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**SAP EWM DATABASE TRAINING**

# OVERVIEW

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- **MAIN FOCUS ON**
  - **HOW THE EWM DATABASE TABLES WORK**
  - **HOW THEY INTERACT WITH ONE ANOTHER**
  
- **THIS COURSE IS RIGHT FOR IF YOU...**
  - **WANT TO KNOW MORE ABOUT THE BEHIND THE SCENE ACTION**
  - **WANT TO WRITE OWN EWM PROGRAMS**
  - **WANT TO KNOW WHAT HAPPENS ON DB LEVEL**

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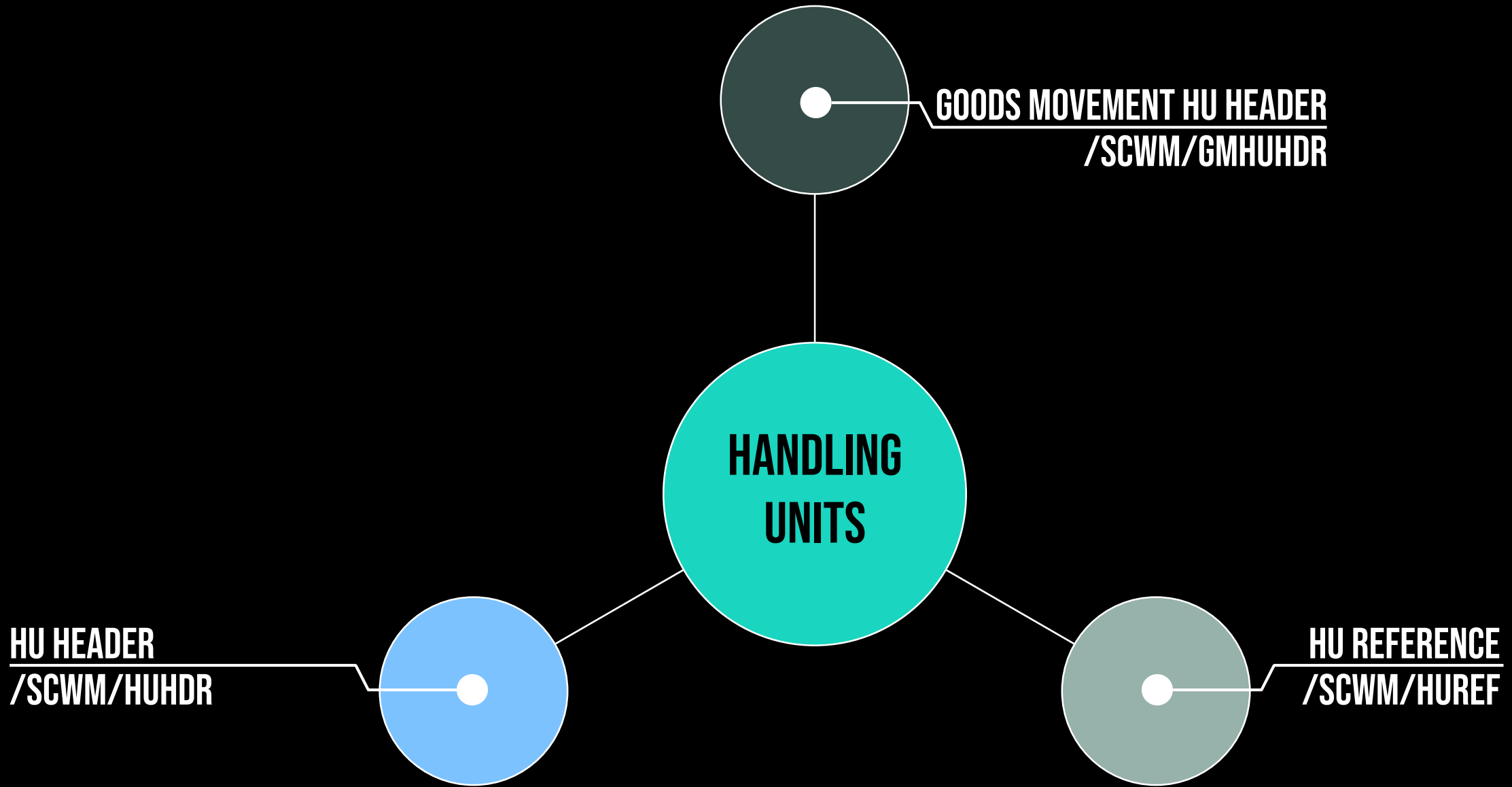
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**HANDLING UNITS**



# HANDLING UNIT HEADER

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- **EVERY HU HAS ITS OWN ENTRY IN THIS TABLE**
- **THE KEY IS THE GUID (“GLOBALLY UNIQUE IDENTIFIER”)**
  - **NO PLAIN TEXT KEY**
  - **THE GUID IS UNIQUE & 32 DIGITS LONG**
  - **CREATED FOR ALMOST EVERY OBJECT IN EWM**
  - **HU-GUID IS DETERMINED WITH THE HU CREATION**
- **ADDITIONAL INFORMATION IN THIS TABLE:**
  - **PACKAGING MATERIAL AND WAREHOUSE NUMBER**
  - **MEASUREMENTS**
  - **VIRTUAL HANDLING UNIT INDICATOR (VHI)**
  - **TOP / BOTTOM INDICATORS**
  - **...AND MANY MORE**

# **GOODS MOVEMENT HANDLING UNIT HEADER**

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- **ALMOST THE SAME DATABASE FIELDS AS HU-HEADER**
- **CONTAINS FOR EXAMPLE: GI-POSTED HUS**

# HANDLING UNIT REFERENCE

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- **CONTAINS ENTRIES WHEN HU IS PART OF DELIVERY OR ORDER**
- **CONSISTS OF 3 FIELDS:**
  - **HU-GUID**
  - **DOCUMENT CATEGORY OF THE OBJECT THE HU IS ASSIGNED TO**
  - **ID OF THE DOCUMENT THE HU IS ASSIGNED TO**

# NESTED HANDLING UNITS

	SINGLE HU <input type="checkbox"/>	NESTED HU 	
	STANDING ON THE GROUND	PALETT 	BOX <input type="checkbox"/>
TOP	X	X	
BOTTOM	X		X



