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Best Practices Guide: Warehouse Management Implementations

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SAP Business One 9.x considerations and prerequisites

Introduction

When implementing Warehouse Management the success of the project is dependent upon a solid foundation of knowledge about certain SAP Business One features and configurations. This Best Practices Guide aims to identify the prerequisite knowledge and conditions needed to setup and design an Achieve One WMS system. Failing to adequately prepare or understand these prerequisites can lead to project delays, scope creep and/or negative impact on the business operations of the system. By ensuring that the implementation plan clearly identifies the current status of these prerequisites and the responsibility for addressing any open items, will ensure that the Warehouse Management System is built upon a sound foundation.

Infrastructure

The infrastructure that the SAP Business One system is implemented on can have a significant impact on the performance and reliability of the Warehouse Management System (WMS). As a baseline, an analysis should be performed to ensure that the technical resources are in place and properly configured. This includes checking that all operating system and application minimum requirements are met, as well as the security configurations. If there are any additional considerations, the project may need to plan and account for additional tasks. Examples of such considerations could include: multiple locations, cloud or hosted server environments, external or third party control or maintenance of IT, and industry specific regulations or compliance concerns.

Network

The network is an important component of the infrastructure. It will be required that all devices can communicate with the SAP Business One environment. This may require VPN or Firewall configurations when the server(s) physical location is not on the same LAN for all users. Current documentation must be reviewed to determine support for minimum LAN speeds and how WAN connections are supported (i.e. via Remote Desktop, Web clients, etc.). When wireless networking is implemented care needs to be taken to review coverage in all required areas of the facility. Additionally, some venders of wireless equipment offer configurations to optimize network traffic which can impact the real-time nature of communication. IT should review the devices that intend to connect to the network (such as scanners, printers, PCs) and ensure that they are all compatible. While SAP Business One provides guidance on minimum requirements which must be met, the project team needs to consider all the factors above to ensure that all elements of the network are supported, properly configured, and sized.

Servers

SAP Business One offers flexibility in how the servers are structured. In many cases, the entire SAP Business One environment will be located on a single server. Others may have multiple servers separating the various SAP Business One Server Tools and/or Database components. In addition, SAP Business One may utilize file shares that can be located on Windows Servers, Non-Windows Servers, and/or NAS or SAN based storage devices. Each of these should be evaluated to determine if they meet minimum and/or recommended configurations, are properly sized for the environment, and have maintenance and disaster recovery plans.

Software

SAP Business One resides upon operating system and database applications. It is critical to ensure that this environment is configured to support the security and connectivity requirements to smoothly operate both the ERP and WMS functions. Microsoft Windows Domain configuration, File and Network permissions, and Database security can impact the access to data, printers, and files. In order for the implementation to be successful, the end users ability to access the required resources must be in place.

Administration and Setup

Within SAP Business One, there are several components and configurations that can impact the Warehouse Management System implementation. The implementation assumes that the project team already understands and has configured and trained the end users on the following setups.

SAP Business One SBO Mailer

The SAP Business One SBO Mailer is used to provide email notifications. It needs to be properly configured to include an SMTP email service, database connections, and running intervals.

SAP Business One Messages

SAP Business One's inbox functionality is used to manage and view messages. Notifications and other events can create messages in SAP Business One that are essential for proper running and maintenance of the Warehouse Management System.

Warehouse Codes

The Warehouse Management System is based upon SAP Business One warehouse and bin functionality. In order to operate with the WMS system, the warehouse must be bin enabled. Consideration should also be given to how many warehouse codes are created. For example, if there is more than one warehouse and there will be inventory transfers, it is recommended to create an In Transit warehouse to work in conjunction with the WMS Inventory Transfer Request functionality. Other considerations would be the creation of virtual warehouses that are actually in the same physical locations, versus zones in a physical location. The business requirements on how inventory needs to be reported against and managed should be known prior to configuring SAP Business One or WMS.

An additional consideration when configuring warehouse codes is how the Bin Locations tab is configured. This tab will include options that can impact the usability of the Warehouse Management System. The Bin Location Code Separator controls the characters that will appear in the bin codes. Depending on the devices being used, certain characters are easier to enter. Standard SAP Business One functionality is always honored. Accordingly, the configurations related to the Automatic Allocation on Issue and Receipt, the use of Receiving Bin Locations, and the use and/or enforcement of Default Bin Locations should all be reviewed.

Units of Measure

Units of Measure are an important aspect of the Inventory configuration in SAP Business One. The feature impacts several additional areas in SAP besides the definition of how many units are associated with a unit code. For WMS specifically, consideration should be given to barcode values by UoM. Note that UoMs are also related to Unit of Measure Groups that can be linked to Item Master records.

