



Simplified Master Data in SAP EWM With S/4 Hana- (SAP EWM 9.5 Migration to S/4 Hana)

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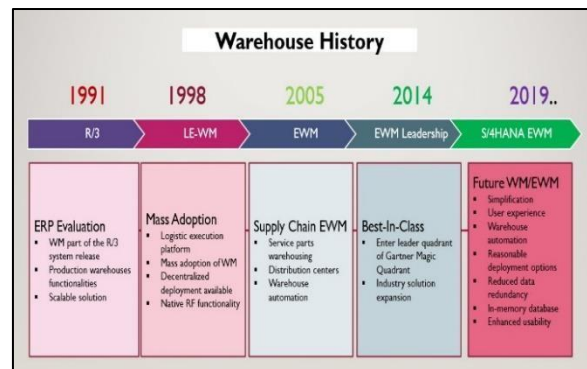
Abstract:

At present, most SAP Extended Warehouse Management (EWM) implementations operate either as an Add-On to SAP NetWeaver or on the SAP SCM Server. The introduction of decentralized SAP EWM on the SAP S/4HANA Platform has elevated the migration to SAP EWM on SAP S/4HANA to a key priority for existing SAP EWM customers. Nevertheless, transitioning to SAP EWM on SAP S/4HANA presents notable challenges, as it involves a greenfield migration rather than a conventional upgrade. This paper delves into the replacement of interfaces for master data transfer, the abandonment of legacy database tables and transactions, and the subsequent adoption of standard S/4HANA database tables and transactions. Additionally, we explore the impact of these changes on business users

Keywords: SAP EWM, S/4 Hana, Master Data, CIF, ALE Ido

1. Introduction

SAP Extended Warehouse Management (EWM) serves as a robust solution for the effective management of warehouse inventory and facilitates the streamlined processing of goods movement. This system empowers companies to exert control over both inbound and outbound warehouse processes, ensuring the seamless flow of goods within the warehouse. SAP EWM plays a pivotal role in orchestrating all goods movements through a warehouse management system, providing comprehensive tools for monitoring warehouse activities.



Beyond basic inventory control, SAP EWM encompasses a range of additional warehouse functions, including the creation of serial numbers, batch numbers, vendor management inventory, resource optimization, and value-added services. This system not only monitors the quantity of goods within the warehouse but also efficiently manages critical functions, ultimately enhancing the delivery of goods. The image below illustrates the evolution of Warehouse Management in SAP since the R/3 era.

Since its introduction by SAP in 2005, Extended Warehouse Management has offered various deployment options. Initially decentralized and based on SCM Business Suite, SAP now allows users to deploy EWM either embedded within the S/4HANA enterprise management solution or in a decentralized manner on a separate instance connected to S/4HANA or SAP ERP Central Component (ECC). Decentralized EWM offers integration with multiple SAP Enterprise Resource Planning (ERP) systems at single or multiple locations, providing flexibility for independent upgrades and the addition of functionality outside SAP's predetermined roadmap. For

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warehouses operating around the clock, 365 days a year, with high-volume operations reaching hundreds of thousands of units per day, decentralized EWM emerges as the preferred choice. Its ability to sustain warehouse operations even during ERP system downtime contributes to its appeal for such demanding environments.

II. Literature

A. Current Decentral EWM applications are predominantly constructed on either the NetWeaver or SCM stack, utilizing various databases. The novel Decentral EWM shares similarities with existing EWM applications but is distinguished by its foundation on the S/4HANA platform with an underlying HANA database. In its initial release, the Decentral EWM on S/4HANA operates within the framework of S/4HANA Enterprise Management 1809 FPS02, with exclusive focus on the EWM application at the client level, deactivating components beyond EWM. The initiation of Decentral EWM on S/4HANA involves leveraging EWM functionalities akin to those of embedded EWM. SAP envisions achieving feature parity with the traditional Decentral EWM (on the current NetWeaver or SCM stack). Notable features, such as the Quality Inspection Engine (QIE) absent in embedded EWM, are anticipated to be incorporated into Decentral EWM in future releases. Conversely, some features present in embedded EWM, including the Reuse of LE delivery number, ERP storage location transparency, new/enhanced Fiori apps, and change logs for storage

bins, will be accessible in Decentral EWM on S/4HANA but are absent in the classic Decentral EWM [2].