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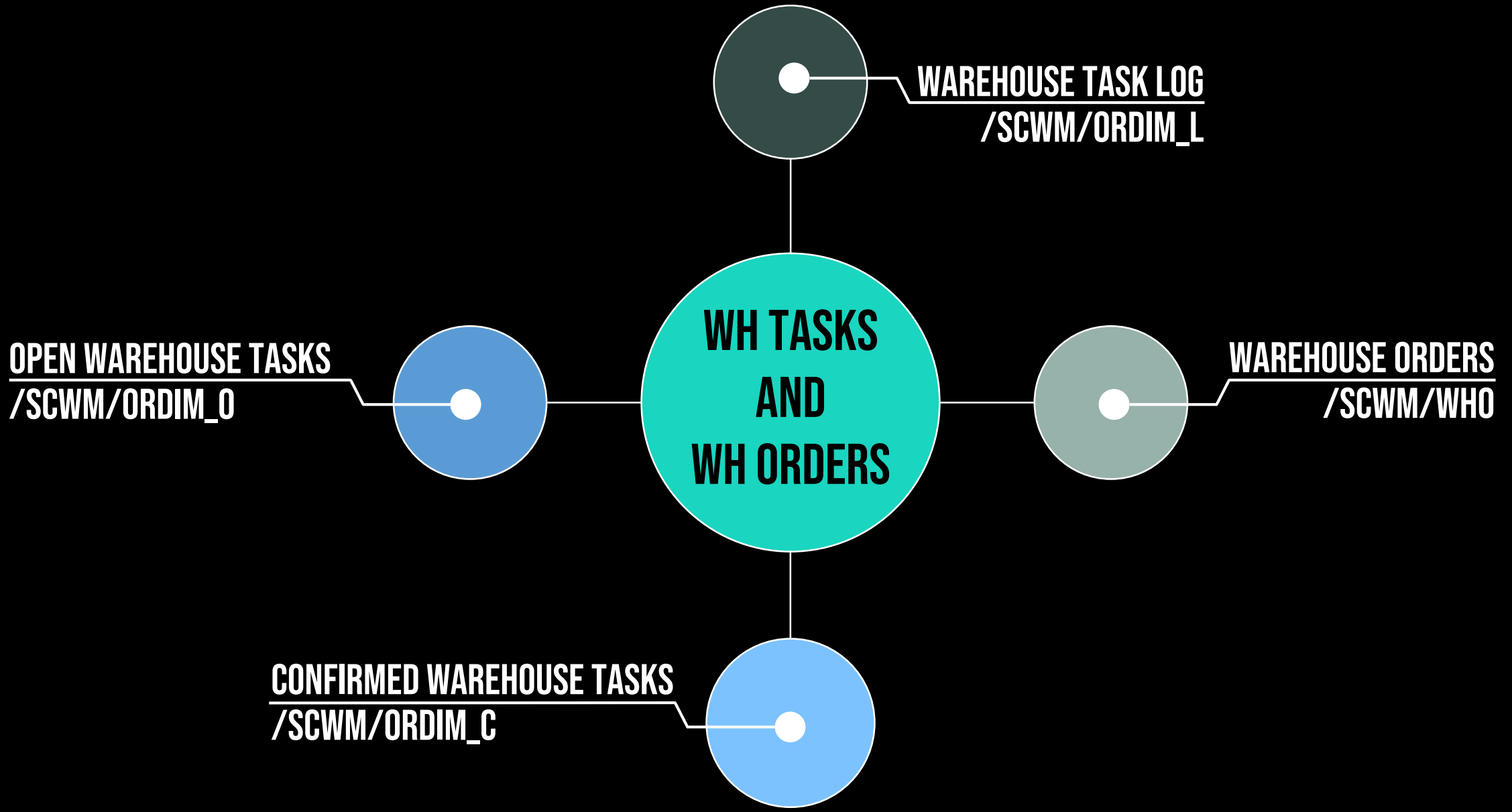
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**WAREHOUSE TASKS AND WAREHOUSE ORDERS**



# OPEN WAREHOUSE TASKS

---

- **KEY: WAREHOUSE TASK NUMBER**
  - **UNIQUE IDENTIFIER FOR MOVEMENTS AND CHANGES IN THE WAREHOUSE**
- **MOVEMENT IDENTIFIER**
- **WAREHOUSE PROCESS TYPE AND TRANSPORT TYPE**
- **THE SOURCE AND DESTINATION DATA**
- **HEADER AND ITEM-ID**

# WAREHOUSE TASK LOG

---

- **ALMOST IDENTICAL TO THE OPEN WAREHOUSE TASK TABLE**
- **PURPOSE: PROVIDE LOGGING DURING THE WAREHOUSE PROCESS**

# CONFIRMED WAREHOUSE TASKS

---

- **SIMILAR TO OPEN WAREHOUSE TASKS TABLE**
- **STATUS INDICATOR FOR THE CONFIRMATION STATUS**
  - **CONFIRMED**
  - **CANCELLED**
- **TIME AND USER INFORMATION**

# WAREHOUSE ORDERS

---

- **KEY: WAREHOUSE ORDER NUMBER**
- **QUEUE**
  - **CAN BE CUSTOMIZED**
  - **OFTEN USED TO BUNDLE WHOS FROM A CERTAIN AREA**
- **ASSIGNED RESSOURCE**

# OVERVIEW

---

**OPEN WAREHOUSE TASK**  
**/SCWM/ORDIM\_0**

**WAREHOUSE TASK LOG TABLE**  
**/SCWM/ORDIM\_L**

**WAREHOUSE ORDER**  
**/SCWM/WHO**

---

**STATUS: C**  
**CONFIRMED**

**CONFIRMED WAREHOUSE TASK**  
**/SCWM/ORDIM\_C**

# OVERVIEW

---

**OPEN WAREHOUSE TASK**  
**/SCWM/ORDIM\_0**

**WAREHOUSE TASK LOG TABLE**  
**/SCWM/ORDIM\_L**

**WAREHOUSE ORDER**  
**/SCWM/WHO**

**STATUS: A**  
**CANCELED**

**CONFIRMED WAREHOUSE TASK**  
**/SCWM/ORDIM\_C**



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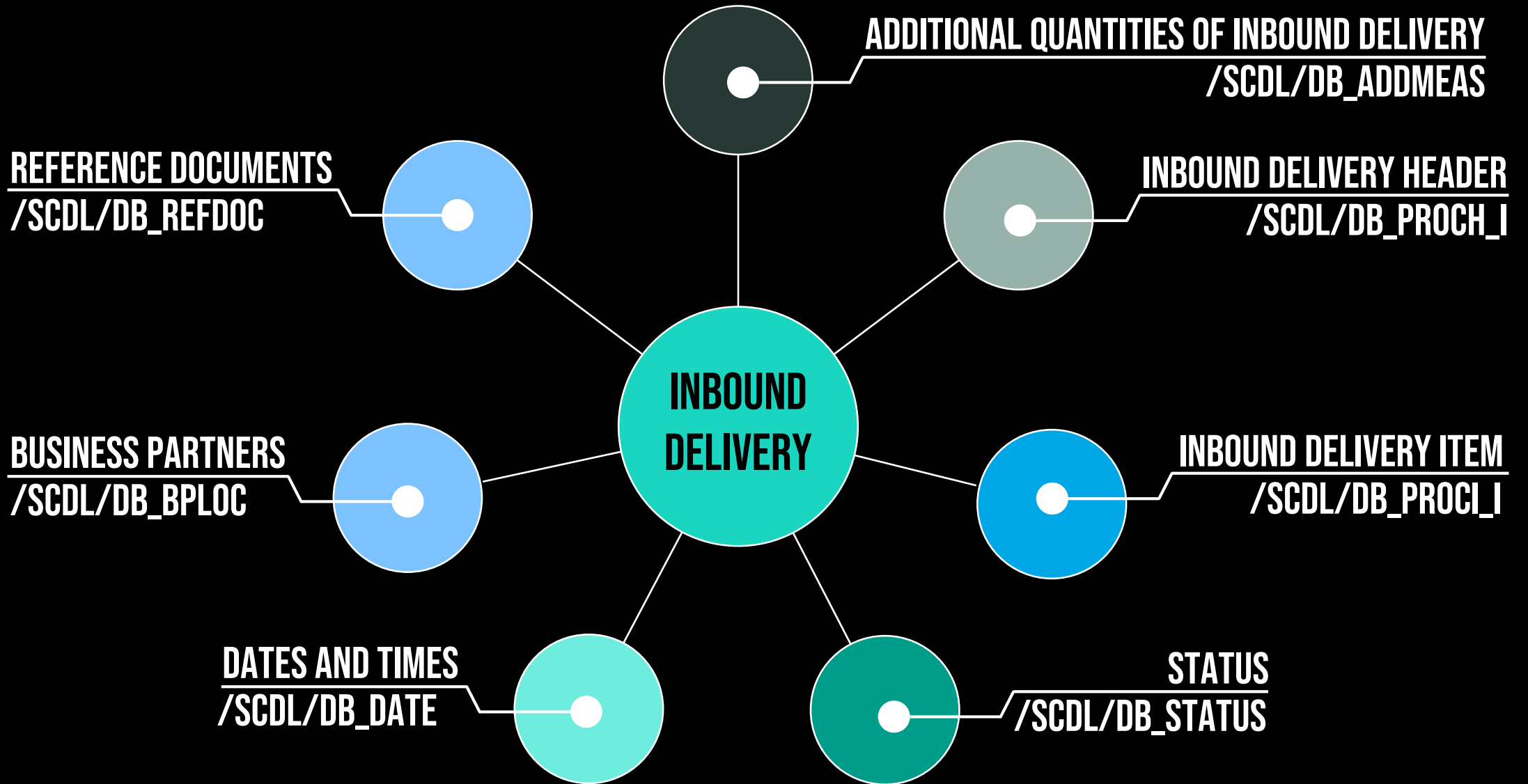
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**INBOUND DELIVERIES**