Weight

The Weight Setup defines the relationship between different weight units in SAP Business One. This is utilized in WMS when weight calculations are made.

Locations

The Locations Setup allows the definition of a location code that can be used to group or identify warehouses.

Inventory Cycles

The Inventory Cycles setup (and related determination) is a function that will be enhanced by the Achieve One WMS system via automating the data capture for the items that need to be counted. The configuration of one or more Cycle Codes, and the setup of the data onto the Item Master Warehouse tables should be completed if there is a requirement for Cycle Counting.

Bin Location Field Activation

The Bin Location Field Activation configures the different levels within the warehouse and the names of these levels. This can range from simply "Bin" to activating 4 sublevels (5 parts when the warehouse code is included) such as "Zone-Aisle-Column-Shelf" or other variations. This is part of the strategic design of the warehouse, and if not predefined by the end user should be carefully thought through.

Warehouse Sublevel Codes

Once the number and name of the warehouse sublevels have been determined in the Bin Location Field Activation, another significant task is to create the setup of the valid values within each level. These will ultimately come together to generate Bin Codes, but are also critically important for achieving the desired level of reporting using SAP Business One.

Approvals

Only approved documents can be processed in Achieve One WMS. Consideration should be given to the various features inside of SAP Business One that control the approved status of Marketing Documents. This includes the defaults from Document Settings and the SAP Approvals functionality. If any customization or add-on solution controls the approved status, its procedures need to be incorporated into the warehouse management processes.

Price Lists

SAP Business One Price Lists are used on transactions where the price needs to be specified by the WMS system, for example on a Goods Receipt.

Document Settings

The Document Settings found under System Initialization has several settings that impact how SAP Business One permits transactions to occur. The Warehouse Management System cannot post a transaction that does not conform to these settings. In addition, per Document settings should also be reviewed. For example On the Sales Order document; the Activate Automatic Availability check should not be enabled if the Achieve WMS equivalent is enabled. Another example can be found on the Inventory Posting document; the Calculate In-Whse Qty on Count Date based option will impact the adjustments made when inventory counting is posted by handhelds.

Master Data

The various Master Data records in SAP Business One are the foundation for the use of the system.

Bin Location Master Data

The Bin Location Master Data record has several settings that impact the process flow and functions of WMS.

Receiving Bin Location

The SAP setting for Receiving Bin Location designates a bin that will used for certain functions on the WMS handheld such as receiving and put away. It is important to understand their functionality and decide how to use them properly.

Restrictions

SAP has the ability to put restrictions on bins for things such as batches, items, and transactions. These same standard SAP restrictions are upheld within WMS as well. For example, if a bin is restricted to only allow one specific item, you cannot designate that bin as the default returned merchandise location in WMS.

Min/Max

You can set Minimum and Maximum quantities for bin locations in SAP. WMS will use these quantities to determine which bins are below their minimum and in need of replenishing. After which it will suggest transfers into these bins to bring the item quantity back up to its maximum.

Barcodes

Like item master records, bins can have barcodes as well. Users can then scan those bin barcodes when working on transactions in the WMS handheld.

Item Master Data

The Item Master Data record has several settings that impact the process flow and usage within WMS.

The Item number can be defined manually or via a numbering series and can be alphanumeric. While SAP ensures the value is unique to other Item Master Data, consideration should be given to how the values compare to the Barcode values. Ideally, all barcode values would be unique and distinct from the Item number values. Since WMS checks both the Item number field and the Bar Code Field(s), it is not necessary to populate the barcode with the Item number for WMS to function. When working with Bar Code data for the Item Master record, if a UoM Group is specified then the barcode is linked to each UoM. Barcodes should also only contain characters that are a part of the symbols of the barcode labels that your material and scanning devices support.

Item Masters can be Inventory or Non Inventory Items. Non Inventory Items cannot be used on all transactions, but can appear on the handheld for example on Pick Tickets. The configuration of Non Inventory Items includes both the Item Type and the Inventory Item checkbox. Labor items are treated differently from Item type non-inventory items by the logistics manager in WMS.

The Manage Item by Field, controls an item if it is Serialized or Batch Managed. Note that the SAP settings for which field is used on the Unique Serial Numbers controls which field WMS utilizes when handling serial numbers

The Issue Method will determine if the WMS system will require a manual issue or a backflush when processing Production Orders.

Bills of Materials

End users should understand the concept of a Bill of Materials as well the different types available in SAP Business One, specifically Production and Sales. For Production BOMs, WMS will allow users to pick components and receive the finished goods. For Sales BOMs, WMS will allocate and allow for the picking of the child items on the WMS handheld.

