlement".
- There are several SAP Fiori apps that allow you to analyze Material Ledger inventory values.
- Universal Parallel Accounting allows an end-to-end view of parallel accounting across different functions.

Thank you! Any questions?

Paul Ovigele

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