# **INBOUND DELIVERY HEADER**

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- **REPRESENTS THE INBOUND DELIVERY**
- **KEY: GUID**
- **DOCUMENT CATEGORY AND THE DOCUMENT TYPE**
  - **THIS INFORMATION SEPARATES THE DELIVERY PROCESSES**
  - **E.G. REPLENISHMENT, CUSTOMER RETURN**

# **INBOUND DELIVERY ITEM**

---

- **CONTAINS THE DIFFERENT ITEMS THAT GET DELIVERED**
- **KEY: HEADER AND ITEM GUIDS**
- **DEFINES THE ITEM:**
  - **PRODUCT, BATCH, OWNER AND ENTITLED TO DISPOSE**
  - **INFORMATION ABOUT HANDLING (WH PROCESS TYPE)**

# STATUS

---

**/SCDL/DB\_STATUS**

- **CONTAINS ALL CUSTOMIZED STATUSES FOR THE DELIVERY OBJECT**
  - **E.G. PUTAWAY STATUS AND PACKING STATUS**

# **DATES AND TIMES**

---

- **CONTAINS DIFFERENT “CHECKPOINTS”**
  - **SUPPLIED OR CALCULATED**
  - **E.G. AN OWN DATE AND TIME ENTRY FOR ARRIVAL**

# **BUSINESS PARTNERS**

---

- **INFORMATION ABOUT THE INVOLVED BUSINESS PARTNERS**
  - **MOSTLY SUPPLIED BY THE ERP SYSTEM**
  - **E.G. THE CARRIER, THE SHIP-FROM PARTY**

# REFERENCE DOCUMENTS

---

- **ALL DOCUMENTS RELATED TO THE INBOUND DELIVERY**
  - **E.G. THE ERP DELIVERY NUMBER**
  - **ASN NUMBER (SUPPLIED BY THE ERP SYSTEM)**



# ADDITIONAL QUANTITIES

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- **WEIGHT AND VOLUME DELIVERED IN THE PDI**
- **ADDITIONAL INFORMATION ON HEADER AND ITEM LEVEL**

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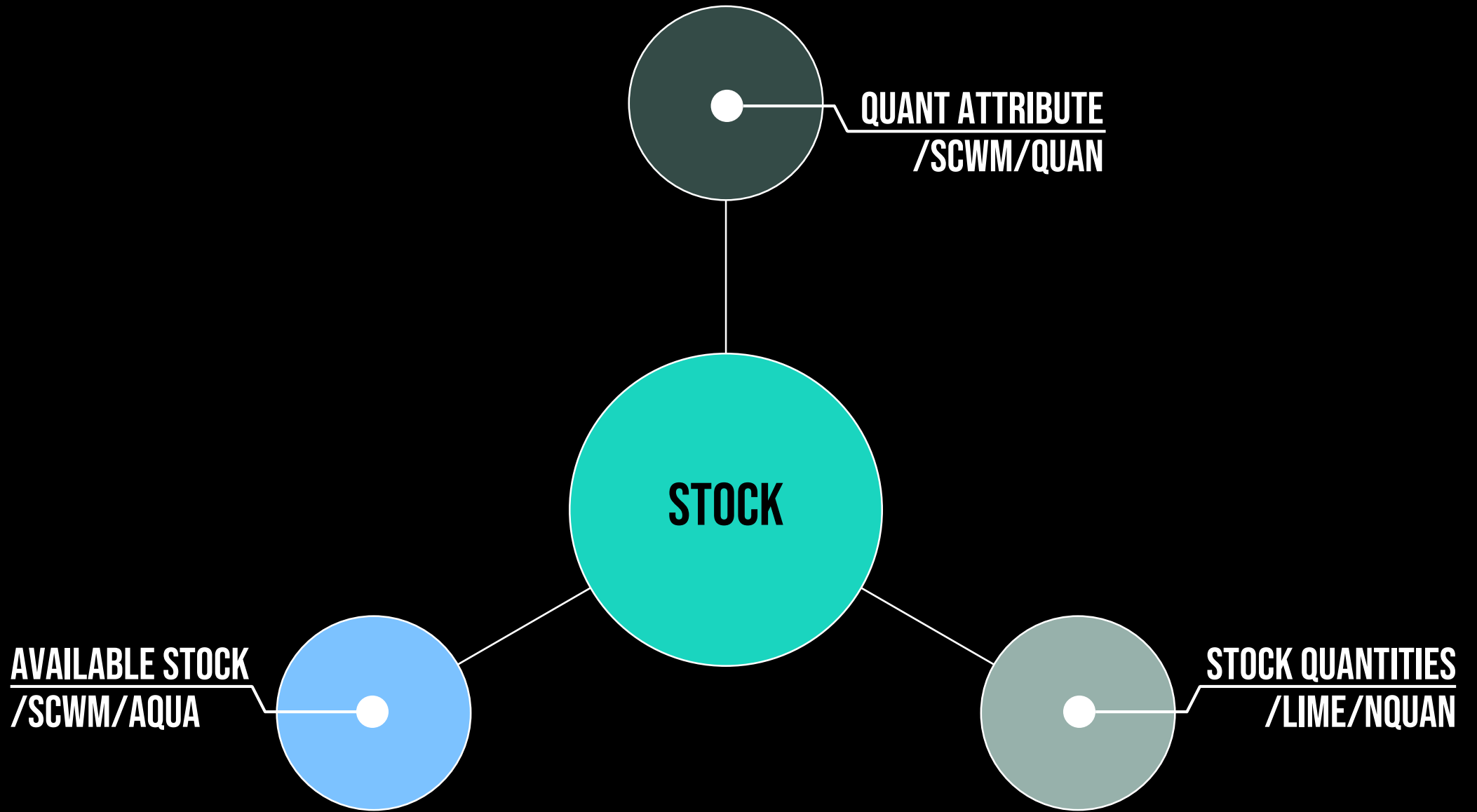
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**THE STOCK**



# AVAILABLE STOCK

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- **AVAILABLE QUANTITIES OF A STOCK**
  - **PERFORM ANY KIND OF STOCK-RELATED ACTION IN THE EWM**
  - **E.G. THE QUANTITY OF A PRODUCT ON A BIN**

# QUANT ATTRIBUTE

---

- **ENTRIES FOR STOCK IN THE WAREHOUSE**
  - **AVAILABLE**
  - **PHYSICAL**
- **DESCRIBES STOCK WITH ALL ITS ATTRIBUTES**

# STOCK QUANTITIES

---

- **LIME = LOGISTICS INVENTORY MANAGEMENT ENGINE**
  - **TABLES WITH THIS PREFIX HANDLE ALL THE INTERNALS OF THE EWM STOCK**
  - **E.G. QUANTITIES OR PHYSICAL INVENTORY DOCUMENTS**
- **ACTUAL PHYSICAL QUANTITY OF A STOCK**

