Purchase Order Accruals
Deep Dive, Full Version

May 2018, updated in June 2019

Product Version / LoB:
SAP S/4HANA 1809 and 1909 LoB Finance

E2E Solution/Solution Capability:
Financial Accounting and Close

THE BEST RUN SAP

Agenda

- Business Context and Overview
- Main Process Steps
- Business Examples using T-Accounts
- Customizing for Purchase Order Accruals
  - Basic Settings
  - Ledgers, Ledgergroups, Currency Types
  - Accrual Calculation
- Transfer Purchase Orders into the Accrual Engine
  - Overview
  - Process Steps
  - Technical Details: Relation Between Purchase Order and Accrual Object
  - Life-Time Events of Purchase Orders and Their Effect on Accruals
  - Purchase Order Accruals: Limitations
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  - Motivation
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  - Customizing: Thresholds and Time Intervals for Reviews and Approvals
  - Quantity-Based Accrual Calculation and Review
- Post Accrual Amounts at Period End
- Reversal of Periodic Accrual Postings

Some changes in rel. 1909 and downported to rel. 1809 SP3.

New in rel. 1909 SP 1 and downported to rel. 1809 SP4.

Agenda (Continued)

- Utilization of Accruals
- Accrual Value Date
- Accruals Closing Frequency
- Release of Accruals
- Additional Account Assignments in Utilization and Release Postings
- Post Accruals to Separate Cost Account: Account Determination
- New Functions Pause, Suspend and Resume
- Pitfalls
- Central Finance
- Fiori Apps
  - Workflow using My Inbox for Review of Periodic Accrual Amounts
  - Machine Learning Support for Review of Periodic Accrual Amounts
- Reporting
- Archiving

Yellow: New in rel. 1909 and downported to rel. 1809 SP3.

Improved with SP3 in rel. 1809 and SP1 in rel. 1909

Green: New in rel. 1909.

Business Context
and
Overview

Business Context

- As soon as there are liabilities to a third party, for example to a supplier, but the related costs have not yet been posted, accruals need to be posted.
- By posting accruals in the system, the relevant costs are allocated to the fiscal period in which they occurred.
- The posting of accruals is typically a period-end closing activity because it is often not known until period end to what extent accruals are required.

Optional Extension:
Accruals for Purchasing to Stock or Fixed Asset

- By default accruals are only posted for purchase orders that represent a purchasing into costs, not into stock or fixed assets.
  - I.e. by default only purchase orders are taken into account that contain an additional account assignment like cost center, internal order etc.
- But it is possible to post accruals also for purchase orders that post to material stock or to fixed asset.
- Some BAdI implementations need to be created to achieve this.
- Consulting note
  2888110 - *Enable accruals for purchase orders to stock*
  contains the technical details, incl. sample source code for the BAdI implementations.

Overview: Features

- With the new application *Purchase Order Accruals,* it is possible to automatically calculate and post purchase order accruals.
- This new application is based on the (new) S/4HANA **Accrual Engine** which offers flexible Customizing options for calculation and posting of the accruals.
- Optional: A **review** and/or **approval** process for the monthly accrual amounts can be activated in Customizing.
- Various screens are available for monitoring, review and approval of accruals.
  - With release SAP S/4HANA 1809, these screens are available for SAP GUI and for the next release 1909 they are planned to be available as Fiori apps.
  - With release SAP S/4HANA Cloud 1811 purchase order accruals are available for the first time in the cloud.

Basic Principle

- At the end of each fiscal period the application *Purchase Order Accruals* calculates the accrual amounts for the purchase order items by **evaluating the plan data in the purchase order item.**
  - For example the delivery schedule with its planned delivery dates determines the cumulated planned costs that are planned to have occurred from purchase order creation date up to the end of this period.
  - Note: It is also possible to use other data like non-valuated goods receipts as plan data.
- At end of each period the system **assumes** that these cumulated planned costs reflect reality
  - If at the end of the period the cumulated actual costs are less than the cumulated planned costs, the system proposes the difference as accrual amount.
- Since the proposed accrual amount at the end of each period is based on an assumption, by default a **review** process for those accrual amounts (or for the planned costs) is activated in Configuration.

Fine-Grained Posting of Accruals: Audit-Save

- The Purchase Order Accruals application works fine-grained:
- Calculation, review and posting of accruals are performed on the detailed level of single purchase order items.
- The purpose is to determine the accrual amounts in a reliable, reproducible and audit-save way.
- The alternative would be for example to roughly estimate the accrual amounts based on historic data. This approach can be applicable, but in general amounts estimated this way are not reliable.

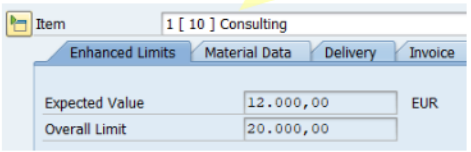
Use-Cases for Accruals: PO Item Without Valuated GR

A. Purchasing of consumable material or service – **without** goods receipts

- There is no recording of the goods receipts in the system.
- In this case the accruals are proposed
  1) Either based on the *delivery schedule* given in the purchase order item: All planned deliveries with a delivery date in the past are assumed as received.
  2) Or using a *straight-line* approach, that is, a linearization of the total value of the PO item between start and end date.

Remark concerning PO items with PO item category *Enhanced Limit:*
The two fields Start- and End Date are visible in the PO screens for enhanced limits, for example in transaction ME23N: In this case no delivery schedule can be entered in the PO item. The amount that is used by the Accrual Engine as total amount that shall be linearized is the *Expected Value* that the user has entered in this PO item (not the *Overall Limit*).

Screen shot from TA ME23N, details of a PO item with item category *Enhanced Limit*.



B. Purchasing of consumable material or service – with **non**-valuated goods receipts

- The quantity of the received material or service was recorded in the system using non-valuated goods receipts: Non-valuated means that **no** costs were posted by the goods receipt entry.
- In this case the accruals are proposed based on quantity recorded by the non-valuated goods receipts multiplied by the net price given in the purchase order item. Note: Use accrual method PLN_DSNVGR to achieve this behavior.

Use-Cases for Accruals: PO Item With Valuated GR

C. Purchasing of consumable material – **with** valuated goods receipt postings

- The valuated goods receipt (GR) entry posts the costs as entered quantity multiplied by net price of PO item.
- In this case accruals are only needed if the GR has not been posted despite the material was already received. That's why the system proposes the accruals based on the delivery schedule given in the purchase order item: All planned deliveries with a delivery date in the past are assumed as received. The costs posted by the GRs are considered of course in the proposed accruals.

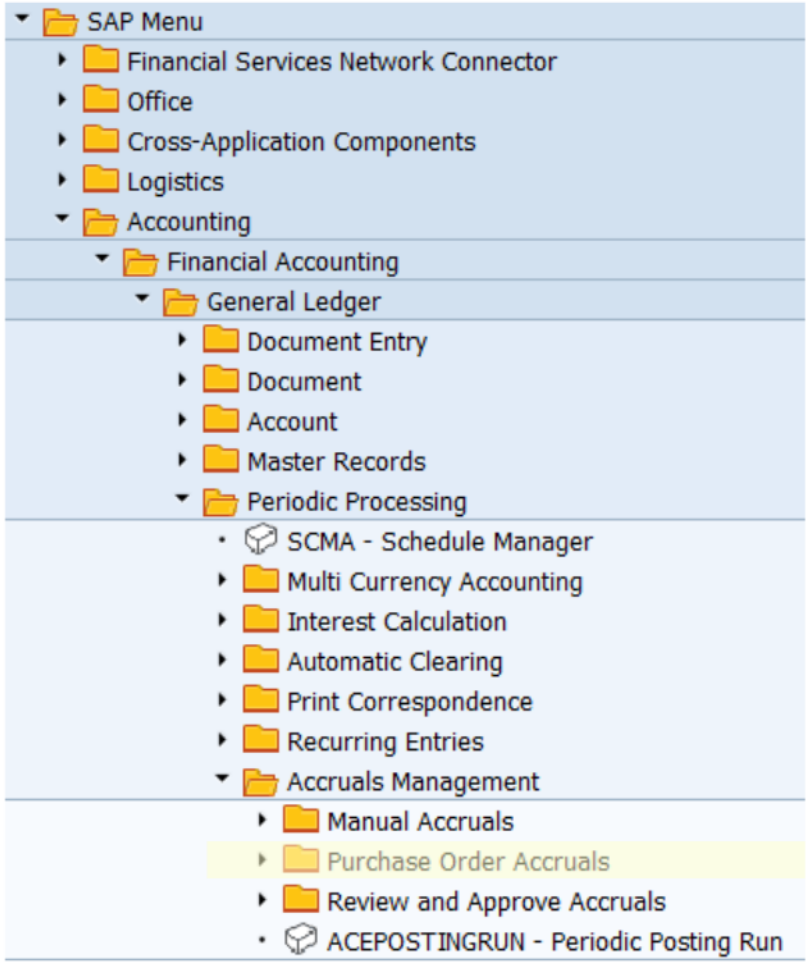
D. Purchasing of service – **with** service entry sheet postings

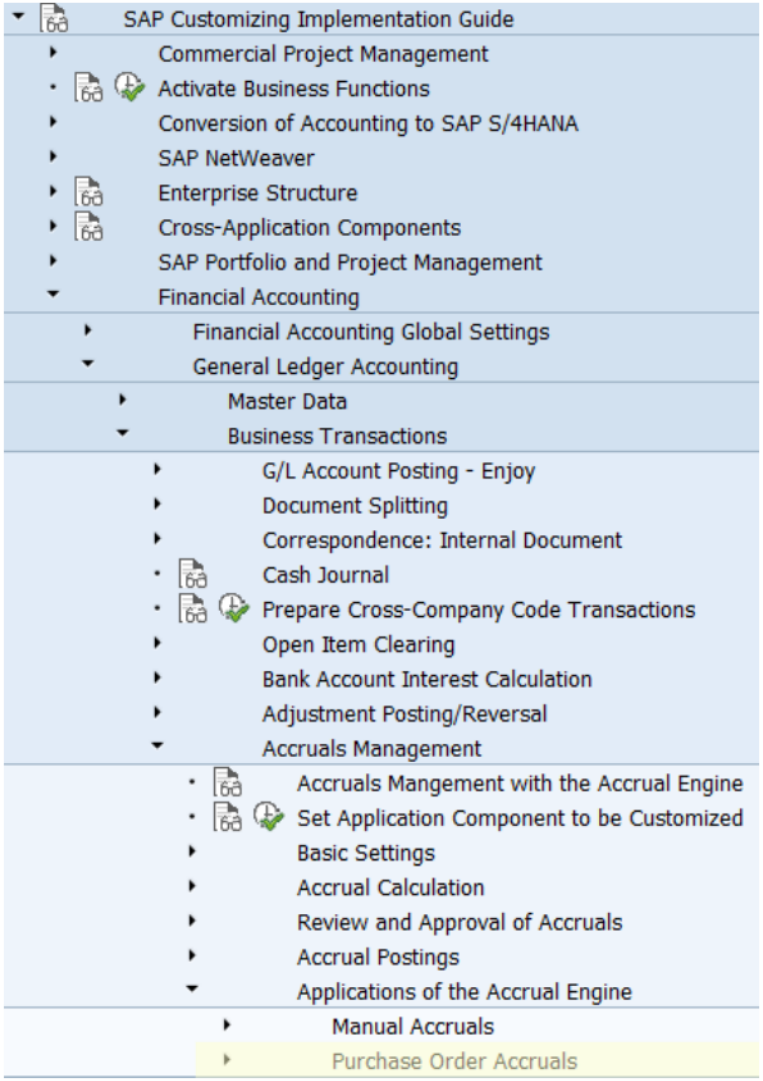
- A service entry sheet posts the costs like a valuated goods receipt.
- Usually there is no delivery schedule available in the PO item. In this case the accruals are proposed based on a straight-line approach: The total value of the PO item is distributed linearly between start- and end date of the PO item.
- Note: The two fields start- and end date are visible in the PO screens if the PO item uses the *Lean Services* approach: *Product Type Group* is 2 "Service".