B. The Core Interface (CIF) will not play a role in material and batch transfer in Decentral EWM on S/4HANA. Instead, the ALE/IDOC interface will be employed for the transfer of master data from ERP. However, the queued RFC (Remote Function Call), utilized in the classic Decentral EWM, will persist for the bidirectional transfer of transaction objects in Decentral EWM on S/4HANA. As part of SAP's current roadmap, all future developments for Decentral EWM will be centered on the version integrated with S/4HANA. Consequently, the classic Decentral EWM on NetWeaver or SCM stack is slated to reach its end-of-life in December 2025, as per SAP's current planning [2].

III. Master Data Transfer to SAP EWM with S/4 HANA from SAP ERP

The process of master data transfer from SAP ERP to the new decentralized EWM on S/4HANA exhibits notable differences, as depicted in the image below. In the current or classic decentralized EWM on the NetWeaver or SCM stack, master data, including materials, customers, and vendors, is transmitted through the Core Interface (CIF). However, for the decentralized EWM on S/4HANA, a shift is observed wherein ALE/IDOC or web service mechanisms are utilized for the transfer of materials, batches, customers, vendors, etc. It's important to note that the CIF is retained for the transfer of Packaging Instruction [3].

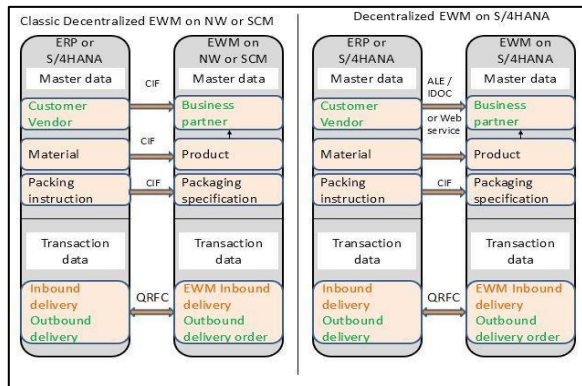


Image Source [3]

EWM with S/4 HANA introduces a streamlined approach to master data, particularly for Customers, Vendors, Articles, Batches, etc. This involves transitioning from the CIF interface to the ALE IDoc interface or potentially a web service in the future. This alteration provides increased flexibility, allowing users to selectively choose which fields are copied to the decentralized EWM on S/4HANA. ALE facilitates field-level control of master data, exemplified by determining which fields are subject to distribution and specifying which field changes trigger the resend/update of master data through a controlled distribution model. Even with Customer Vendor Integration (CVI) in SAP ERP, the transfer of customer and vendor data to decentralized EWM via ALE is based on the customer and vendor master data, not the business partner master data. For data distribution of customers, vendors, carriers, and addresses, an alternative option is to use DFR, replicating the business partner instead of customer/vendor separately. This becomes advantageous when CVI is used, and the business partner is the leading object. Configuration adjustments, such as reducing message types through transaction BD53, can be made, allowing for selective fields. In this transition, certain CIF interfaces like

/SAPAPO/CIF_BSG_BP,
 /SAPAPO/CIF_ENHANCE_BP,
 /SAPAPO/CIF_ENHANCE_ERRHDL,
 SMOD_APOCF038,
 /SAPAPO/DM_MATLOC,
 SMOD_APOCF005,
 /SAPAPO/CIF_ENHANCE_ERRHDL,
 /SAPAPO/CIF_ENHANCE_BATCH,
 /SAPAPO/CIF_ENHANCE_ERRHDL,