# OVERVIEW

---

- **THREE IMPORTANT TABLES:**
  - **AVAILABLE QUANTITY = ACTUAL QUANTITY TO PERFORM ACTIONS WITH**
  - **STOCK ATTRIBUTES = KIND OF STOCK**
  - **QUANTITY ATTRIBUTES = PHYSICAL QUANTITY OF THE STOCK**
  
- **RESERVING STOCK - BY CREATING OPEN WAREHOUSE TASKS:**
  - **DOES NOT CHANGE THE STOCK ITSELF**
  - **BUT ADJUSTS THE AVAILABLE QUANTITY**
  - **BY UPDATING OR DELETING THE ENTRY IN THE AVAILABLE QUANTITY TABLE**

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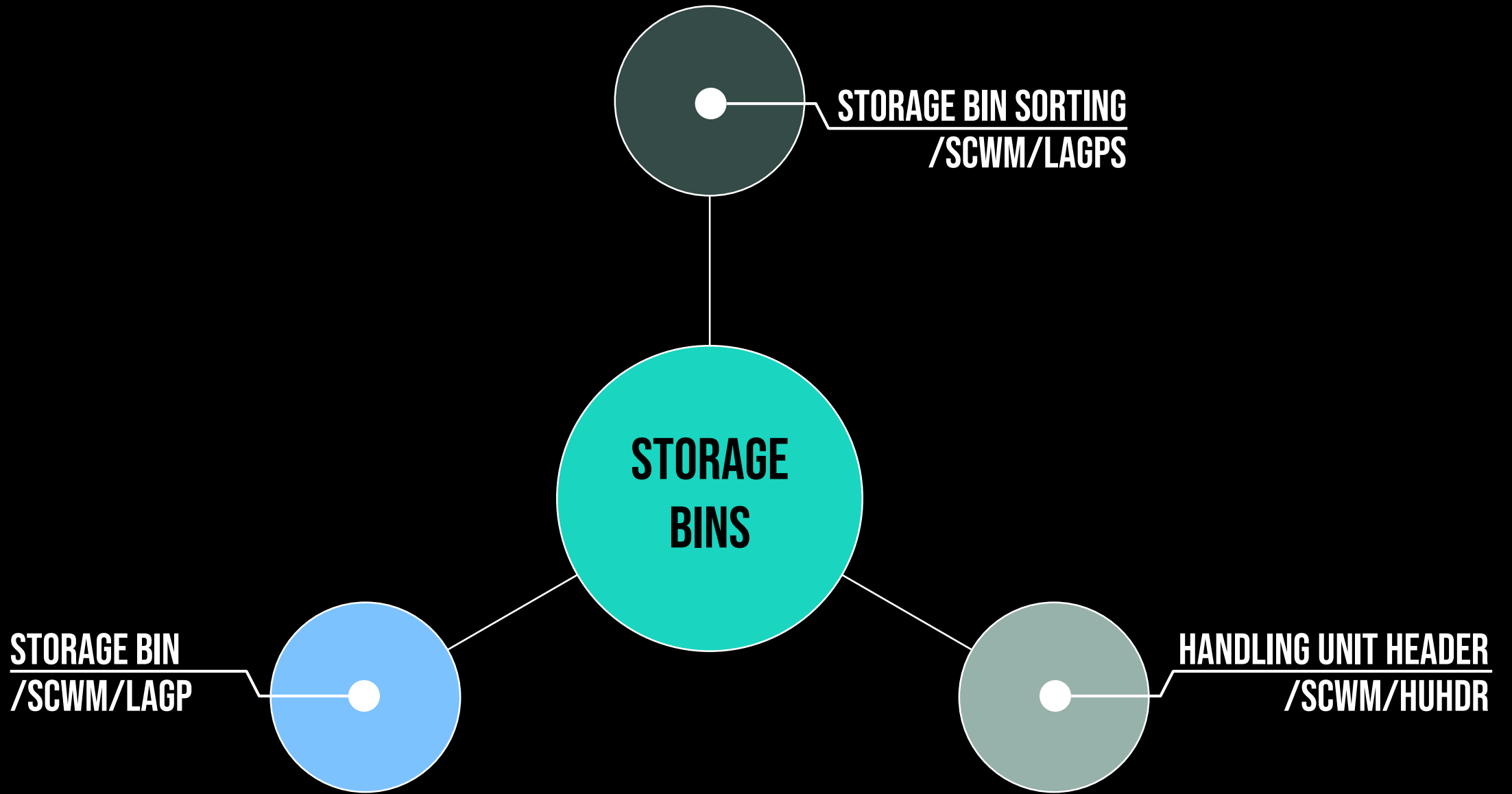
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**STORAGE BINS**





# STORAGE BIN

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- **ALL AVAILABLE STORAGE BINS PER WAREHOUSE NUMBER**
  - **KEY: STORAGE BIN + WAREHOUSE NUMBER**
- **STORAGE BINS ARE UNIQUE PER WAREHOUSE NUMBER**
  - **STORAGE TYPE / STORAGE AREA ARE NOT PART OF TABLE-KEY**
- **IMPORTANT INDICATORS**
  - **INVENTORY BLOCKS**
  - **PUTAWAY BLOCKS**
  - **STOCK REMOVAL BLOCKS**
- **MEASUREMENTS:**
  - **MAXIMUM CAPACITY, WEIGHT AND VOLUME**
  - **OCCUPIED CAPACITY, WEIGHT AND VOLUME**

# STORAGE BIN SORTING

---

- **ENTRIES FOR BIN SORTING**
- **WAREHOUSE NUMBER AND STORAGE BIN**
- **KEY: ACTIVITY TYPE**
- **SORTING NUMBER OF THE BIN**