Relation to Accruals Management

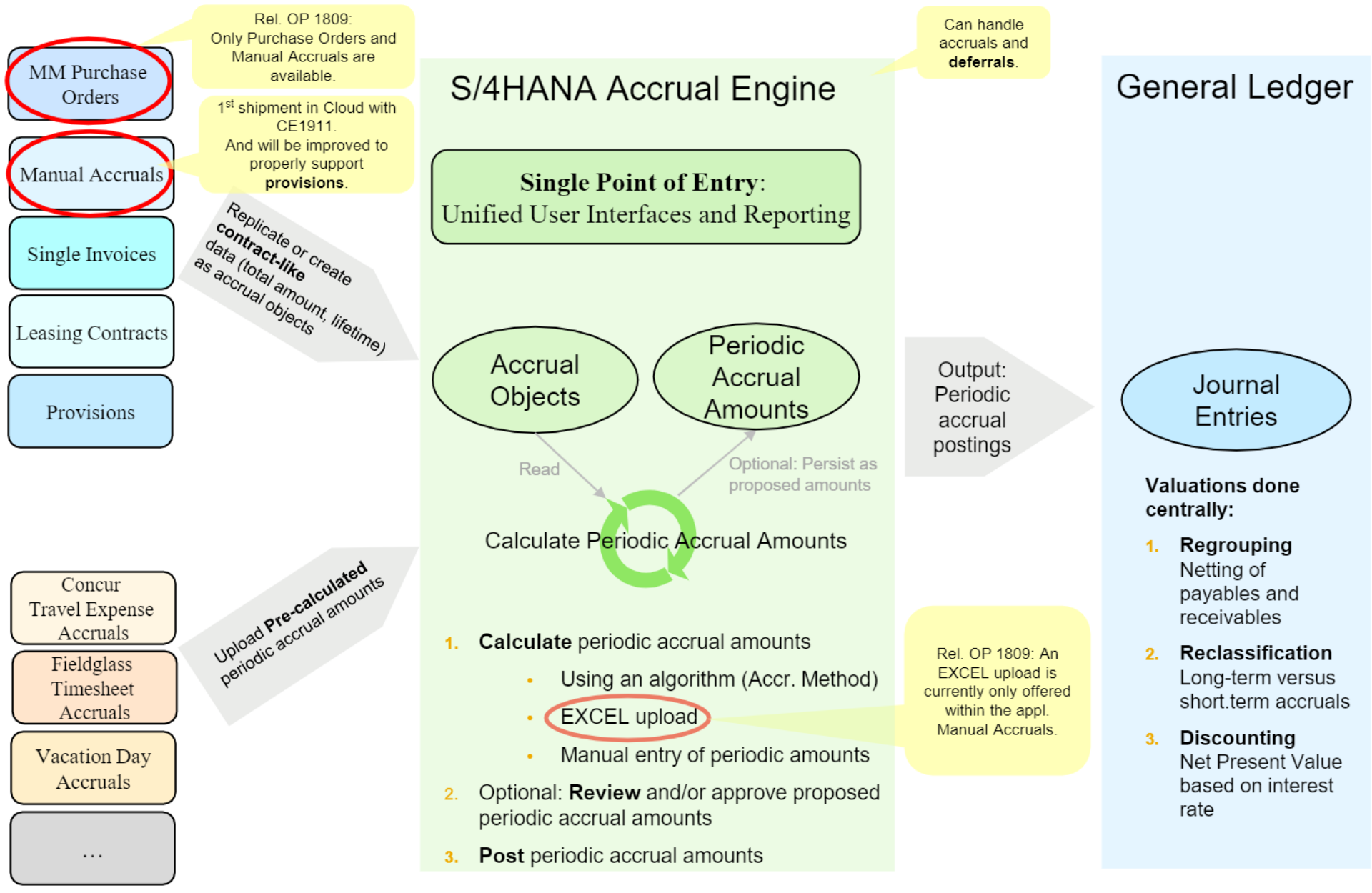
- The application *Purchase Order Accruals* is part of the bigger application *Accruals Management.*
- Accruals Management bundles all applications that are based on the (new) S/4HANA Accrual Engine.
- The long-term vision of ***Accruals Management*** is to be the single point of entry for managing accruals.

Purchase Order Accruals in Application Menu and IMG





Accruals Management – Vision / Big Picture

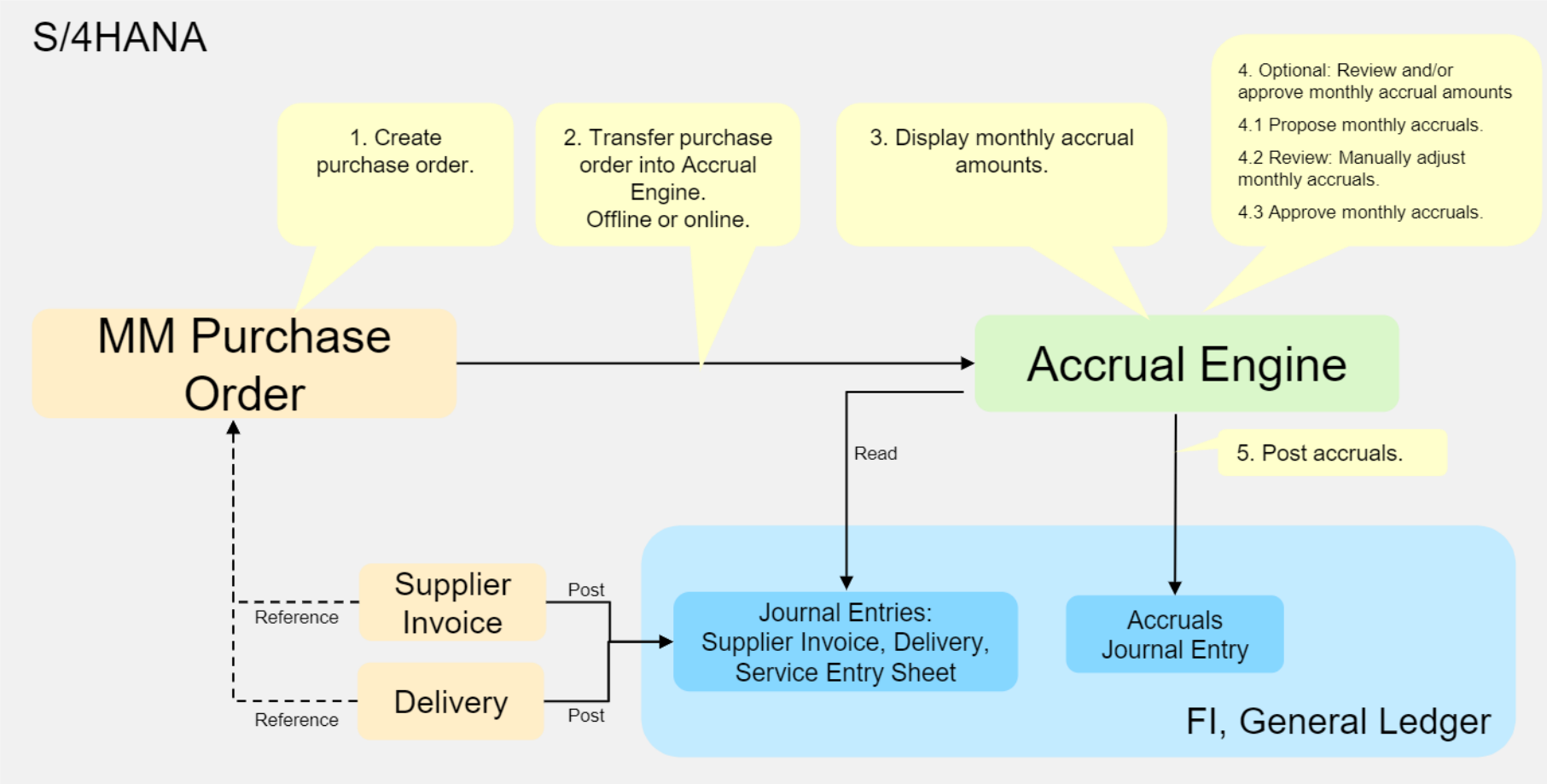


Main Process Steps

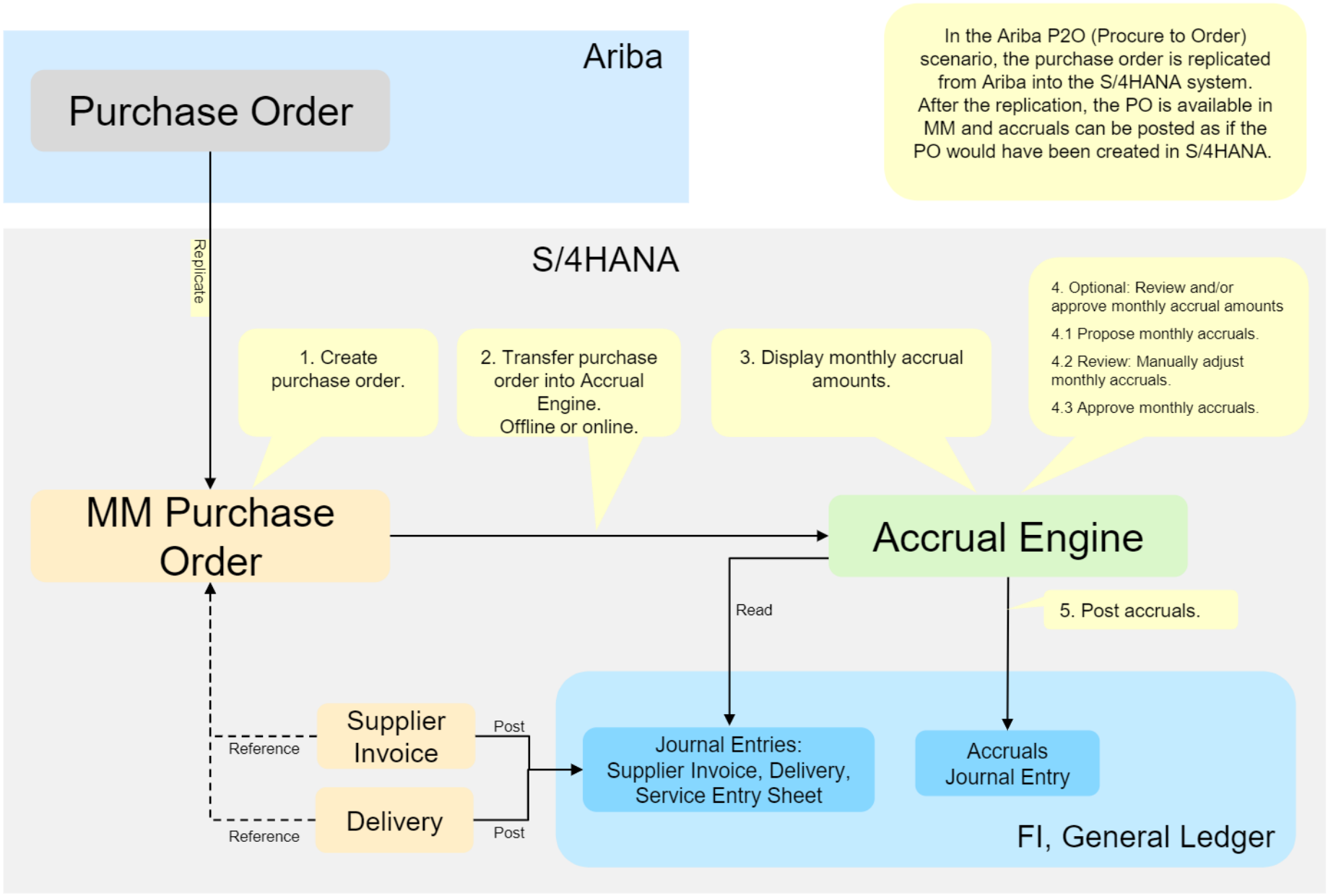
Main Process Steps

- Creation of a purchase order in application component Purchasing MM-PUR, for example using transaction “Create Purchase Order” (ME21N).
  - Each purchase order is automatically transferred into the Accrual Engine. This happens according to the Customizing settings controlling whether and how accruals will be posted. In the Accrual Engine, an accrual object is created for each purchase order.
  - Special case - initial data load: When implementing the application component *Purchase Order Accruals*, you have to transfer your existing purchase orders once into the Accrual Engine of your production system.
    You can do this using transaction “Transfer Purchase Orders to Accrual Engine” (POAC_MM2ACE_TRANSFER).
- Display Accrual Objects:
  - For each purchase order, you can display the monthly accrual amounts the system calculates using transaction “Accruals for Purchase Orders: Display Accrual Objects” (POACTREE03).
- Optional: Review and approval process at the end of each fiscal period:
  - At the end of each fiscal period, a reviewer can adjust the accrual amounts (or planned costs) that the system proposes for the current fiscal period.
  - As a prerequisite, the proposal amounts must be generated for the given fiscal period using transaction ACEPROPOSALRUN.
  - The review can be performed using transactions “Review My Purchase Order Accruals” (FACRARVWBU, for PO owners) or “Review My Cost Object Accruals” (FACRARVWCO, for controllers). The review includes the possibility to manually adjust the accrual amounts that the system proposes.
  - As an alternative or in addition to the review, an approval can be performed using transaction “Approve Periodic Accruals” (FACRAAPPRVGL).
  - The difference between review and approval is that in case only review is active, then the system will post the proposed accrual amounts even if no review was done. But if approval is active, then only those accrual amounts are posted which have been approved.
- Post accruals at the end of each fiscal period:
  - The accrual amounts are posted for example with transaction “Periodic Posting Run” (ACEPOSTINGRUN).

Purchase Order Accruals: Architecture Big Picture



Ariba Integration: Architecture Big Picture



Business Examples Using T-Accounts

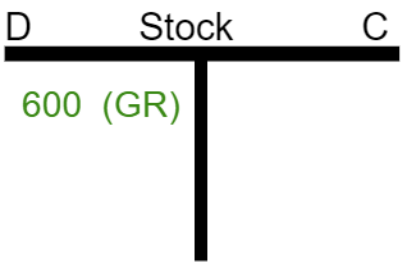
For which Purchase Order Items are Accruals Needed?

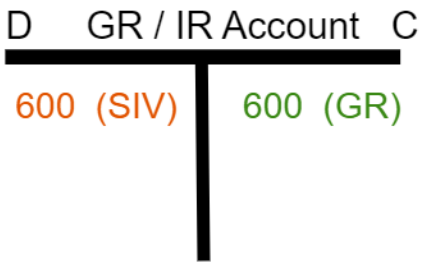
- Accruals need to be posted for costs that already incurred but were not yet posted in Accounting.
- As a consequence accruals are only relevant for purchases where costs occur. Use-Cases:
  - Purchasing products that are directly used; for example office materials.
  - Purchasing of services that are received during a period of time; for example IT consulting.
  - The corresponding purchase order items usually have an additional account assignment like a cost center.
- Accruals are usually **not** relevant for the purchasing of
  - Products that are put on stock, for example raw material that will *later* be used for producing other products.
  - Products that represent a fixed asset, for example a laptop. Their value is posted to a balance sheet account. The costs will occur *later* during depreciation postings.

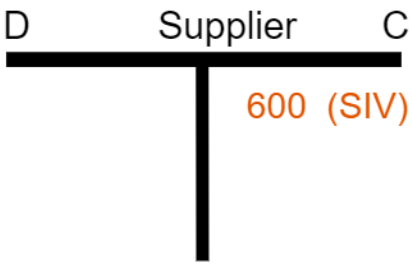
Posting Logic:
Purchasing Process Without Costs

Example: Purchasing of a product that is put on stock:

- No costs occur (except freight/transportation costs which are not considered here).
  Only postings to balance sheet accounts occur.
- So **no accruals** are needed.
- Valuated goods receipts are used because the purchased product has a value that will be posted as inventory to a balance sheet account when the goods is received.
- Simple example: Goods receipt and supplier invoice are posted in the same fiscal period.