Chart of Accounts

The Chart of Accounts will contain General Ledger (G/L) accounts to be used with the transactions created in SAP Business One. Standard G/L or Advanced G/L Determination rules will apply. In addition, accounts can be created to be used along with adjustment codes for Inventory discrepancies. This will override the G/L account determination for Goods Issues.

Marketing Documents

Marketing Documents are a large part of SAP Business One and as such, it is important that end users understand the basics, and even some more advanced concepts of them before diving too deep into WMS.

Multi-Document concepts

SAP provides base functionality to allow documents that are a part of the same overall transaction to be connected to each other for convenience, ease of use and tracking ability. There are several parts to this that are helpful to understand before using WMS.

Draft Documents

Standard SAP has the ability to save a Draft of a document so that it may continue to be worked on and reviewed before making it an official document in the system. WMS has several options where a process may create a draft document instead of adding an actual document. Knowing the difference and how to access drafts will help users when learning about WMS.

Availability

SAP Business One is a date driven system that uses actual and projected data to determine inventory availability for transactions. It is important to understand which documents effect the Committed, On Order and On Hand quantities, as well as the calculation of available inventory in aggregate and by transaction / date.

Branches

WMS follows the standard SAP functionality when it comes to branches, so if SAP would not allow a transaction because of branch restrictions then neither will WMS. That means that if an end user will be using Branches it is necessary that they understand the concepts such as the BP Master's belonging to specific branches and how a document cannot work with multiple branches.

Base and Target Document Relationship

Linking Marketing Documents to one another is a base function of SAP. You are able to see the linked documents through the Base/Target Document Functionality and by using the Relationship Map. WMS incorporates the same standard functionality when creating documents in SAP. For example, if you use the WMS handheld to receive in a Purchase Order, then when WMS creates the Goods Receipt PO, it will become the target document of the PO (base Document). That will link the documents together as well as keep track of the open lines and quantities on the base PO document.

Procurement Documents

Using the Procurement Document process in SAP allows end users to create Purchase Orders from Sales Orders and link them together. There are processes in WMS that use this concept, like batch flow through allocations, which would be easier to understand if users already know how to create a procurement document from a Sales Order.

Transactional Documents

Below is a list of SAP document types that end users will need to familiarize themselves with before using WMS. If standard SAP will not allow changes to a document type after it is added, then when those same document types are added via WMS, they will follow those same rules. Also just like with standard SAP, if information is missing from the base document that is required to add the target document, such as Tax Code for example, WMS will not be able to add the target document.

Goods Receipt

Goods Receipts that are completed on the WMS Handheld will need an adjustment code assigned to them. These adjustment codes will be linked to an SAP G/L account.

Goods Issue

Goods Issues that are completed on the WMS Handheld will need an adjustment code assigned to them. These adjustment codes will be linked to an SAP G/L account.

Purchase Order

Purchase Orders will not be available for receiving on the WMS handheld until they are marked as Approved in SAP.

Production Order

Production Orders will not be available for picking (issue) and receiving (receipt) on the WMS handheld until they are in a Released status.

Sales Order

Sales Orders will not be available for picking on the WMS handheld until they are marked as Approved in SAP.

Inventory Counting/Inventory Posting

Certain counting functions in the WMS handheld will produce an Inventory Counting document. It is therefore necessary to have some knowledge of this document type as well as how it interacts with the SAP Inventory Posting document.

Other Document Types

Goods Receipt PO

Goods Receipt POs require the identification of a vendor. In WMS Goods Receipt POs can be created based on Purchase Orders and optionally via Container Management integration. It is important to understand the impact on the inventory quantity and the financial impact of making Goods Receipt PO's.

Inventory Transfer Request

Inventory Transfer Requests have an impact on inventory availability. They are available for use in the Pick and Pack manager. It is important to ensure the users understand when the On Hand inventory is updated and the relationship of an Inventory Transfer to the Inventory Transfer Request.

Inventory Transfer

The Inventory Transfer is a document that is created both to move material between warehouses, and between bin locations within a warehouse.

AP Invoice

The AP Invoice is a final document that commits a liability. The document cannot be edited after it is posted for quantity or price.

Receipt from Production

A receipt from Production is an inventory transaction that updates the finished good and consumes the WIP value.

Issue for Production

An Issue for Production is an inventory transaction that consumes the component items and creates the WIP value.

Delivery

A Delivery is a sales document that indicates a transfer of ownership of the inventory and updates the on hand quantity.

Return

A Return is a sales document that accepts inventory back from a customer and is a receipt into the on hand inventory

AR Invoice

The AP Invoice is a final document that commits a receivables asset. The document cannot be edited after it is posted for quantity or price.