# OVERVIEW

---

- **TWO IMPORTANT TABLES:**
  - **STORAGE BIN**
  - **HANDLING UNIT HEADER**
  
- **ENTRIES EXIST AS LONG AS THE STORAGE BIN EXISTS IN THE WAREHOUSE**
  
- **STORAGE BIN SORTING IS USED WITH A CUSTOMIZED PATH THROUGH THE WAREHOUSE**

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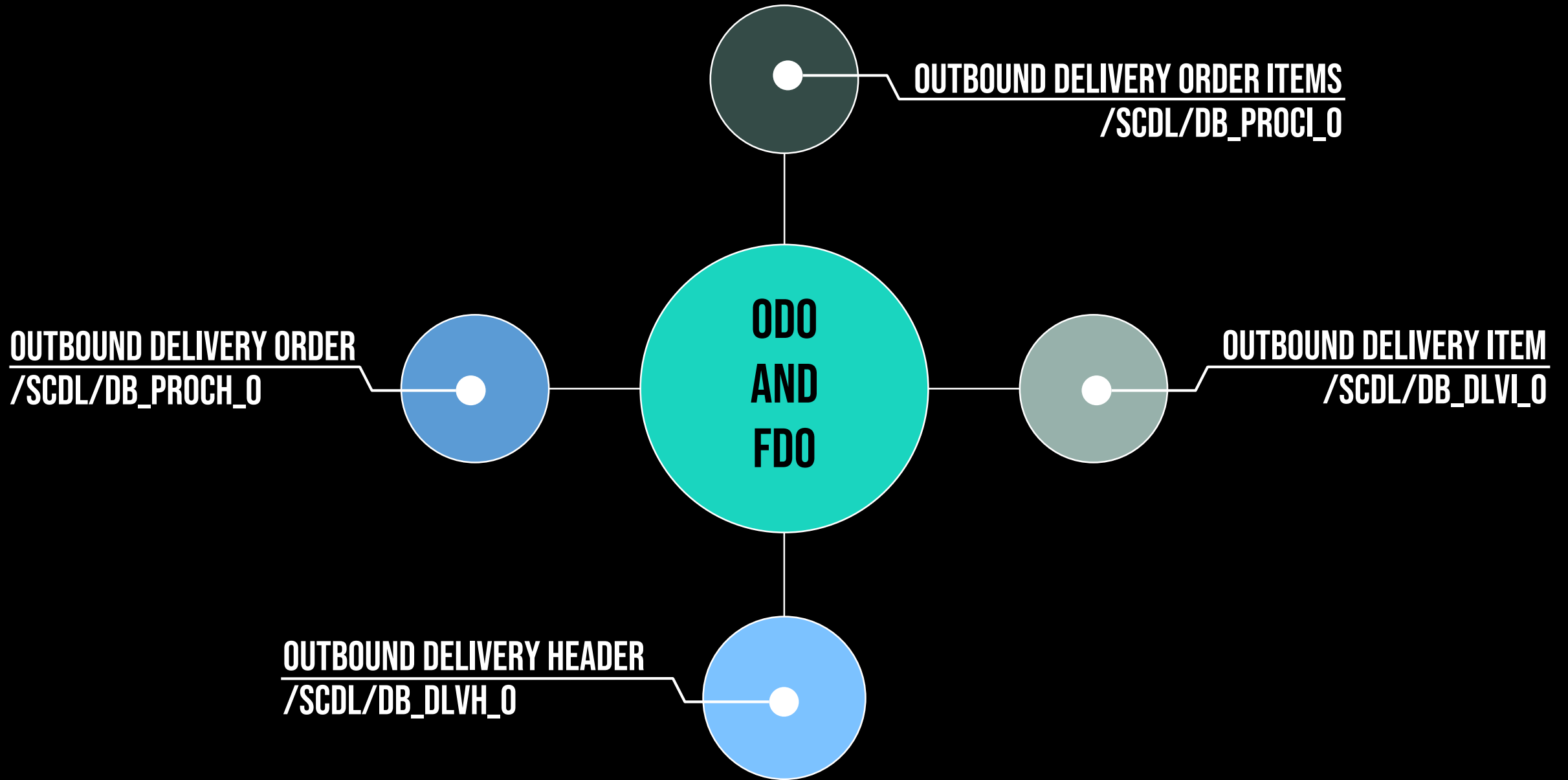
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**OUTBOUND DELIVERY ORDER AND OUTBOUND DELIVERY**

# USED IN INB AND OUTB PROCESS

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- **/SCDL/DB\_STATUS – STATUS INFORMATION**
- **/SCDL/DB\_DATE – DATES AND TIMES**
- **/SCDL/DB\_BPLOC – PARTNERS (E.G. VENDORS OR CARRIERS)**
- **/SCDL\_DB\_REFDOC – REFERENCE DOCUMENTS**
- **/SCDL/DB\_ADDMEAS – QUANTITIES AND MEASUREMENTS**



# **OUTBOUND DELIVERY ORDER**

---

- **HEADER INFORMATION OF OUTBOUND DELIVERY ORDER**
  - **KEY: GUID**
- **DOCUMENT TYPE**
  - **DEFINES THE PROCESS**
  - **E.G. CUSTOMER ORDER OR INTRALOGISTIC TRANSFER**
- **OUTBOUND DELIVERY ORDER NUMBER**
- **TIMESTAMPS OF CREATION AND CHANGES**



# **OUTBOUND DELIVERY ORDER ITEMS**

---

- **KEY: GUID OF HEADER AND ITEM**
- **INFORMATION FOR CUSTOMER DELIVERY**
  - **PRODUCT NUMBER**
  - **BATCH**
  - **ENTITLED TO DISPOSE**
  - **QUANTITY**
- **WAREHOUSE PROCESS TYPE**
  - **DETERMINED BY CUSTOMIZING SETTINGS**
  - **USED WHEN PICKING WAREHOUSE TASKS ARE CREATED**

# **OUTBOUND DELIVERY HEADER**

---

- **EVERY OUTBOUND DELIVERY HAS ITS OWN NUMBER**
- **KEY: GUID**
- **TIMESTAMPS OF CREATION AND CHANGES WITH CORRESPONDING USERS**

# **OUTBOUND DELIVERY ITEM**

---

- **ENTRIES A SPECIFIC OUTBOUND DELIVERY WAS CREATED FOR**
  - **CONNECTION BETWEEN ODO ITEM AND OUTBOUND DELIVERY ITEM**
- **REFERENCE DOCUMENTS**
- **GUID**

# OVERVIEW

---

- **WHEN OUTBOUND DELIVERY IS TRANSFERRED FROM ERP TO EWM**
  - ENTRY IN THE OUTBOUND DELIVERY ORDER TABLE
  - TRANSFER FILLS ALL THE SKIPPED TABLES AND /SCDL/DB\_PROCH\_0, /SCDL/DB\_PROCI\_0
  - THESE TABLES OPERATE ALL THE EWM ACTIONS
  
- **INVOICE BEFORE POSTING GOODS ISSUE OR GOODS ISSUE**
  - OUTBOUND DELIVERY GETS CREATED
  - ENTRIES IN THE TABLES: /SCDL/DB\_DLVH\_0, /SCDL/DB\_DLVI\_0

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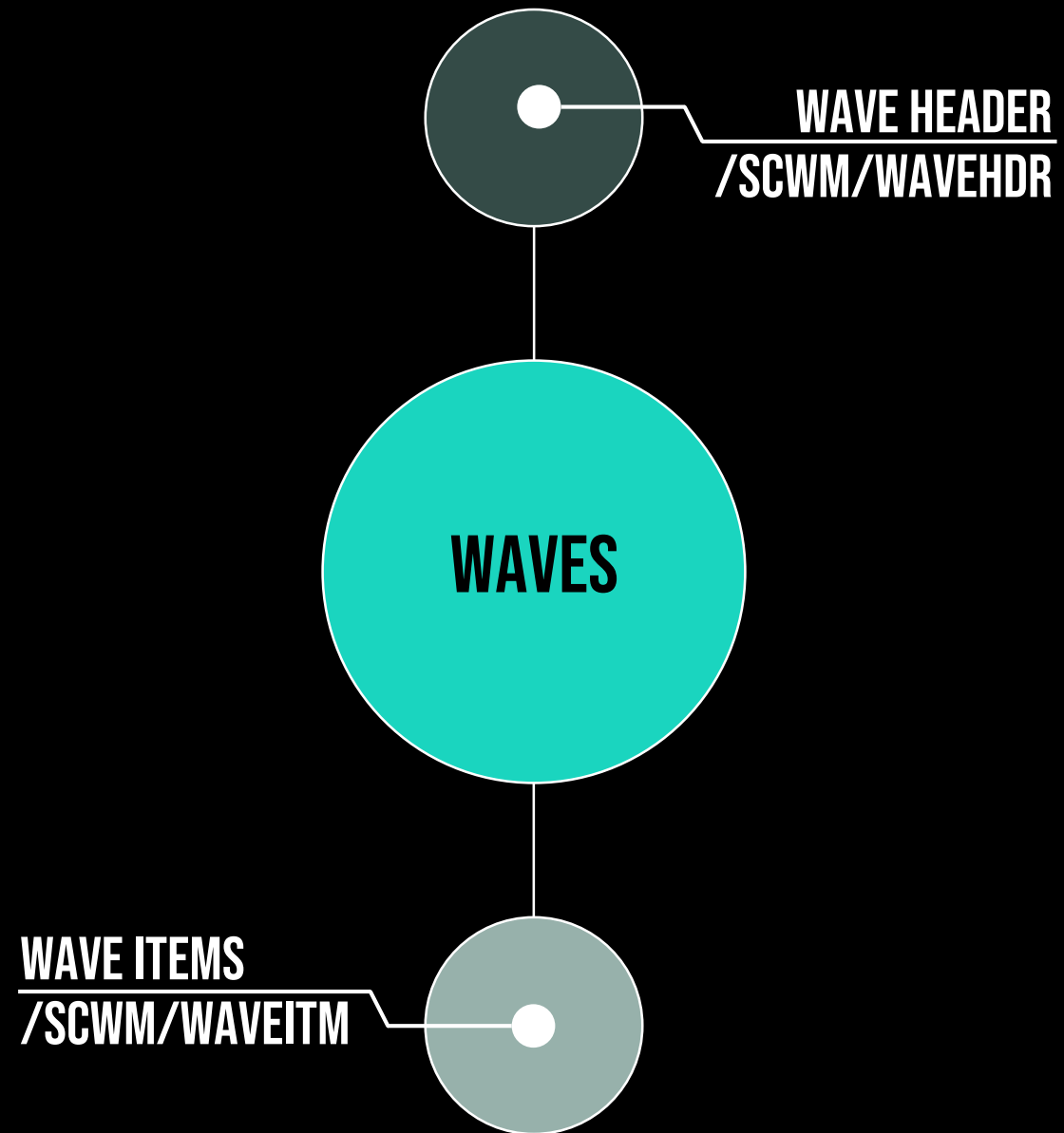
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**WAVE MANAGEMENT**