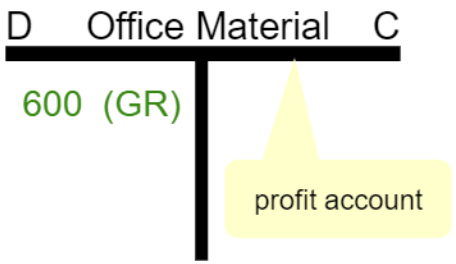


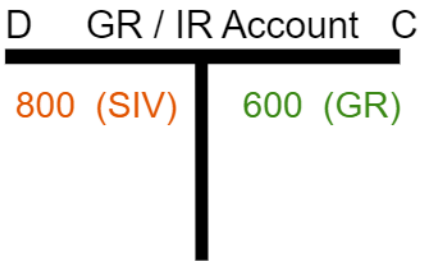
GR: Goods Receipt
SIV: Supplier Invoice

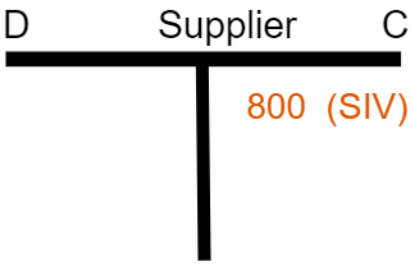
Posting Logic:
Purchasing Process With Costs: Simple w/o Accruals

Example: Purchasing of office material with valuated goods receipt.

- Costs occur since the office material is directly used: The goods receipt posts the costs of 600 EUR to the cost center that was entered in the purchase order item.
- Simple example: Goods receipt and supplier invoice are posted in the same fiscal period: **No accruals** are needed.





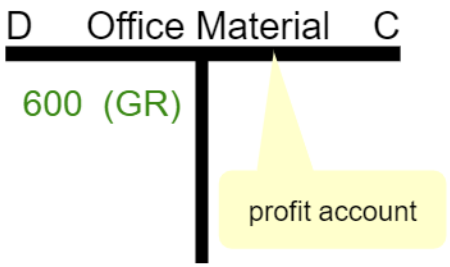


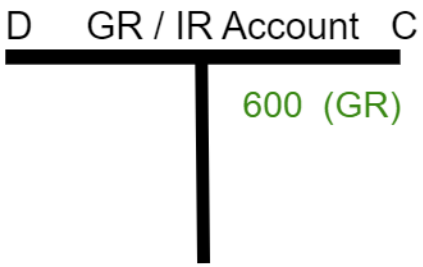
GR: Goods Receipt
SIV: Supplier Invoice

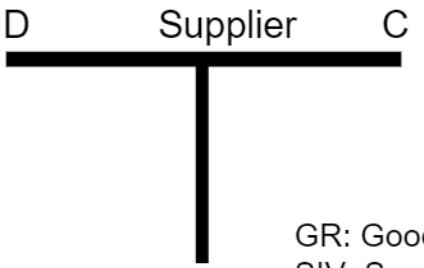
Posting Logic:
Purchasing Process With Costs: GR/IR Balance

Example: Purchasing of office material with valuated goods receipt.

- Costs occur since the office material is directly used: The goods receipt posts the costs of 600 EUR to the cost center that was entered in the purchase order item.
- Only goods receipt was posted within the period – but the supplier invoice was not yet posted; the invoice of 600 EUR is expected in the fiscal period:
- **No accruals** are needed, since no future costs are expected: The invoice will post to the GR/IR account.
- Note: The balance of the GR/IR account expresses that the company has a debt of 600 EUR against the supplier. This balance can be posted to a at period end. corresponding liability account using program RFWERE00.







GR: Goods Receipt
SIV: Supplier Invoice

Posting Logic:
Purchasing Process With Costs: GR and Accruals

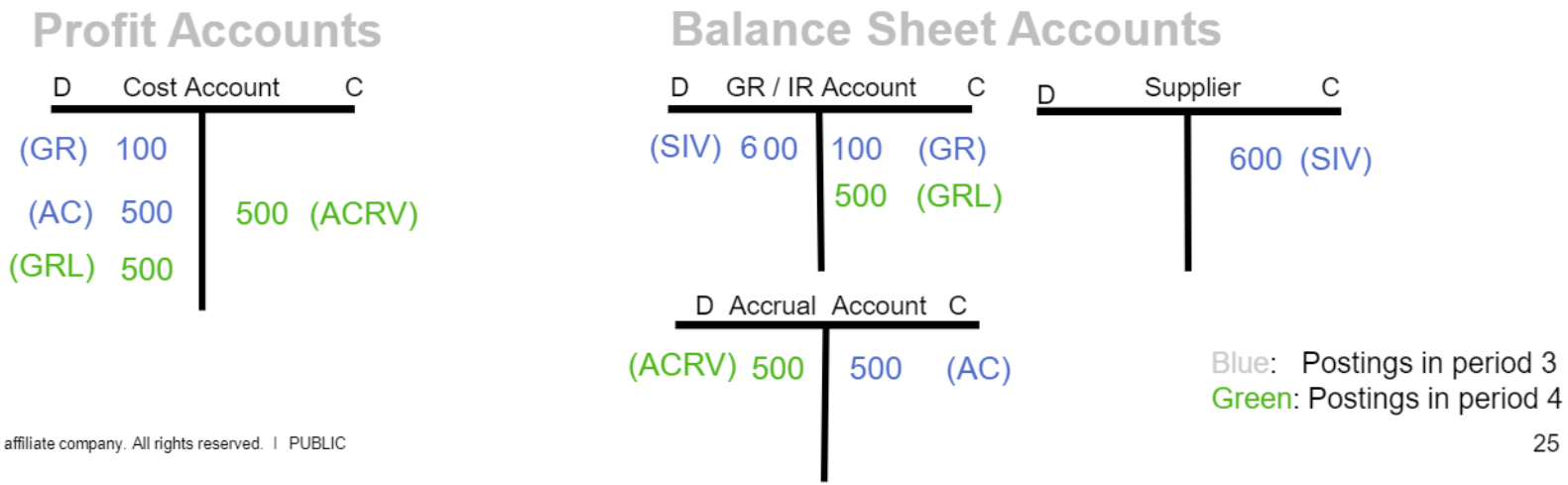
Example: Purchasing of office material with valuated goods receipt.

- Costs occur since the office material is directly used: The goods receipt posts costs of only 100 EUR to the cost center that was entered in the purchase order item.
- But according to the delivery schedule of the purchase order item, two partial deliveries with values of 100 EUR and another one with 500 EUR, that is, a total value of 600 EUR were planned for the current period: Obviously only one of them was posted.
- The supplier invoice of 600 EUR is expected in the next period: It was not yet posted.
- The system assumes(!) that both deliveries were received in this period – but for some reason the second goods receipt of 500 EUR was not yet posted. For example because the postings are done centrally by some shared service center – which receives the goods receipts as paper with some delay.
- The system can post the 500 EUR as **accruals** at the end of the current period.
  But since this amount of 500 EUR is based on an assumption, it can be appropriate to perform a review and/or approval of this amount before the posting, e.g. with transactions FACRARVWCO and FACRAAPPRVGL.
  Note: The abbreviation FAC means FinancialAccounting. RA means ReviewApprove. RVW means Review and APPRV means Approve.
- Note: Since the system uses an assumption to calculate the 500 EUR as accruals, it can make sense that a manual review of the accrual amount is performed before it is posted. The Accrual Engine offers such a manual review incl. the possibility to adjust the amount of 500 EUR.
- The T-accounts for this example are shown in the next slide!

Posting Logic:
Purchasing Process With Costs: GR and Accruals

Events in this example:

- Creation of purchase order Item for office material, total value = 600 USD, inbound delivery (better: goods receipt) is expected on 15.03.2017. This event triggers no actual postings; only commitment items are created which is not shown here.
- GR: Posting of valuated goods receipt of (only) 100 USD on 15.03.2017: Costs against GR/IR account.
- AC: Period close for 03/2017: Posting of accruals (=provision) on 31.03.2017: The PO item value of 600 USD minus the already delivered amount of 100 USD is posted as provision.
  The difference of 600 - 100 = 500 USD are posted as accrual. This expresses that the company has a debt of 500 USD against the supplier (assuming the company has received the goods but the goods receipt was not yet posted).
- SIV: Posting of invoice on 05.04.2017
  The posting of the invoice does not reduce the accruals, because the costs occur only when the delivery is posted.
- GRL: „Late“ posting of the remaining goods receipt of 500 USD on 10.04.2017.
- ACRV: Period close for 04/2017: No accruals are relevant any more because goods receipt has been completely posted: The accruals of the former period are reversed – and no accruals are posted again.

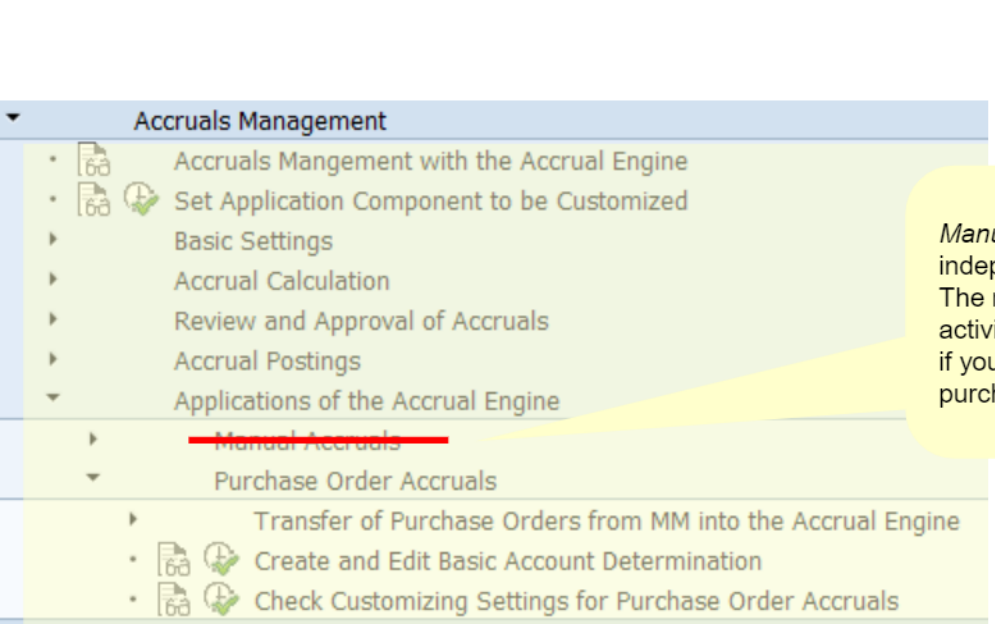


Customizing

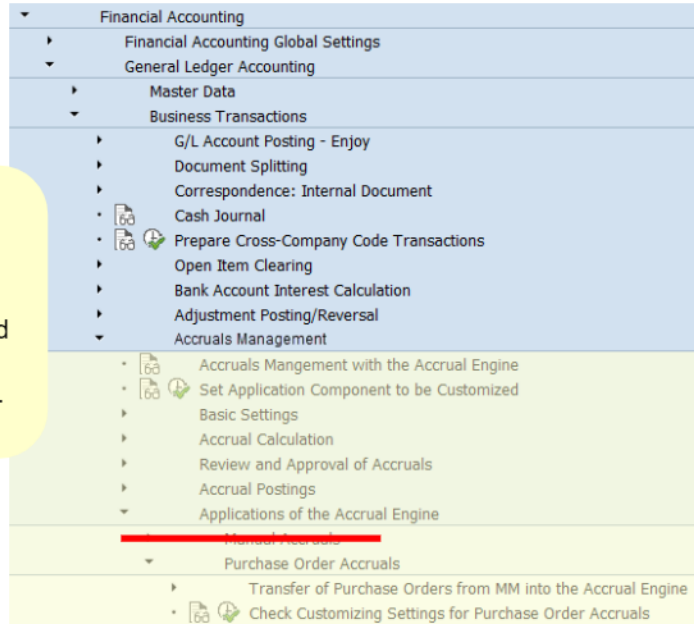
Customizing for Purchase Order Accruals

- Before purchase orders can be transferred into the Accrual Engine, you have to make specific Customizing settings. Amongst others, the Customizing settings will determine the following behavior:
  - Which purchase order (items) will be accrued?
  - Which algorithm will be used for a given purchase order item?
  - Is a manual review and/or approval of the accrual amounts required at the end of each period?
  - Which accrual accounts will be used in the accrual postings?

- You can make the relevant Customizing activities using the **Accruals Management** IMG tree, transaction ACEIMG or in the IMG tree, transaction SPRO:



Manual Accruals is an independent application: The related customizing activities are not required if you want to use only purchase order accruals.