SMOD_APOCF31,
 SMOD_APOCF32,
 SMOD_APOCF035, and SMOD_APOCF036

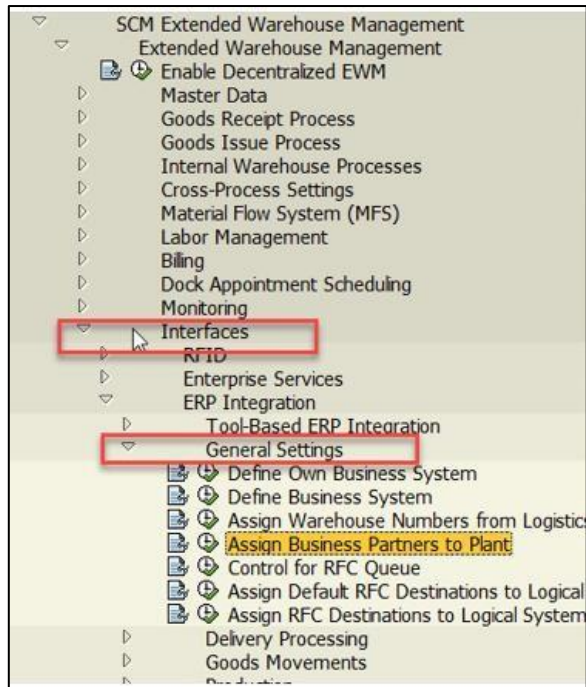
need to be replaced with equivalent ALE Interface (IDoc) message types. This shift ensures a seamless transition in master data transfer mechanisms, aligning with the updated architecture of the decentralized EWM on S/4HANA [4].

Type of IDOC for initial migration and change pointer to be managed post go live			
	Standard	T Code for initial mass Idoc	Change pointer ONLY post go live
Characteristics	CHRMAS	BD91	BD21
Classes	CLSMAS	BD92	BD21
Article master	MATMAS	BD10	BD21
Address	ADRMAS	-	-
Vendor master	CREMAS	BD14	BD21
Customer master	DEBMAS	BD12	BD21
Batch	BATMAS	BD90	-

IV. Display and Change Access to Master Data in EWM with S/4HANA.

In the context of simplified master data in EWM S/4HANA, customer and vendor data are accessed through the Business Partner (BP) transaction (transaction BP). EWM with S/4HANA has the capability to utilize standard SAP ERP transactions (e.g., KD03, XK03) and tables (e.g., KNA1, LFA1) for customers and vendors. It's noteworthy that the DB table BUT0ID (additional identifiers) is no longer utilized in the SAP S/4HANA stack. In contrast to EWM on the NetWeaver stack, where IDTYPE CRM010, etc., were used for storing external keys of customers and vendors, the SAP S/4HANA stack employs Customer Vendor Integration (CVI) link tables to assign a system internal customer/vendor to a Business Partner. Despite the shift, customers and vendors are still created in SAP S/4HANA within the same ERP tables (KNA1 for customers and LFA1 for vendors), alongside the BP table BUT000. Therefore, it is essential to align the number ranges for customers/vendors and business partners for grouping

in the EWM IMG. For EWM on the NetWeaver stack, BP assignment to a plant was accomplished using DB BUT0ID IDTYPE 'CRM011.' However, with the discontinuation of the BUT0ID table in the SAP S/4HANA stack, a dedicated DB table /SCWM/TMAPPLANT is now used (DB View - /SCWM/VTMAPPLANT) [4]. Spro IMG path to view this table (see below image)

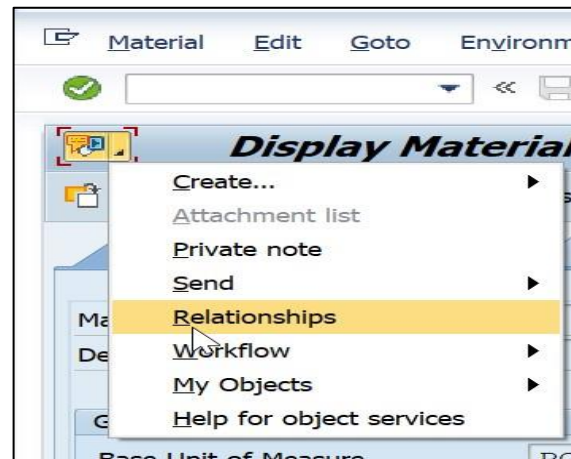


Product master data is accessed through transactions such as /SCWM/MAT1 (editable mode) and /SAPAPO/MAT1 (display mode). EWM with S/4HANA provides direct access to SAP ERP transactions and tables for article master data, such as transactions MM01, MM02, MM03, and tables MARA, MARC, etc. While mass creation is possible in the Warehouse Monitor under Product Master Data - Warehouse Attributes, the standard EWM product master tables (/SAPAPO/MATEXEC, /SAPAPO/MATLOC, /SAPAPO/MATPACK, /SAPAPO/MATGROUP, /SAPAPO/MATTXT etc.) are replaced with SAP Enterprise Resource Planning (ERP) article master tables (MARA, MARC, MARD, MARM, etc.). Notably, these tables are read-only in SAP S/4HANA, and any attempts to insert or update data will result in a dump.