# WAVE HEADER

---

- **KEY: WAVE NUMBER**
  - CONTINUOUS NUMBER
  - SEPARATE NUMBER FOR EACH WAVE
- **TEMPLATE AND OPTION USED TO CREATE THE WAVE**
  - DEFINES THE PROCESS
  - E.G. CUSTOMER ORDER OR INTRALOGISTIC TRANSFER
- **TIMESTAMPS FOR**
  - CUTOFF, RELEASE, PICK, PACK, STAGING AND LOADING
- **STATUS FIELD: CURRENT STATE OF THE WAVE**

# WAVE ITEM

---

- **ITEMS ASSIGNED TO WAVE**
  - **MOSTLY ODO ITEMS ASSIGNED TO A WAVE**
- **KEY: GUID OF WAVE HEADER AND ITEMS**
- **ODO ITEM SPECIFIC INFORMATION LIKE**
  - **PRODUCTS**
  - **QUANTITIES**
- **ASSIGNED ITEMS ARE SEPERATED BY THE WAVE ITEM NUMBER**
  - **KEY: WAVE ITEM NUMBER**



# OVERVIEW

---

- **WHEN A WAVE IS CREATED (AUTOMATICALLY OR MANUALLY)**
  - **ENTRY IN THE WAVE HEADER TABLE**
  
- **WHEN ODO ITEMS ARE ASSIGNED TO THE WAVE**
  - **EWM CREATES ENTRIES IN WAVE ITEM TABLE**

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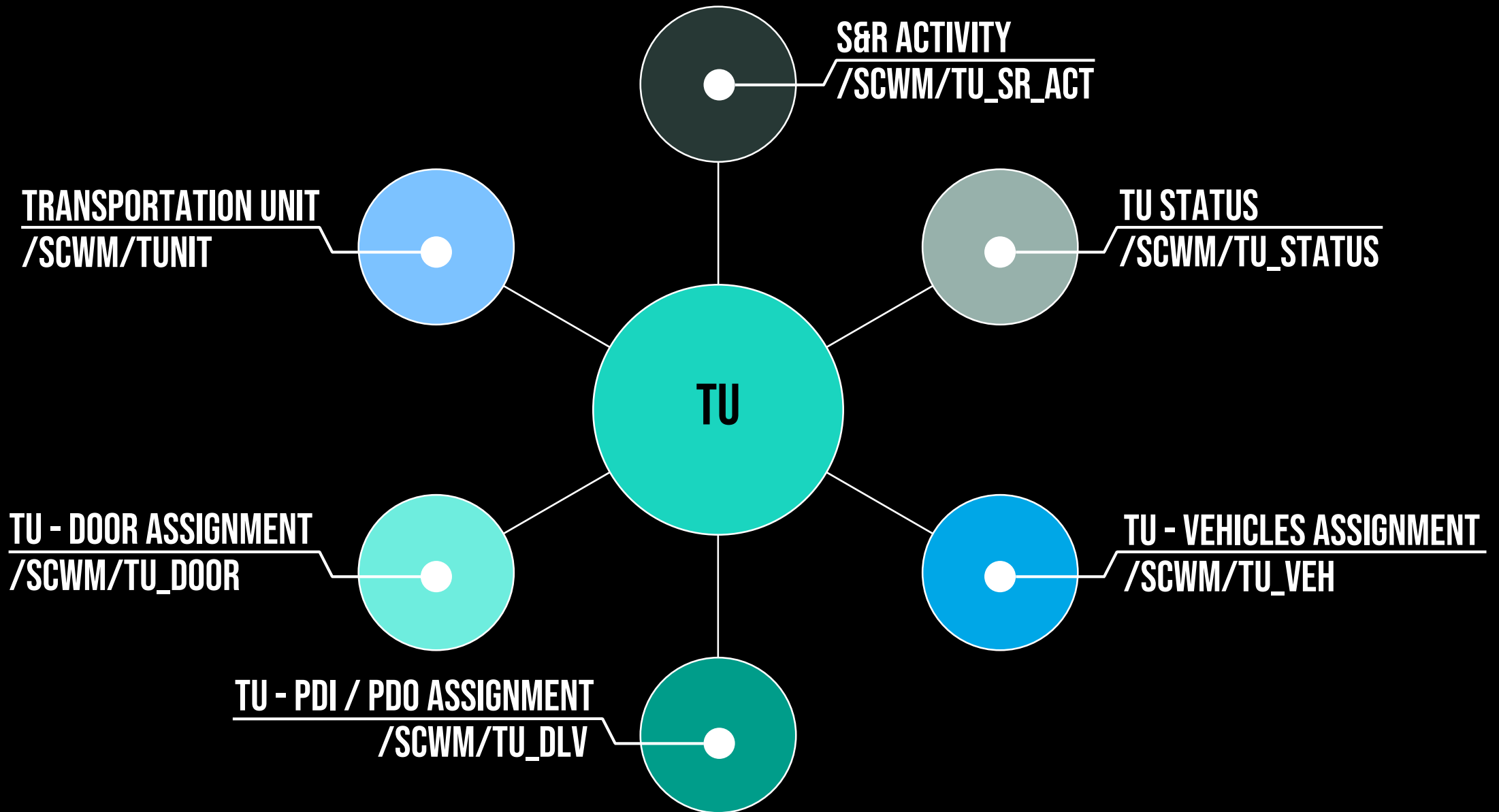
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**TRANSPORTATION UNITS**



# **TRANSPORTATION UNIT**

---

- **MANAGES ALL THE TRANSPORTATION UNITS OF A WAREHOUSE**
- **KEY: TRANSPORTATION UNIT NUMBER**
- **MEANS OF TRANSPORT (MTR) = KIND OF TRANSPORTATION UNIT**
- **PROVIDES THE INFORMATION WHICH TRANSPORTATION UNITS EXIST IN THE WAREHOUSE**

# **S&R ACTIVITY**

---

- **OPERATIONAL STATUS OF THE TRANSPORTATION UNIT**
- **DIRECTION INDICATOR = INFORMATION WHETHER**
  - **INBOUND OR**
  - **OUTBOUND TRANSPORTATION UNIT**
- **TIMESTAMPS FOR**
  - **PLANNED & ACTUAL ARRIVAL OF THE TRANSPORTATION UNIT**
  - **PLANNED & ACTUAL DEPARTURE OF THE TRANSPORTATION UNIT**
  - **PLANNED TIMESTAMP FOR PLANNING PURPOSES**
  - **ACTUAL TIMESTAMP FOR TRACKING PURPOSES**
- **WEIGHT AND VOLUME OF THE LOADED GOODS**