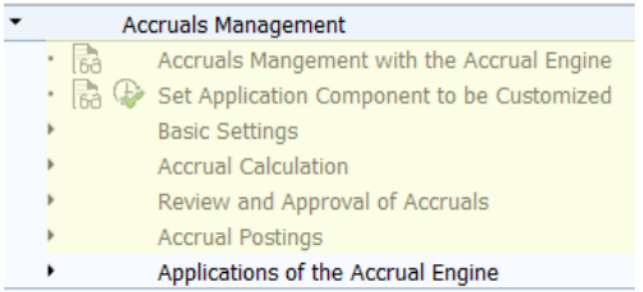
Customizing for Purchase Order Accruals (incl. Accrual Engine)

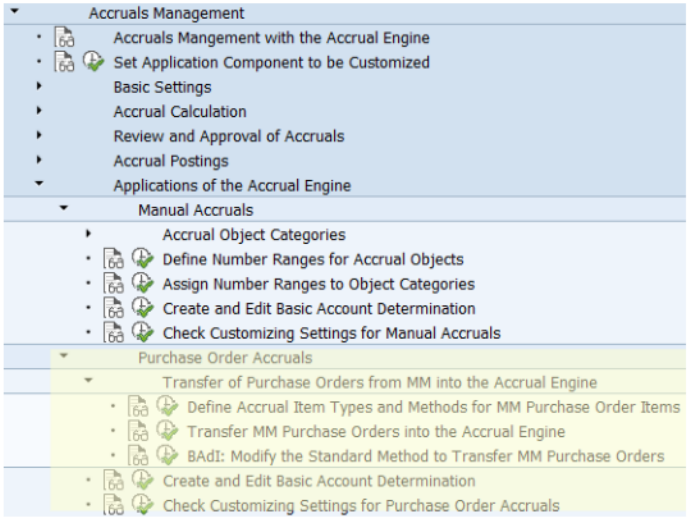
The customizing settings for purchase order accruals consist of two main parts:

1. Customizing settings for the **Accrual Engine**: Since the application purchase order accruals is based on the Accrual Engine, these settings are prerequisite for the customizing settings of purchase order accruals.
   Important: The Accrual Engine is a generic tool. **Not all available customizing settings are relevant** if you want to use the Accrual Engine only for purchase order accruals.

2. Customizing settings that are specific for the application **purchase order accruals.**

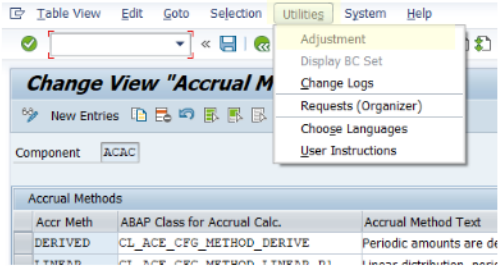
Both steps are contained in transaction “Accruals Management - IMG” (ACEIMG).





SAP-Delivered Default Customizing for Purchase Order Accruals

- SAP delivers default customizing for purchase order accruals.
- You can find this default customizing settings in client 000.
  - If you upgraded from a former release to release S/4HANA 1809 or higher, you will find the default customizing only in client 000 but not in other clients, because newly delivered customizing is only imported into client 000 during the upgrade.
- There are several ways to import the default customizing from client 000 into your productive client:
  - You can logon to client 000 and add the purchase order accruals customizing into a customizing transport:
    - Start all IMG activities of Accruals Management, transaction ACEIMG in client 000 one by one and
    - perform in each IMG activity the function *Table View -> Transport* for all table entries.
    - Afterwards, logon to the productive client and start transaction **SCC1** in order to import the customizing transport from client 000.
  - Alternatively you can logon to the productive client in your customizing system and directly copy the default customizing from client 000 for each IMG activity one by one:
    - Start the IMG activities of Accruals Management, transaction ACEIMG in the productive client (of your customizing system).
    - In each IMG activity use the function ***Utilities -> Adjustment*** and then the *Adjust* and then the *Add Entry* button to copy the entries from client 000.



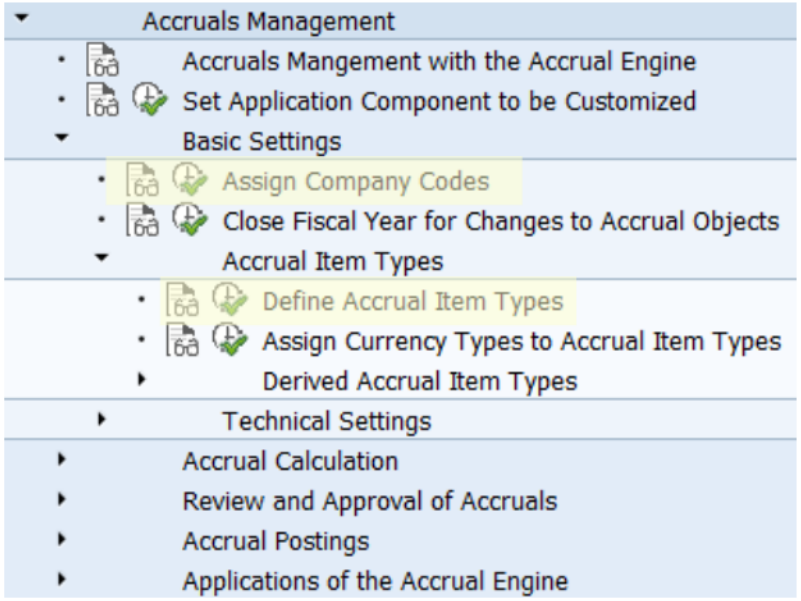
Customizing
Basic Settings

Customizing: Basic Settings

In transaction “Accruals Management - IMG” (ACEIMG), under *Basic Settings*, the following activities are relevant for purchase order accruals:

- **Assign Company Codes**:
  You assign the company codes to the Accrual Engine for which purchase order accruals will be posted.

- **Define Accrual Item Types**
  This is the one of the main activities in the Accrual Engine.
  Accrual item types are a central concept in the Accrual Engine. In order to understand this entity, it’s a good idea to focus on the underlying concept of accrual objects first (see next slide).



Data Structure in the Accrual Engine – Accrual Objects in General

- In the Accrual Engine, each business transaction for which accruals will be posted is represented by an accrual object. An accrual object can be regarded as a kind of generic contract. A contract usually consists of a header and several items.

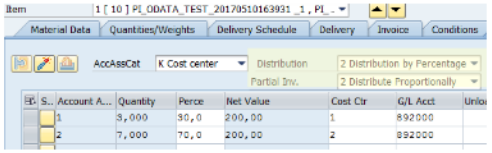
- An accrual object has a similar hierarchical structure as a contract. It consists of accrual subobjects:
  - An accrual subobject can be regarded as a contract item.
  - For a contract item, you might have to post accruals for several amounts, for example for expected costs, interests, and bonuses for sales representatives.
    In the Accrual Engine, each amount to be accrued is represented by an accrual item type.
  - The amounts differ depending on the relevant ledger. Therefore the amounts to be accrued are stored in the Accrual Engine for each combination of accrual item type and ledger.
  - Accrual item type and ledger define an **accrual item**. Each accrual subobject has at least one accrual item assigned to it.
  - For each accrual item, that is, for each amount to be accrued, the algorithm calculating the accrual amounts for the different periods needs to be assigned. The accrual calculation algorithm is called **accrual method**.

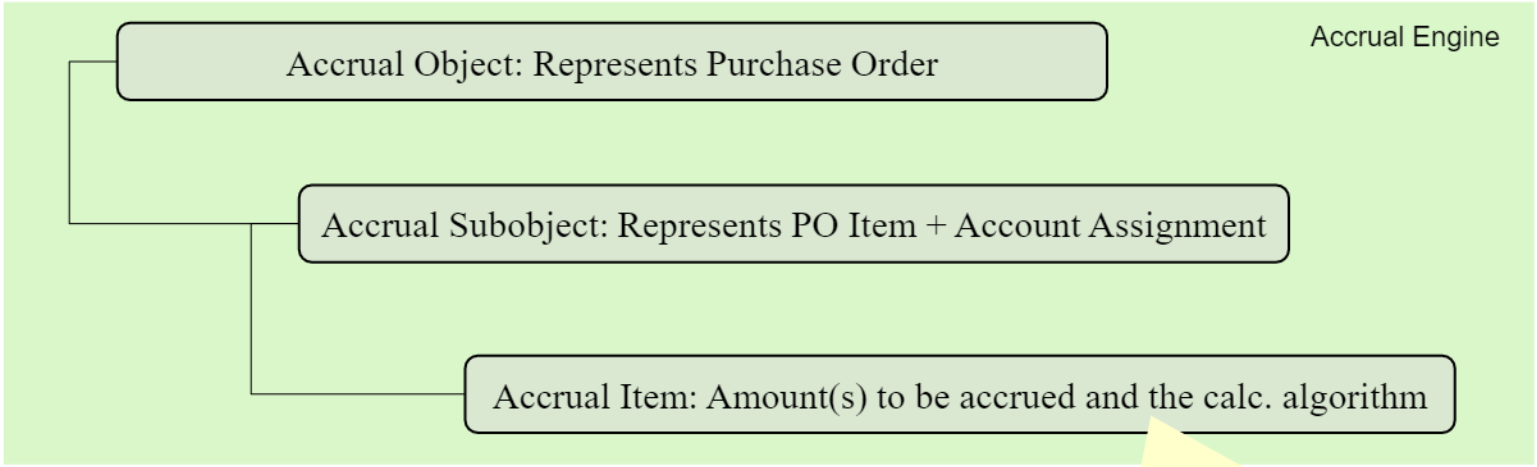
Data Structure in the Accrual Engine: Accrual Objects for Purchase Orders

In the application *Purchase Order Accruals*,

- an accrual **object** represents a purchase order.
- An accrual **subobject** represents a purchase order item that is subdivided based on the account assignments given in the purchase order:

Screen-Shot from MM purchase order display (transaction ME23N):
Here, the purchase order item is subdivided into two account assignments by 30% and 70%.





For each combination of **accrual item type** and **ledger**, the following information is stored for the accrual item:

- The (total) amount to be accrued
- The **accrual method**, that is, the calculation algorithm for the periodic accrual amounts

Customizing – Basic Settings: Accrual Item Types

- Please be aware of the following important general principle of the Accrual Engine:
  For each amount to be calculated by the Accrual Engine you have to create a separate **accrual item type** in Customizing.

- Regarding purchase order accruals the purpose of the Accrual Engine is to calculate an amount that will be posted as accruals (at the end of each fiscal period). To achieve this, you must create at least one accrual item type in Customizing. SAP delivers accrual item type **ACCRL** for this purpose.

- Theoretically, it would be sufficient to have only one accrual item type. You could assign a suitable algorithm to the corresponding accrual items that calculate the accrual amounts. However, if you'd only use one accrual item type (representing the relevant algorithm), you wouldn't able to see how the amounts are calculated (which values are used, for example).

- To make the calculation of accrual amounts **more transparent**, the Customizing process for purchase order accruals provides a three-step approach. Instead of using one single accrual item type only, you can define three accrual item types: One for the **planned** costs (PLNCST), a second one for the **actual** costs (ACTCST) and a third one for the **accruals** (ACCRL). In this approach, the accruals are calculated by subtracting the actual costs from the planned costs.

- The Customizing process for Purchase Order Accruals is designed for this three-step approach, but you can work also with only one accrual item type (ACCRL).

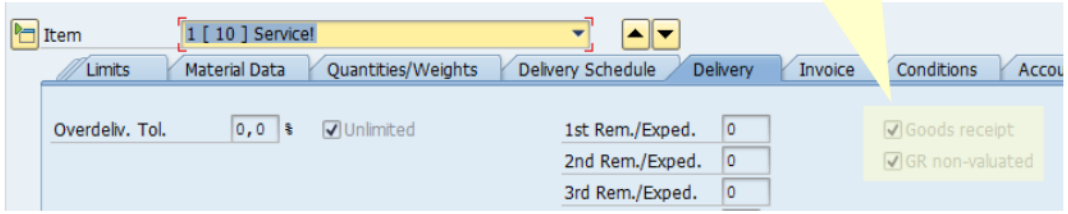
Accrual Item Types: Accruals as Plan Minus Actual

- If you follow the three-step approach (which is recommended standard procedure) you have to define the following accrual item types in order to ensure that the Accrual Engine calculates the accrual amounts for each period using the correct algorithm:

- One accrual item type calculating the planned costs of the purchase order item (based on account assignment) for each period:
  - The planned costs are calculated based on the delivery schedule, for example. When dealing with services, you can also apply an even distribution of the PO item's net amount over a specific period of time (linear approach).

- One accrual item type calculating the actual costs of the purchase order item (based on account assignment) for each period:
  - Actual costs are either
    - the goods receipt postings – if valuated goods receipts are used for this PO item; or
    - the supplier invoice postings – if no or non-valuated goods receipts

Screenshot from transaction "Display Purchase Order" (ME23N):



- One accrual item type for the **accruals**:
  This accrual item type has to be configured to be the result of **planned minus actual** costs (but always remaining a positive amount). This means that if the actual amount is greater than the planned amount, the system will set difference amount to zero.

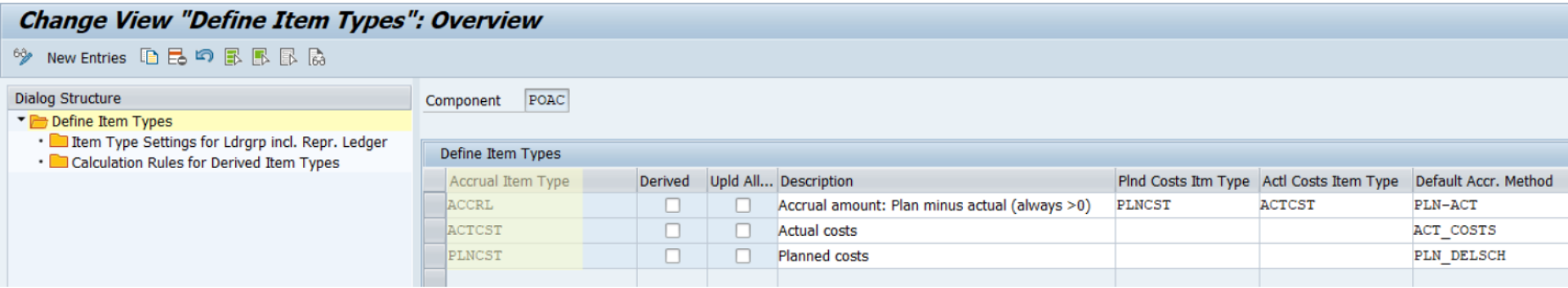
Customizing – Accrual Item Types

- SAP delivers the following three predefined accrual item types:
  - **PLNCST** for planned costs,
  - **ACTCST** for actual costs; and
  - **ACCRL** for accruals.