However, changes can be made to database tables – /SAPAPO/MATLWH, /SAPAPO/MATLWHST [4].

Warehouse product transaction - /SCWM/MAT1 global data views will be accessible only in display mode. Any changes under the global data tabs must be performed using MM02. Unit of measure (UoM) change is only possible via MM02.

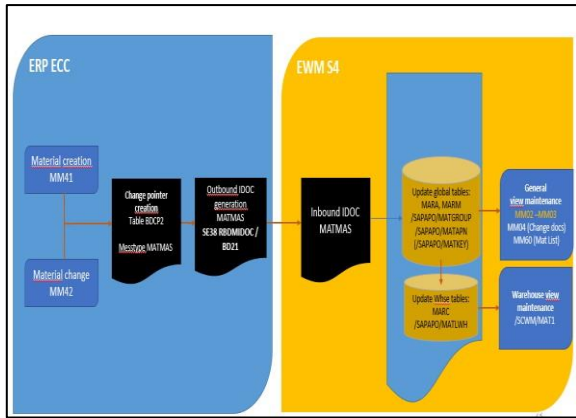
Relationships in transaction MM03 display the Idocs related to material.



Transaction MM04 is used to display material change documents. This enables tracing back to the time of Idoc processing. For general data, transaction MM02 can now be used in EWM instead of /SAPAPO/MAT1. Transaction /SAPAPO/MAT1 is still available only in display mode, except for APNs and Product Groups which are still editable. MM02 updates values in global level data tables of S4 EWM: MARA, MARM, etc.

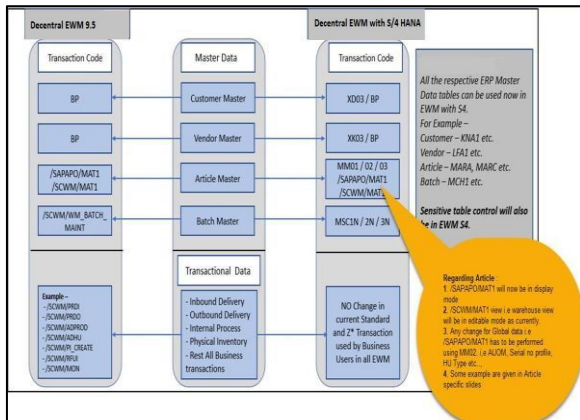
Note: MM02 modifications in EWM do not reflect in ECC

Article master global view (see below image)



Regarding batch master data, transactions MSC1N, MSC2N, and MSC3N are used, while the standard transaction /SCWM/WM_BATCH_MAINT in the NetWeaver or SCM stack is no longer available in EWM with S/4HANA. The ERP DB tables MCHA and MCHB replace the non-existent /SCWM/TBATCHUPD table for controlling local batch creation. Additionally, classes and characteristics are part of the ALE IDoc interface, and in the SAP S/4HANA stack, class types 22/23 are used instead of class types 220/230 in EWM on the NetWeaver stack [4].

V. Difference in Transaction codes in Decentral EWM 9.5 vs Decentral EWM S/4 HANA (See below image)



VI. Conclusion

The SAP S/4HANA platform is designed to provide users with a simplified and integrated experience when it comes

to managing their business operations. With options of EWM deployment as Embedded or [4] Decentralized S4 HANA, users can benefit from the proven warehouse management capabilities of SAP EWM, while also taking advantage of the benefits of SAP S/HANA. The main simplifications to users with decentralized EWM are changing from CIF Interface to ALE interface provides flexibility of selecting which fields to copy into Decentral EWM on S/4HANA, integrate with different backend systems including non-SAP systems, eliminating redundant customizing tables, SAP Fiori user experience for SAP EWM and SAP S/HANA, Direct access to real-time data in SAP S/4 HANA. SAP EWM provides users with the flexibility to easily adapt to changing business needs.

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