# TU STATUS

---

- **PROVIDES OVERVIEW OVER PLANNED AND EXECUTED STEPS**
  - **E.G: ARRIVAL AT CHECKPOINT STATUS**
  - **LOADING PROCESS STATUS**
  - **AND GOODS ISSUE STATUS**
  - **CUSTOMIZED STATUS**
- **EXECUTION STATE OF CUSTOMIZED STATUS**

# TU - VEHICLES ASSIGNMENT

---

**/SCWM/TU\_VEH**

- **ASSIGNMENT OF TRANSPORTATION UNITS TO VEHICLES**

# **TU - PDI / PDO ASSIGNMENT**

---

- **LINK BETWEEN THE TRANSPORTATION UNIT AND THE ASSIGNED**
  - **INBOUND DELIVERY ITEMS**
  - **OUTBOUND DELIVERY ORDER ITEMS**
- **FIELDS FOR ASSIGNED ITEMS**
  - **PLAIN TEXT**
  - **GUIDS**
- **EVERY ASSIGNMENT IS MARKED WITH A CONTINUOUS NUMBER**



# **TU - DOOR ASSIGNMENT**

---

- **ASSIGNMENT OF TRANSPORTATION UNITS TO DOORS**
- **ASSIGNMENT ACTION IS STORED**
- **ARRIVAL AND DEPARTURE**

# OVERVIEW

---

- **CREATING A TRANSPORTATION UNIT CREATES ENTRIES IN**
  - **TRANSPORTATION UNIT TABLE (/SCWM/TUNIT)**
  - **S&R ACTIVITIES TABLE (/SCWM/TU\_SR\_ACT)**
  - **TU STATUS TABLE (/SCWM/TU\_STATUS)**
- **ASSIGNING A PDI OR PDO TRIGGERS AN INSERT IN /SCWM/TU\_DLV TABLE**
- **ASSIGNING A DOOR CREATES AN ENTRY IN /SCWM/TU\_DOOR**
- **TIMESTAMPS ARE USED FOR CALCULATING THE ACTIVITY STATUSES**
  - **A PLANNED TIMESTAMP ALONE = A PLANNED OBJECT OR ASSIGNMENT**
  - **IF THE ACTUAL START IS SET = THE STATUS IS ACTIVE**
  - **IF THE END ACTUAL TIMESTAMP IS SET = THE STATUS IS COMPLETED**

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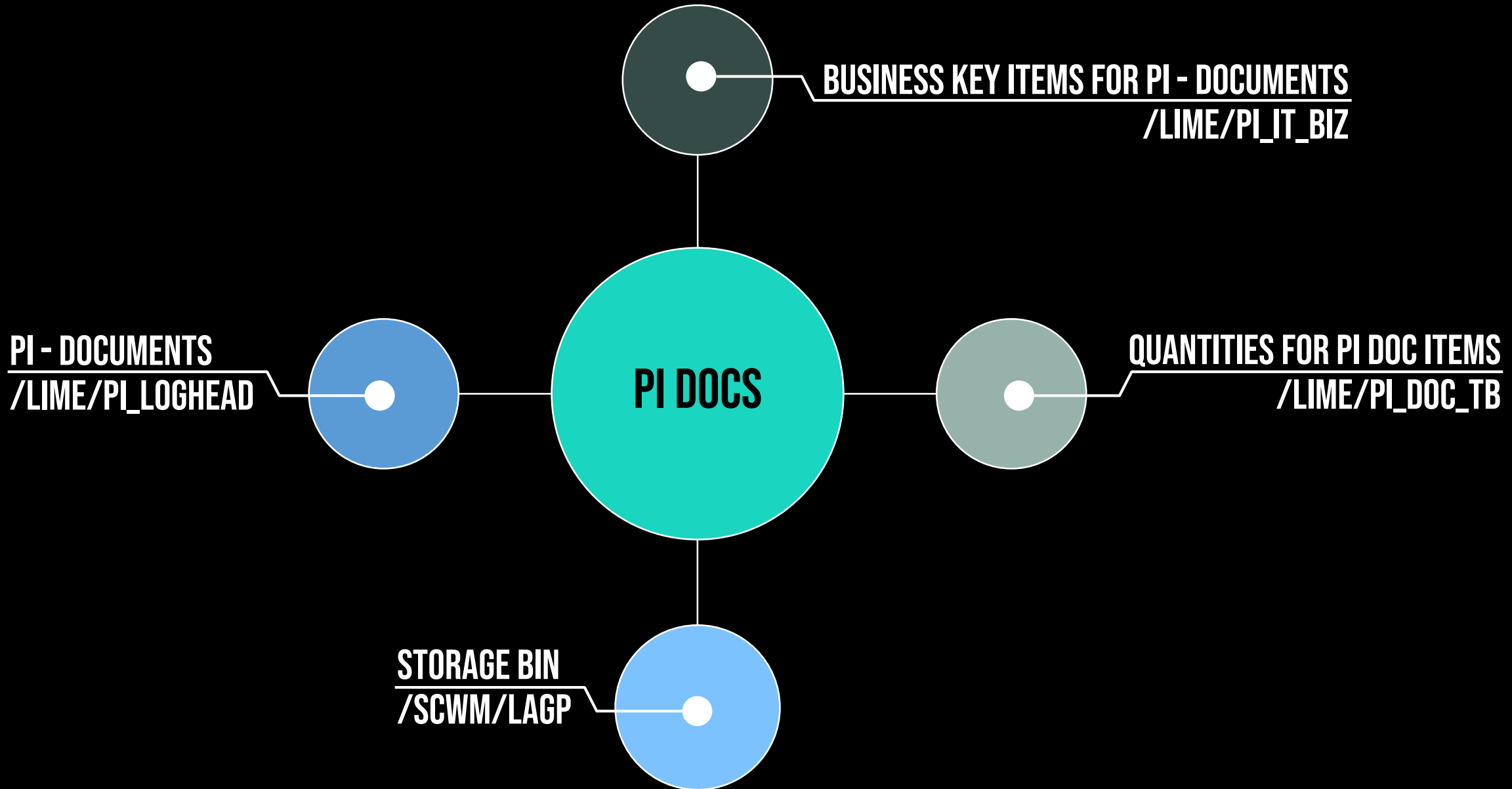
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**PHYSICAL INVENTORY DOCUMENTS**



# PI - DOCUMENTS

---

- **HEADER INFORMATION OF PHYSICAL INVENTORY DOCUMENT**
  - **KEY: GUID**
- **PLAIN TEXT DOCUMENT NUMBER**
- **DOCUMENT YEAR**
  - **INDICATOR FOR THE YEAR OF CREATION**

# **BUSINESS KEY ITEMS FOR PI - DOCUMENTS**

---

- **STORES ALL THE OBJECTS INVOLVED WHILE**
  - **CREATING, COUNTING AND POSTING AN INVENTORY DOCUMENT**
  - **E.G. THE BIN THE DOCUMENT WAS CREATED FOR, INVOLVED HU, INVOLVED STOCK**
  
- **ONLY HOLDS THE DIFFERENT ELEMENTS INVOLVED**

# QUANTITIES FOR PI DOC ITEMS

---

- **QUANTITY ENTRIES FOR EACH STATUS OF A PHYSICAL INVENTORY DOCUMENT**
- **2 SEPARATE FIELDS**
  - **SYSTEM QUANTITY = QUANTITY OF THE OBJECT IN THE EWM**
  - **COUNTED QUANTITY = QUANTITY THE USER COUNTED WHILE PROCESSING**