- In the Define Accrual Item Types activity you also define the relationship between these three accrual item types in order to let the Accrual Engine know that the periodic amounts for ACCRL are calculated based on the other two accrual item types by subtracting ACTCST from PLNCST (but keeping only positive amounts).

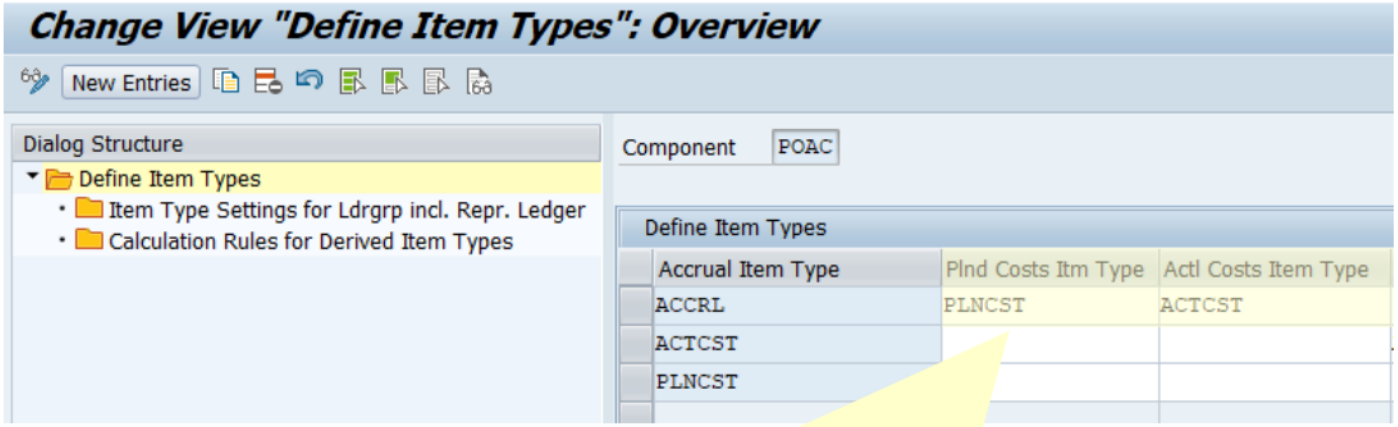
- If you want to activate a review and/or approval process for periodic accruals, you have to use an additional accrual item type that will contain the reviewed/approved periodic accrual amounts.

- SAP delivers the following predefined accrual item types:



Customizing – Three-Step Approach: Define Relationship Between Accrual Item Types

- In order to use the three-step approach for calculating accruals, you must define the relationship between the three accrual item types for planned costs (PLNCST), actual costs (ACTCST), and the resulting accruals (ACCRL).
- You can do this using Customizing activity *Define Accrual Item Types*:

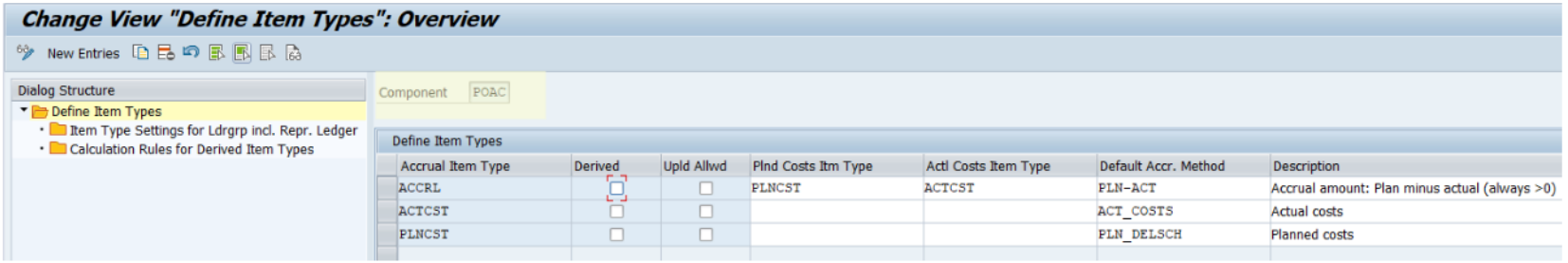


After assigning item types PLNCST and ACTCST to ACCRL in customizing, the Accrual Engine will automatically calculate the accruals as planned costs minus actual costs:

At runtime, during the calculation of the periodic accrual amounts, the Accrual Engine will calculate the amount for ACCRL by subtracting the amount for ACTCST from the amount for PLNCST.

Purchase Order Accruals as Application Component of the Accrual Engine

- The Accrual Engine includes the field “COMP” (that is, *application component*) as key field in all its database tables.
- Each application that is based on the Accrual Engine is defined in the Accrual Engine as application component. Each of these application components has its own value in field “COMP”.
- The “COMP” field value for Purchase Order Accruals is **POAC**.
- Moreover, all Customizing settings belonging to the Accrual Engine have the “COMP” field included as key field. It is visible as read-only field in the corresponding customizing views.
- Naming Convention: All ABAP repository objects, such as transactions and programs, belonging to application component POAC have the prefix POAC_...



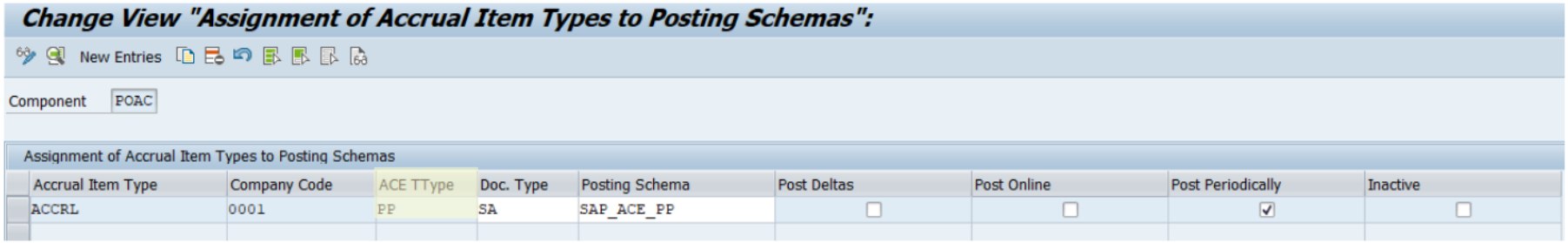
Customizing: Postings in the Accrual Engine

- For each accrual item type, you can specify:
  - whether its amounts will be posted by the Accrual Engine; or
  - whether its amounts are used for calculation or display only.

- If the amounts shall be posted, the accrual item type must be assigned to one or to several posting schemas in the IMG activity *Accruals Management -> Accrual Postings -> Assign Accrual Item Types to Journal Entry Types and Posting Schemas*.

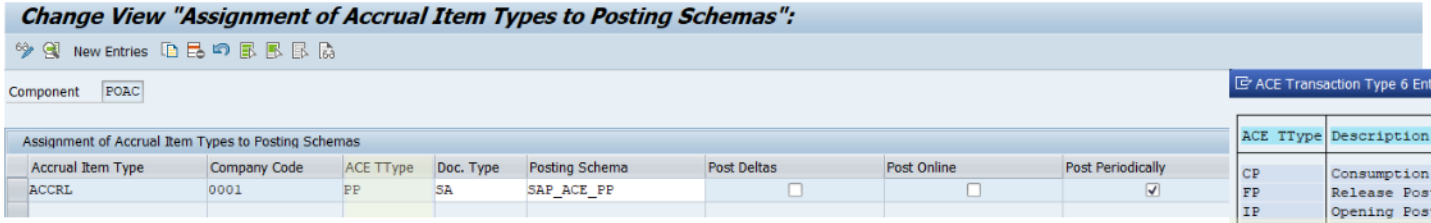
- Since in the pre-delivered SAP content the accruals are calculated as planned costs minus actual costs, the following settings are the default setting:
  - Only the amounts of accrual item type ACCRL shall be posted: Only ACCRL is assigned to some posting schemas.
  - The other two accrual item types PLNCST and ACTCST shall not be posted. Their amounts are just calculated as an intermediate step in order to finally calculate the accruals (ACCRL): They are not assigned to a posting schema as a consequence.
  - At least periodic postings are required for ACCRL: That's why for accrual item type ACCRL the transaction type PP (Periodic Posting) is assigned to the corresponding posting schema SAP_ACE_PP.
  - You can optionally assign also the following transaction types to posting schemas for accrual item type ACCRL:
    - Transaction types UP (Utilization Posting) and FP (Release Posting)
    - Transaction types UL (Late Utilization Posting) and FL (Late Release Posting)
      These two types of postings are relevant if you want to be able to identify in reporting which portion of the accruals e.g. from last year were consumed ("consumed") by invoices or goods receipts in the next year. See corresponding slides for the *Accruals Closing Process*.

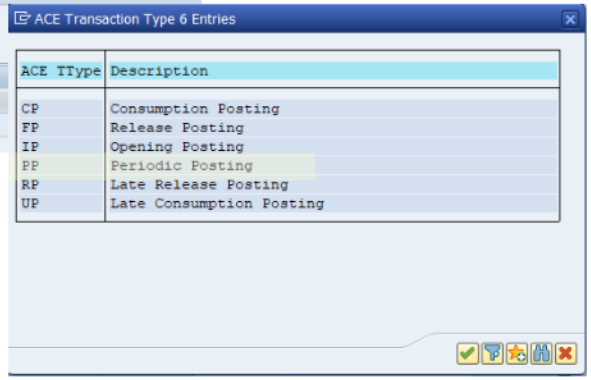
    See corresponding slides that explain these transaction types.
  - You must **not** use IP (Opening Posting) in purchase order accruals: Do not assign this transaction type to a posting schema.



Transaction Types in Accrual Engine in General

- In the Accrual Engine customizing, you can specify for each accrual item type which type of posting will be performed by the Accrual Engine.
  - The corresponding field is called *ACE TType* or *Accrual Engine Transaction Type*.
- The Accrual Engine can perform the several types of postings for each accrual item type, see screen-shot: Opening posting, periodic posting, release posting etc.
- The corresponding IMG activity is *Accruals Management -> Accrual Postings -> Assign Accrual Item Types to Journal Entry Types and Posting Schemas*.
  - This setting is done on company code level.
  - **Important:** By assigning a transaction type to a posting schema, the Accrual Engine will perform the corresponding postings.
  - Technically it is customizing view V_TACE_ITEMTYPES.



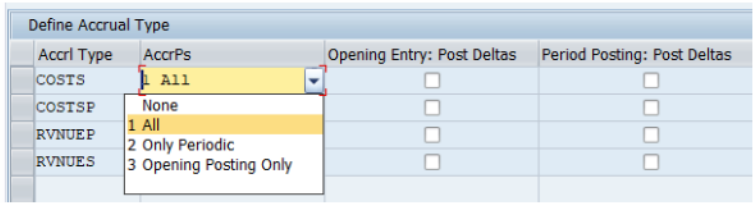


Posting of Accruals: Define Which Postings Shall Be Done

- In the S/4HANA Accrual Engine **before** support package 3 in release 1809 the accrual item type defines which type of postings the Accrual Engine shall perform.

- In the IMG activity *Define Accrual Item Types* the field *AccrPs* defines which type postings will be performed. The following values are possible:
  - *All*
    An Opening Posting, periodic postings and a final (=release) posting will be performed.
  - *Only Periodic*
    No opening posting, but only periodic postings at the end of each period.
  - *Opening Posting Only*.

- The field AccrPs is redundant to the assignment of accrual item types to posting schemas.

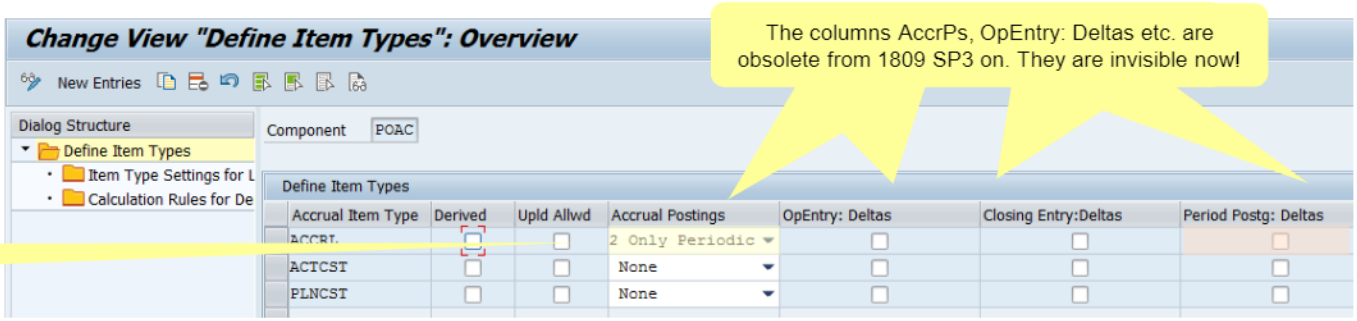


- **Important**: In the S/4HANA Accrual Engine from support package 3 in release S/4HANA 1809 onwards this redundancy was removed:
  The field AccrPs and the indicators "… Post Deltas" are **obsolete**:
  - They are replaced by assignment of the accrual item type to posting schemas in IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas*, see next slides for details.
  - In support packages 0-2 in release S/4HANA 1809 the field AccrPs needs to be maintained redundantly to IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas.*

Accrual Item Type Settings for Postings – since 1809 Support Package 3: Example with Screen-Shots

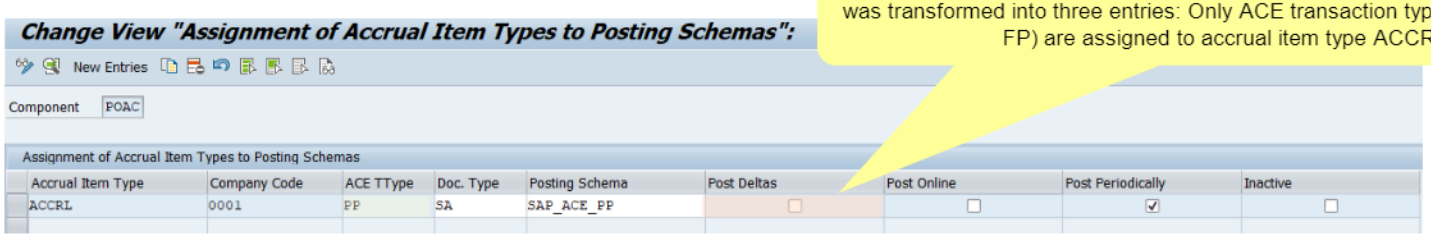
- The formerly “horizontal” settings in the IMG activity in IMG activity *Define Accrual Item Types* (in rel. 1809 SP0-2) have been moved in rel. 1809 SP3 to the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas* as “vertical” settings, see screen-shots.

- From 1809 SP3 on this change happens automatically during the customizing migration.



The columns AccrPs, OpEntry: Deltas etc. are obsolete from 1809 SP3 on. They are invisible now!

The value “Only Periodic” in field AccrPs for ACCRL means: Perform only periodic, but no opening or final/release posting.



New settings: For example for ACCRL the setting “Only Periodic” in field AccrPs was transformed into three entries: Only ACE transaction type PP (but not IP or FP) are assigned to accrual item type ACCRL.

Accrual Item Type Settings for Postings – Upgrade from 1809 SP0-2 to SP3

- Systems in which the customizing migration was already performed in 1809 SP0 or SP1 will automatically be corrected: During upgrade to SP3 a so-called XPRA program will be automatically executed that performs the necessary updates of the settings in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas.*

- The name of the XPRA program is ACE_XPRA_TACE_ITEMTYPES_1905.

- This program sets the indicators Post Deltas, Post Online, Post Periodically in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas* (table TACE_ITEMTYPES).
  - For this purpose, the XPRA program evaluates the indicators *Op. Entry: Deltas* etc. of IMG *Activity Define Accrual Item Types*.
  - In the IMG activity *Define Accrual Item Types* the obsolete indicators *Op. Entry: Delta* etc. are invisible from rel. 1809 support package 3 onwards because they are now obsolete.

Transaction Types: IP, PP and FP

- The following transaction types are available in the Accrual Engine:
  - The corresponding postings are only performed if the accrual item type ACCRL is assigned to a posting schema in IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas.*

- IP *Opening Posting*
  This type of posting occurs when an accrual object is created or changed:
  The *Total Amount to be Accrued* given in the accrual item will be posted.
  In appl. *Purchase Order Accruals* this transaction type is **not** used.

- PP *Periodic Posting*
  This type of posting is performed by the periodic accrual posting run:
  The amount that is calculated by the accrual method for this period is posted.

- FP *Automatic Release Posting*, also called *Final Posting*.
  This type of posting occurs when the status of the accrual object is changed to *Prematurely Finished* (“F”).

Additional Transaction Types from Release 1809 SP3: UP, UL and RP, RL

- With release S/4HANA SP3 or after applying the note 2800607, additional transaction types are available in the Accrual Engine:

- UP *Utilization Posting*
  This type of posting occurs of a posting of actual costs, for example posting of an invoice, leads to a reduction of the accruals.

- UL *Late Utilization Posting*
  Same as UP, but the posting of actual costs utilizes accruals that were posted in a former Accrual Closing Period, typically in a former year.

- RP *Manual Release Posting*
  This type of posting occurs if a user manually releases accruals.

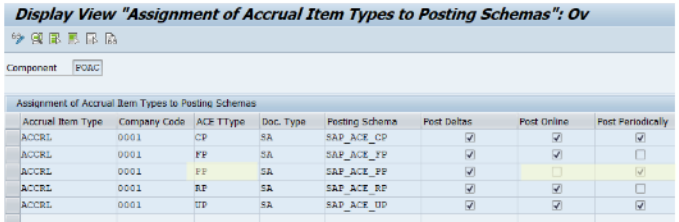
- RL *Late Manual Release Posting*
  Same as RP, but in this case the accruals that are released were posted in a former Accrual Closing Period, typically in a former year.

Transaction Types in Accrual Engine: Opening Posting

- When creating an accrual subobject, its total amount to be accrued can be posted
  - usually from a profit account to an accruals account.
  - This posting has Transaction Type = **IP** (Opening Posting).
- For opening postings the indicator *Post Online* must be set in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas.*
- For purchase order accruals, this transaction type IP must **not** be used, i.e. it shall not be assigned to a posting schema. Reason:
  - If the accrual item type would be customized to perform an opening posting, then the opening posting would post the total amount of the PO item to the accrual account when the purchase order is created.
  - But the accrual calculation algorithms that are used by default for purchase order accruals work differently: They are calculating plan minus actual which will -in the ideal case- give zero at the end of each period (if the actual postings are identical to the planned amounts).

Transaction Types in Accrual Engine: Periodic Posting

- Usually at the end of each period, a partial amount of the total amount is being posted.
  - The periodic posting is normally made from a profit account to an accruals account or vice versa.
  - The posting's transaction type is **PP** (Periodic Posting).
- The corresponding accrual amount is calculated by the accrual method.
  - In purchase order accruals, the amount is calculated as planned costs minus actual costs.
- The indicator *Post Periodically* must be set in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas,* because the periodic posting is performed by the periodic accrual posting run.
- You should **not** set the indicator *Post Online.*
  - If you set the indicator *Post Online*, then for example the posting of an invoice will trigger a periodic posting: The accrual method is called in order to calculate the accrual amount, considering the current invoice posting: Additional line items will be added to the invoice that contain the newly calculated accrual amount. The positive effect of such an online posting is that the costs posted by the invoice will reduce the accruals, but the drawback is that in this newly calculated accrual amount also other effects might be included, for example an increase of the planned costs. So in general, the amounts in these additional line items can be hard to understand.
  - Another issue would occur if you have activated the review or approval of periodic amounts: The posting could not be done online in this case, because the calculated accruals would need to be reviewed before posting.
  - If events like the invoice posting shall online reduce the accruals it is much better to use the transaction type UP (and/or UL): Set the *Post Online* indicator for those transaction types.
- For purchase order accruals, the transaction type PP **must** be used, i.e. it must be assigned to a posting schema.



Transaction Types in Accrual Engine: Utilization Postings

If accruals have been posted and afterwards costs are posted for example by a supplier invoice, then this posting of costs will utilize the full or a partial amount of the accruals.

The following different customizing settings are possible:

1. The transaction type UP is assigned to a posting schema.
   This means that utilization postings shall take place.
   - If the indicator *Post Online* is set in the IMG *Activity Assign Accrual Item Types to Journal Entry Types and Posting Schemas*, then during the posting of the invoice additional line items are added in the journal entry of the invoice or goods receipt:
     Typically they credit the cost element and debit the accrual account.
   - If the indicator *Post Online* is **not** set but *Post Periodically* is set, then the utilization posting will be performed as late as by the periodic accrual posting run.
   - You can set both indicators, *Post Online* and *Post Periodically*.
     This does not harm. In this case the periodic accrual run will not post the UL posting a second time.

2. The transaction types UP is **not** assigned to a posting schema.
   In this case the accrual amounts will be corrected/updated as late as with the next periodic accrual run: The corresponding posting will be done with transaction type PP.

Transaction Types in Accrual Engine: Late Utilization Posting

- This posting's transaction type is **UL** ("Late Utilization Posting").
  - This transaction type is very similar to the utilization posting UP.
  - Postings with transaction type UL instead of UP can only occur if a ***Closing Frequency*** is entered in the accrual item type that performs the accrual postings.
    - By default this is accrual item type ACCRL.
- If the accruals that are to be utilized were posted in a **former** *accruals closing period*, typically in the former fiscal year, then this utilization posting will be done as UL posting.
- If the accruals that are to be utilized were posted in the same *accruals closing period* as the actuals (invoice or goods receipt), for example in the current fiscal year, then this posting is regarded as a utilization posting and will be done with transaction type UP.
  - See slides for transaction type UP for details.
- For purchase order accruals, this transaction type UL **can** be used, i.e. it can be assigned to a posting schema.
  - If this transaction type is not assigned to a posting schema, the accrual amounts will be corrected/updated as late as with the next periodic accrual run: The corresponding posting will be done with transaction type PP.

Late Utilization Posting: Online and/or Periodically

- Utilization and late utilization postings behave the same way with respect to the customizing settings *Post Online* and *Post Periodically* in IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas:*
- If the indicator *Post Online* is set, then the late utilization posting happens automatically during the posting of the actuals, i.e. for example during the posting of the supplier invoice, like for the PP posting. Additional line items are generated that will credit the cost element and debit the accrual account.
- If the indicator *Post Periodically* is set, then the late utilization posting is performed by the periodic accrual posting run.
- You can set both indicators, *Post Online* and *Post Periodically*. This does not harm. In this case the periodic accrual run will not post the UL posting a second time.

Transaction Types in Accrual Engine: Release Posting (also called Final Posting)

- The Accrual Engine offers the possibility to release accruals.
- Releasing accruals means that accruals that have been posted before will be posted to some other account.
- There are two ways to perform a release of accruals
  - Automatic Release
    Use-case: There are life-cycle events in the purchase order after which no accruals are needed any more.
    Transaction types for the posting are FP and FL.
  - Manual Release
    Use-case for manually releasing accruals:
    The end-of-life of the purchase order item is already in the past: The periodic accrual posting run does not post additional accruals any more. The company is waiting for the final invoice or goods receipts: The *Delivery Complete* or *Final Invoice* have not yet been set in the purchase order item, but it is expected that not the full amount of the posted accruals will be needed, for example because it is expected that less invoices or goods receipts will be posted than planned. In this case a corresponding partial amount of the posted accruals can be manually released.
    Transaction types for this posting are RP and RL.

Automatic Release Posting

The automatic release of accruals is triggered by events in the purchase order.

- The automatic release of accruals is achieved by changing the status of the accrual object:
  - Setting the indicator *Delivery Complete* or *Final Invoice* (depending on the *GR non-valuated* indicator) in the purchase order (transaction ME22N) will change the status of the accrual subobject to *Prematurely Finished.*
- The residual amount which was not yet covered by periodic entries will be posted.
- This posting is usually made from the accruals account to a profit account.
- By doing so, the balance is set to 0 on the accruals account.
- This posting's transaction type is **FP** ("Automatic Release Posting").
- The release posting is performed by the periodic accrual posting run.
- An online release posting, i.e. post the release directly when the purchase order item is changed is not yet supported.
- That's why the indicator *Post Periodically* **must** be set in the IMG activity.

Manual Release Posting

It is possible to manually perform a release of posted accruals.

- Partial or full release is possible.
- In the UI for displaying the accrual object, transaction POACTREE03 a corresponding function available in the menu.
- Posting logic is the same as in automatic release postings:
  - The posting's transaction type is **RP** ("Manual Release Posting").
- Current limitation: The Accrual Engine does not save the released amount:
  - It is only stored in the journal entry.
  - That's why as a manual release is directly posted, i.e. cannot delayed until the next periodic accrual run.
- That's why the indicator *Post Online* **must** be set in the IMG activity.

Transaction Types in Accrual Engine: Late Automatic Release Posting

- This posting's transaction type is **FL** ("Late Automatic Release Posting").
  - This transaction type is very similar to the final posting FP.
  - Postings with transaction type FL instead of FP can only occur if a *Closing Frequency* is entered in the accrual item type that performs the accrual postings (ACCRL).
- If the accruals that are to be released were posted in a former *accruals closing period* (for example former fiscal year), then this release posting will be done as FL posting.
- If the accruals that are to be released were posted in the current accruals closing period (for example current fiscal year), then this release posting will be done as FP posting.

- The indicators *Post Online* and *Post Periodically* should be set identical like for transaction type FP.

- For purchase order accruals, transaction type FL **can** be used, i.e. it can optionally be assigned to a posting schema.
  - If this transaction type FL is assigned to a posting schema, then the remaining accruals from the former *accruals closing period* (typically fiscal year) will be posted when the purchase order is finished, i.e. when the indicator "Final Invoice" or "Delivery Complete" is set in the purchase order item in transaction ME22N.
  - If this transaction type is not assigned to a posting schema, the accrual amounts will be corrected/updated as late as with the next periodic accrual run: The corresponding posting will be done with transaction type PP.