# STORAGE BIN

---

- **DER SLIDE CUMED NEANEA...**
- **SORRAYO -> MR I IS THE ONLY MEMBER OF TEAM SORRAYO**



# OVERVIEW

---

- **WHEN CREATING AN INVENTORY DOCUMENT**
  - THE EWM CREATES THE HEADER ENTRY
  - THE BUSINESS KEY ENTRIES FOR ALL THE INVOLVED ITEMS (LIKE THE BIN, THE HU AND THE STOCK)
  - INITIAL INSERT TO THE QUANTITY TABLE
  
- **WHEN A PHYSICAL INVENTORY DOCUMENT IS PROCESSED**
  - THE BUSINESS KEY TABLE AND THE QUANTITY TABLE ARE ENHANCED BY STATE SPECIFIC ENTRIES
    - ONE FOR ALL THE ITEMS REGARDING THE COUNTING PROCESS
    - AND ONE FOR ALL THE ITEMS BEING POSTED
  - POSTED INVENTORY DOCUMENT IS SAVED ON STORAGE BIN LEVEL

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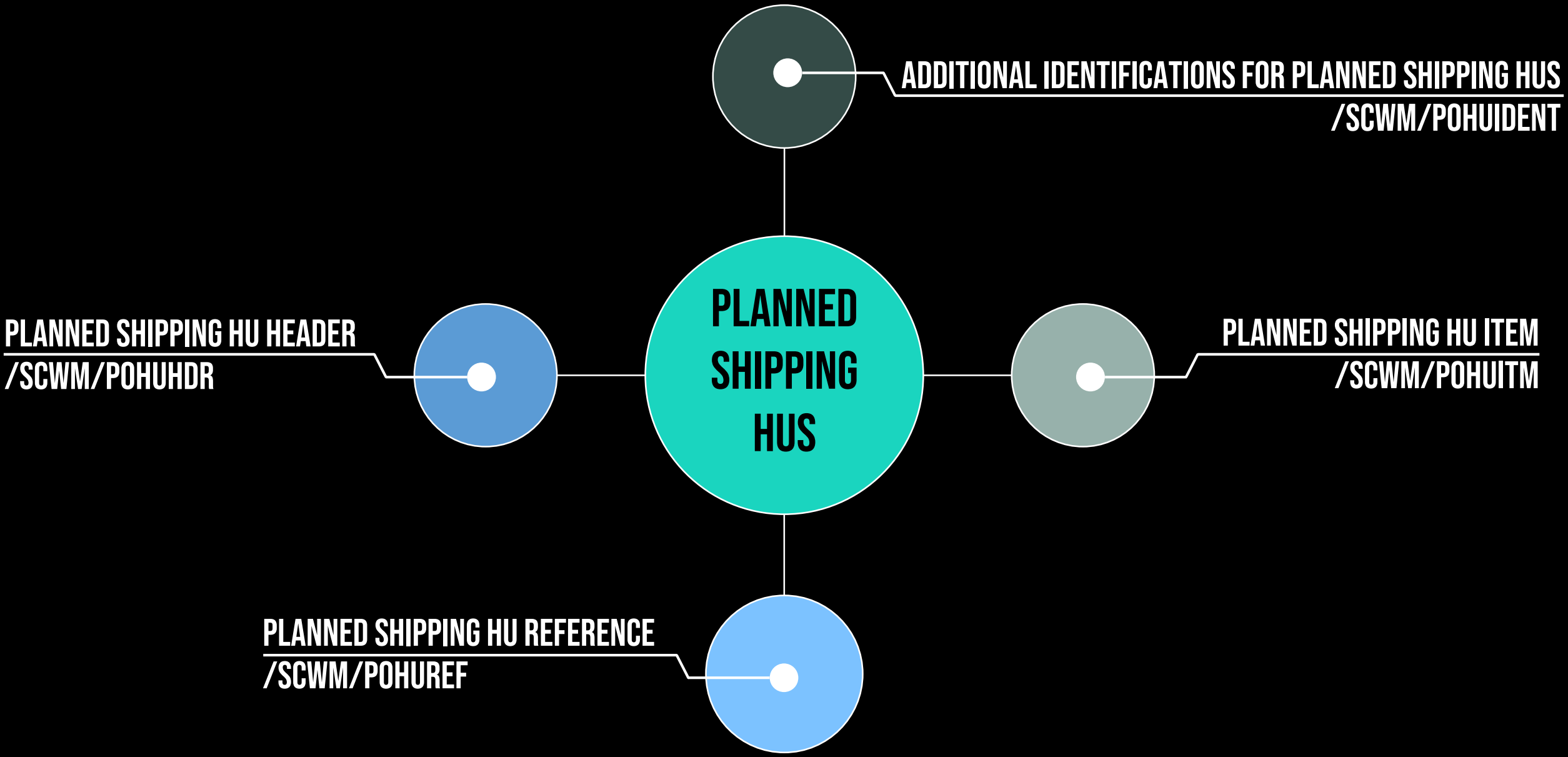
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**SAP EXTENDED WAREHOUSE MANAGEMENT DATABASE TRAINING**

**PLANNED SHIPPING HANDLING UNITS**



# PLANNED SHIPPING HU HEADER

---

- **HEADER INFORMATION WITH BASICALLY THE SAME PURPOSE AS STANDARD HANDLING UNITS**
- **DEFINES PLANNED SHIPPING HUS IN THE WAREHOUSE**
  - **KEY: GUID**
- **PLAIN TEXT NUMBER**
- **INFORMATION ABOUT PACKAGING MATERIAL FOR THE HU**

# PLANNED SHIPPING HU ITEM

---

- **LINK BETWEEN**
  - WHAT KIND OF HU WAS PLANNED FOR A CERTAIN ORDER
  - WHICH ITEMS ARE SUPPOSED TO BE PACKED
- **KEY: COMBINATION OF**
  - HANDLING UNIT (GUID NUMBER)
  - STOCK SUPPOSED TO BE PACKED INTO THE HU
- **STOCK INFORMATION (QUANTITY, PRODUCT, BATCH)**
- **TRIGGER INFORMATION**
  - GUIDS
  - DOCUMENTS ITEMS

## **ADDITIONAL IDENTIFICATIONS FOR PLANNED SHIPPING HUS**

---

- **HOLDS ADDITIONAL INFORMATION**
- **USED IF EWM SYSTEM IS CUSTOMIZED TO USE IDENTIFICATIONS**
- **CONTENTS:**
  - **GUID OF THE PLANNED HANDLING UNIT**
  - **TYPE OF ADDITIONAL IDENTIFICATION**
  - **ADDITIONAL IDENTIFICATION**

# PLANNED SHIPPING HU REFERENCE

---

- SAME INFORMATION AS HU REFERENCE TABLE
- LINK BETWEEN THE GUID OF THE HANDLING UNIT AND THE ASSIGNED REFERENCE DOCUMENT
- ASSIGNMENT OF THE DOCUMENT CATEGORY AND THE ID OF THE DOCUMENT

# OVERVIEW

---

## WHEN A PACKAGE PLANNING PROCESS FOR ODOS IS EXECUTED

### EWM CALCULATES THE RESULTS AND INSERTS ENTRIES IN:

- **PLANNED SHIPPING HU HEADER = INFORMATION ABOUT THE KIND OF PACKAGE**
- **PLANNED SHIPPING HU ITEMS = WHAT HAS TO BE PACKED**
- **ADDITIONAL IDENTIFICATIONS FOR PLANNED SHIPPING HU = INFORMATION MAYBE NEEDED DURING THE PICKING, PACKAGING OR GOODS ISSUE PROCESS**
- **PLANNED HU REFERENCE DOCUMENTS = PROVIDING A LINK BETWEEN THE PLANNED SHIPPING HU AND THE OBJECT IT IS ASSIGNED TO (E.G. AN ODO)**