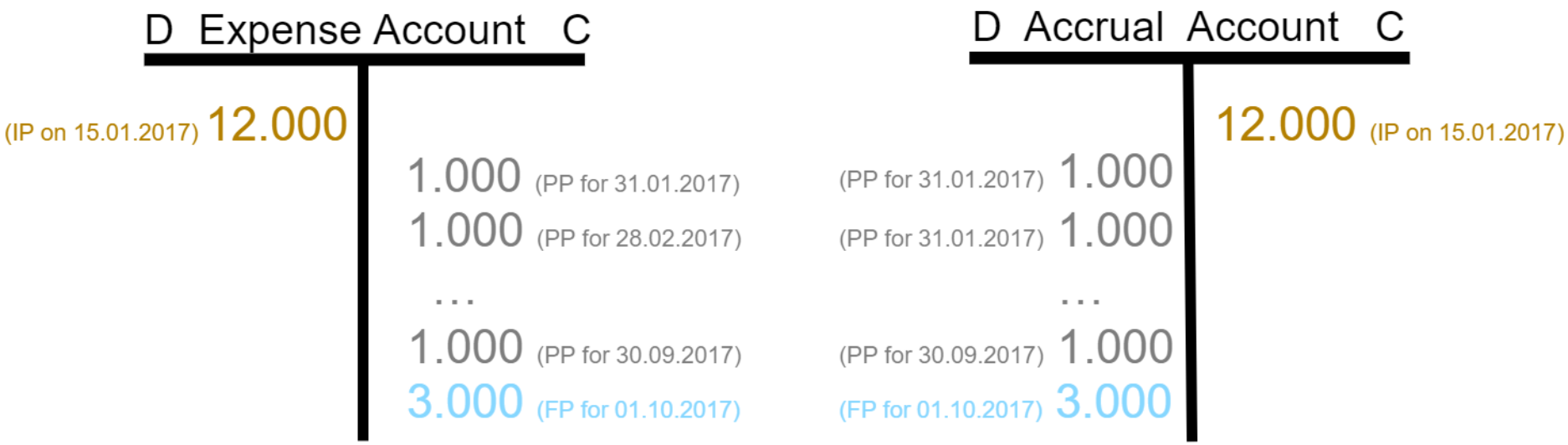
Transaction Types in Accrual Engine: Late Manual Release Posting

- This posting's transaction type is **RL** ("Late Manual Release Posting").
  - This transaction type is very similar to the final posting RP.
  - Postings with transaction type RL instead of RP can only occur if a *Closing Frequency* is entered in the accrual item type that performs the accrual postings (ACCRL).
- If the accruals that are to be released were posted in a former *accruals closing period* (for example former fiscal year), then this release posting will be done as RL posting.
- If the accruals that are to be released were posted in the current accruals closing period (for example current fiscal year), then this release posting will be done as RP posting.

- The indicators *Post Online* and *Post Periodically* should be set identical like for transaction type RP.

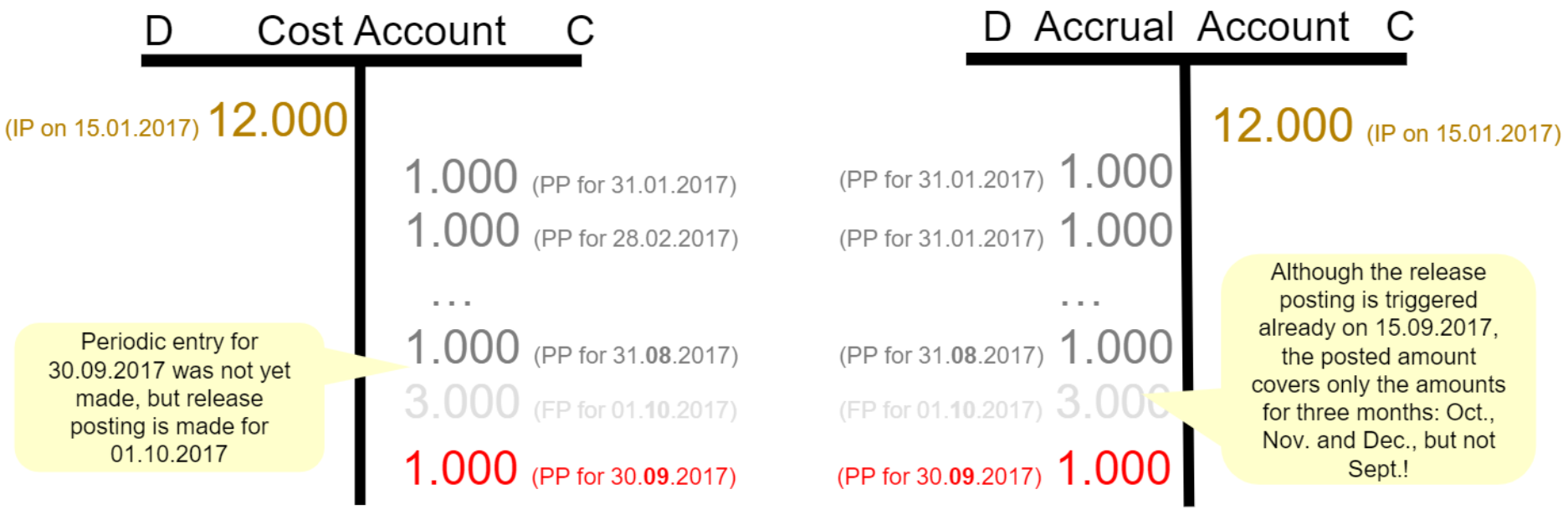
- For purchase order accruals, transaction type RL **can** be used, i.e. it can optionally be assigned to a posting schema.
  - If this transaction type RL is assigned to a posting schema, then the remaining accruals from the former *accruals closing period* (typically fiscal year) will be posted when the user manually releases accruals from former accrual closing periods in *transaction POACTREE03 -> Edit -> Release Accruals*.
  - If this transaction type is not assigned to a posting schema, a manual release of accruals is not possible.

Excursus: Transaction Types IP, PP and FP: Posting Example



- The above posting example shows the postings that are performed by the Accrual Engine for an accrual item type that was customized to perform all postings in the IMG activity *Define Accrual Item Types*:
  - The *Opening Posting* of 12.000 EUR when the accrual object is created on 15.01.2017.
  - Nine *Periodic Posting* of 1.000 EUR each at end of each period. These postings are made during the corresponding period-end closings.
  - One *Release Posting* of 3.000 EUR because the accrual object is finished prematurely on 01.10.2017.
- Note: The amounts posted with *Periodic* and *Release Posting* are always calculated using a key date. The key date is used by default also as posting date.

Excursus: Transaction Type FP: Posting Example



- In this example, a user performs a **premature finish** on 15.09.2017. The user enters the future date 01.10.2017 as key date for this action. The special feature is that on 15.09.2017 the periodic posting for 09/2017 was not yet performed: Nevertheless, the release posting will be made only with 3.000 EUR. The Accrual Engine calculates which amount would be posted after 01.10.2017 as periodic posting. In this case, this amount would add up to 3.000 EUR (instead of 4.000 EUR). Thus the Accrual Engine posts this amount as release posting.
- Later on, during period-end closing of period 09/2017, the Accrual Engine will post the “missing” periodic entry of 1.000 EUR on 30.09.2017 as periodic posting - although the closing entry already took place on 15.09.2017 (with key date = posting date = 01.10.2017).

Excursus: Customizing: How Periodic Accrual Amounts are Calculated

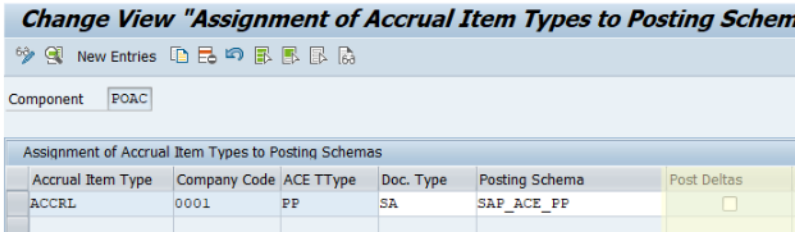
- Once an accrual (sub)object was created, the Accrual Engine can perform the calculation and posting of periodic accrual amounts.
- Usually the periodic entries are performed at end of the period using the corresponding periodic accrual posting run.
- The periodic postings can be performed using transaction ACEPOSTINGRUN for component POAC.
- These accrual amounts at period end calculated by the Accrual Engine: The calculation of accrual amounts is always done for a key date: The Accrual Engine calculates the balance (=target) accrual amount for each accrual item.
- The accrual amounts are stored in at least one currency, the transaction currency.
- Example: The total amount of 12.000 EUR shall be accrued *linearly*. The lifetime of the accrual subobject is 01.01.2017 to 31.12.2017. The frequency of accrual postings is customized to *By Posting Period*. As a consequence the Accrual Engine splits the lifetime into intervals of dates which correspond to the first and last day of the fiscal periods. Afterwards it uses for each such interval the last day of each period as key date for the calculation of the accrual amounts. This will be the result:

Key Date	Calculated Accrual Amount
31.01.2017	1.000 EUR
28.02.2017	2.000 EUR
31.03.2017	3.000 EUR
…	…
31.12.2017	12.000 EUR

Customizing: Delta Versus Full Postings

During period end closing, the accrual amounts that was calculated by the Accrual Engine are posted, for example by the periodic accrual posting run, transaction ACEPOSTINGRUN.
There are two alternatives how the accrual amounts are posted:

- Post **delta** amounts
  - The accrual engine only posts the delta compared to the amount that has already been posted in former periods
- Post **full** amounts
  - The accrual engine first creates a posting that inverts (reverses) the accrual amount that was posted in former periods.
  - Afterwards it posts the full accrual amount using the last day of the current period as translation date.
  - In both postings the posting date is by default in the current period.
- The main difference between delta and full postings are the exchange rate differences in additional FI currencies:
  - When posting delta amounts, a foreign currency valuation run at the end of each period is required for the accrual account in order to get the balance of the accrual account with latest exchange rate. The valuation difference is posted to an exchange rate difference account.
  - The posting full amounts, the accrual amounts are posted with their full amounts anew in each period. These full amounts are posted also to the offsetting account (usually P&L account). No foreign currency valuation required.
  - In other words: The main difference is to which (P&L) account the exchange rate difference is posted.
- Delta or full postings are done based on Customizing:
  On level of accrual item type and company code it can be defined whether delta or full postings shall be done.
  The IMG activity is *Assign Accrual Item Types to Journal Entry Types and Posting Schemas*, see screen-shot.
- This setting can be defined for all types of postings: Opening posting, periodic posting, closing posting etc.



Full Postings: Details About the Inverse Posting

The reversal posting that is done by the accrual posting run in case of full postings works in the following way:

- It is not a real reversal posting: Instead it is an **inverse** posting:
  The accrual engine selects the last accrual posting and inverts the amounts, that is, it changes the sign of the posted amounts and creates a new posting with those inverted amounts.

- To perform the inverse postings, the accrual engine first determines the balance for the accrual object by aggregating the accrual postings to the accrual account of the **current** fiscal year, including the **G/L balance carry forward** (transaction FAGLGVTR).

- Then it selects the accrual postings that were done in former periods incl. postings from former fiscal years:

- If an accrual posting is found that was not yet inverted and if its amount matches the balance of the accrual object, this posting will be inverted in order to bring the accruals to zero in the current period.
  - The accrual engine uses the posted line items incl. their G/L accounts and inverts the sign of the amounts.
  - The account assignment is derived anew nevertheless for technical reasons.

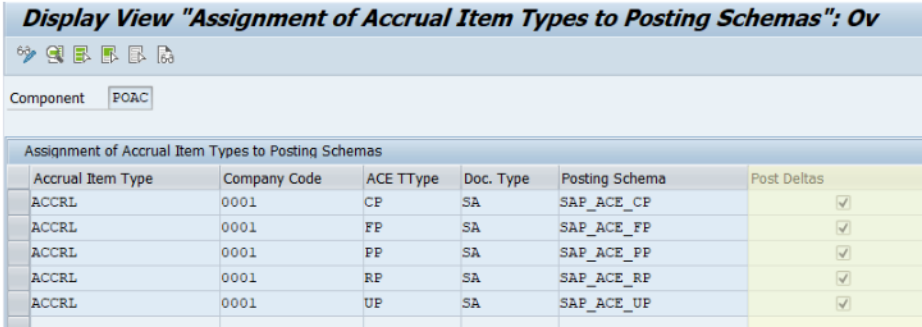
- Otherwise, if no single matching posting is found, the accrual engine builds-up the inverse posting anew:
  G/L accounts, posting schema (->number of line items) etc. are derived like for a usual accrual posting, but with inverted signs.
  - This case occurs after migration: The first regular posting run will only find migrated line items to be inverted. But these migrated line items consist of only one line item for each accrual object; so these are no balancing postings that could be inverted.
  - In this case it can occur that the inverse posting does not fully invert the original posting.

Purchase Order Accruals: Recommendation: Use Delta Postings

- For *Purchase Order Accruals* the recommendation is to customize the accrual item type to perform delta postings, not full postings: Set the corresponding indicator in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas*.

- This is the recommended setting at least for utilization postings and release postings (transaction types UP, UL, FP and FL).
  - Otherwise it would be hard to explain and understand the amounts in the accrual utilization line items that are generated for example during an invoice posting.
  - A foreign currency valuation run for the accrual account is required at period end as a consequence.

- For periodic postings (transaction type PP) full postings can be reasonable.
  - This way the accrual postings of the former period are automatically reversed – and the full accrual amount is posted in the current period using the latest exchange rate.
  - In general posting the full accrual amount with the latest exchange rate makes sense because the “real” costs will occur in future: Using the most current exchange rate in the accrual posting is assumed to be the best guess for this future exchange rate.



Excursus: Customizing: Full Postings

- Posting the full accrual amount in each period (incl. the reversal of the amounts of former periods) makes sense for example if accruals are being built-up: In this case the balance of the accrual amounts shall contain the amounts in all currencies using the latest exchange rate.
- Example: 12.000 EUR are to be accrued over 12 periods, linearly:

Posting Date	Translation Date	Calculated Accrual Amount in Accrual Item Currency	**Exchange Rate**	Posted Amount in Accrual Item Currency	Posted Amount in **Local** Currency	Comment
31.01.2017	31.01.2017	1.000 EUR	**1.1**	1.000 EUR	1.100 USD	
28.02.2017	31.01.2017	<no calculation>	**1.1**	- 1.000 EUR	- 1.100 USD	Reversal of per. 1 posting
28.02.2017	28.02.2017	2.000 EUR	**1.2**	2.000 EUR	2.400 USD	Post full amount in per. 2
31.03.2017	28.02.2017	<no calculation>	**1.2**	- 2.000 EUR	- 2.400 USD	Reversal of per. 2 posting
31.03.2017	31.03.2017	3.000 EUR	**1.3**	3.000 EUR	5.200 USD	Post full amount in per. 3
…	…	…		…		
31.12.2017	30.11.2017	<no calculation>	**1.3**	- 11.000 EUR	-14.300 USD	Reversal of per. 11 posting
31.12.2017	31.12.2017	12.000 EUR	**1.6**	12.000 EUR	19.200 USD	Post full amount in per. 12
Cumulated			**1.6**	12.000 EUR	19.200 USD	

In the last period, the amounts in local currency (and other additional FI currencies) were converted with the latest exchange rate 1.6

Excursus: Customizing: Delta Postings

- Posting delta accrual amounts in each period will lead to different exchange rate differences compared to full postings: With delta postings, in each month a partial amount is posted, using the exchange rate valid at the last day of the respective period.
- A separate Foreign Currency Valuation run must be performed in order to get the full accrual amount with current exchange rate.

Posting Date	Translation Date	Calculated Accrual Amount in Accrual Item Currency	**Exchange Rate**	Posted Amount in Accrual Item Currency	Posted Amount in **Local** Currency	Comment
31.01.2017	31.01.2017	1.000 EUR	**1.1**	1.000 EUR	1.100 USD	
28.02.2017	28.02.2017	2.000 EUR	**1.2**	1.000 EUR	1.200 USD	
31.03.2017	31.03.2017	3.000 EUR	**1.3**	1.000 EUR	1.300 USD	
…	…	…		…		
31.12.2017	31.12.2017	12.000 EUR	**1.6**	1.000 EUR	1.600 USD	
Cumulated			<undefined>	12.000 EUR	15.600 USD	

The amounts in local currency (and other additional FI currencies) represent a mixed exchange rate: For example in period 12 it is not the latest exchange rate of 1.6 which would mean 19.200 USD

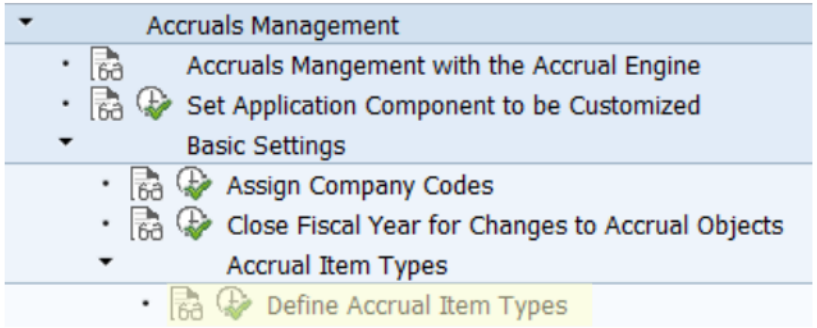
Customizing

Basic Settings

Ledgers, Ledgergroups, Currency Types

Ledger and Ledgergroup in Accrual Engine

- In the IMG activity *Define Accrual Item Types* you define into which ledgergroups the accrual posting shall be done by assigning ledgergroups to accrual item types.
- If you want to calculate and post accruals for some ledgers using a different fiscal year variant, it can make sense that you enter several ledgergroups: One ledgergroup for which fiscal year variant x is used by the representative ledger of the ledgergroup - and another ledgergroup where fiscal year variant y is used by its representative ledger.
- The ledgergroups must be non-overlapping; otherwise the accruals would be posted twice.

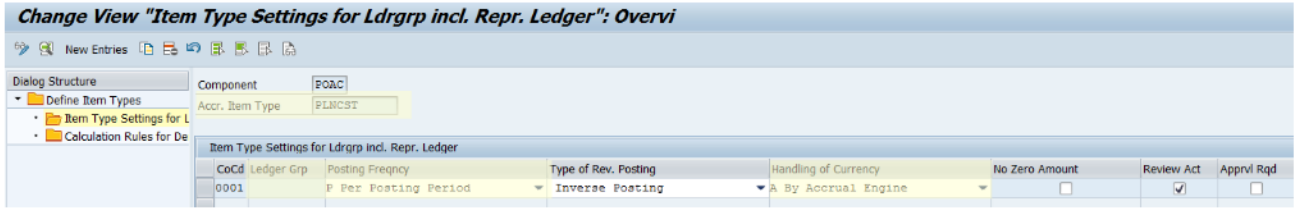


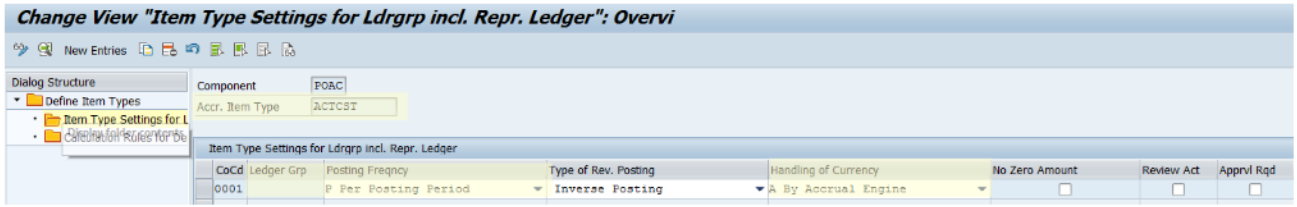
- The same ledgergroups must be assigned to all accrual item types: ACCRL, ACTCST and PLNCST.

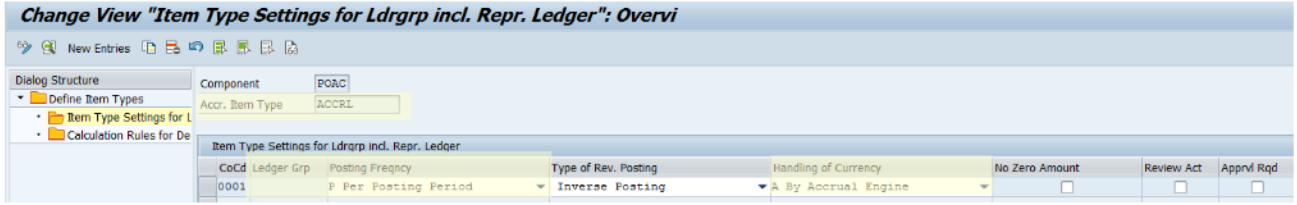
Accrual Item Types Settings for Planned Costs, Actual Costs, Accruals

- In the IMG activity *Define Accrual Item Types* in section *Item Type Settings for Ldrgrp incl. Repr. Ledger* an entry must exist for each of the three item types:
  - PLNCST Planned Costs.
  - ACTCST Actual Costs (the posted invoices / goods receipts).
  - ACCRL Accruals which are the result of planned costs minus actual costs.

- These three accrual item types must have same setting for
  - Ledgergroup,
  - Frequency and
  - Handling of Currency.





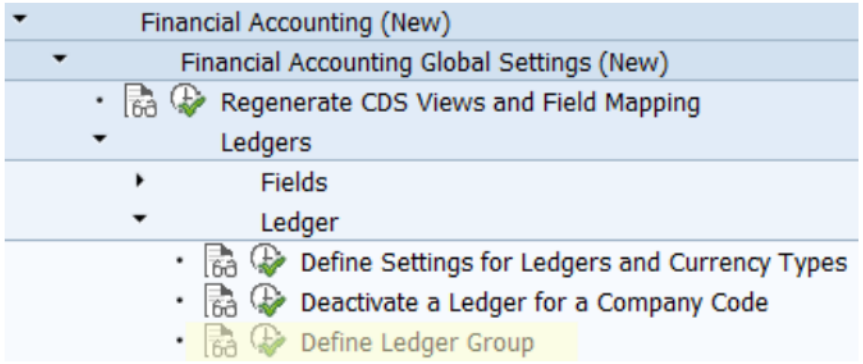


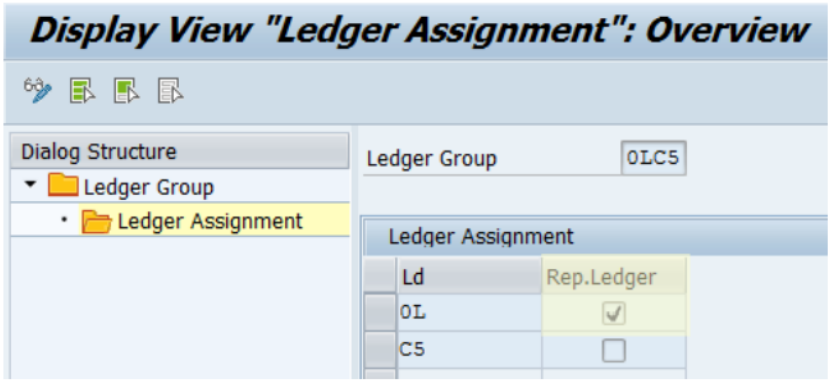
Display of Ledger and Ledgergroup in Accrual Engine

- The Accrual Engine calculates accruals on **ledger** level: It calculates the accrual amounts for single ledgers, not for the ledgergroups.
- The current restriction is that the Accrual Engine only calculates the accrual amounts for the **representative ledger** of the ledgergroup.
- The ledgergroup that is assigned to an accrual item type is used for the posting of accruals: The accrual amount that was calculated for the representative ledger is posted into all ledgers of this ledgergroup.
- In the screens of the Accrual Engine, for example in the display of accrual objects, transaction POACTREE03 or in the review and approval screens, transactions FACRARVW*, only the **ledgergroup** is displayed by default.

Excursus: Ledgergroups in General Ledger

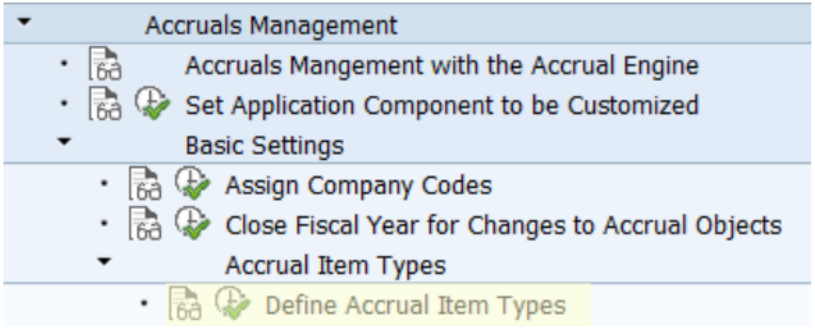
- Ledgergroups are defined in the IMG activity *Define Ledger Group*, see transaction SPRO.
- Each ledgergroup contains exactly one ledger that is marked as *Representative Ledger*.
- Ledgergroup <space> is also possible:
  - Ledgergroup <space> means: All (standard) ledgers.
  - The representative ledger of ledgergroup <space> is the leading ledger.
  - Ledgergroup <space> does not contain ledgers of type *extension ledger*. The *ledger type* is defined in IMG activity *Define Settings for Ledgers and Currency Types*.
  - Ledgergroup <space> does not exist as entry in IMG activity *Define Ledger Group.*

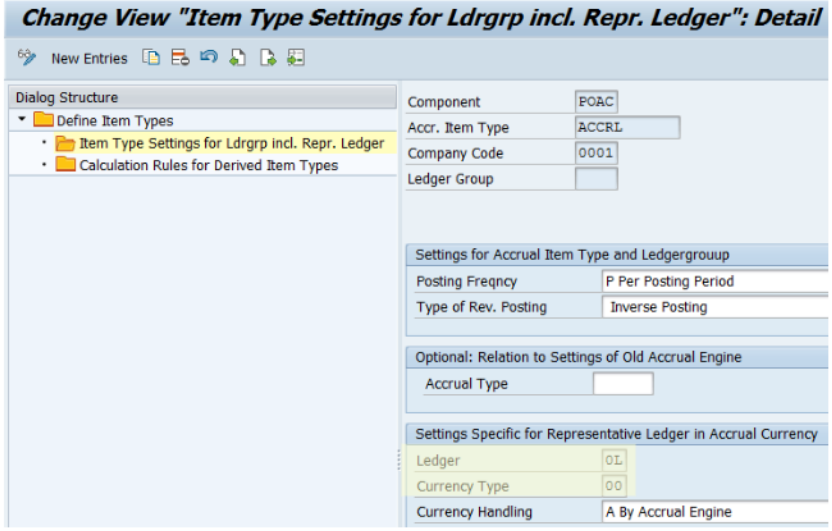




Ledger and Currency Types in Accrual Engine

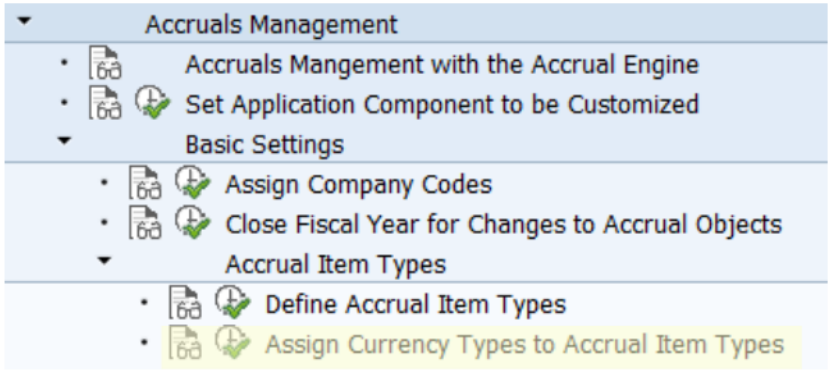
- In the IMG activity *Define Accrual Item Types* you define not only into which ledgergroups the accrual posting shall be done:
- The system automatically assigns also the representative ledger of the ledgergroup to the accrual item type.
- And it assigns automatically the currency type **00** (transaction currency) to the Accrual Engine.
  - You need to define the *Currency Handling* for currency type 00. For purchase order accruals it is mandatory that you define the currency handling as **A – By Accrual Engine**.
  - This setting means that the Accrual Engine will calculate the accrual amounts in this currency type.
  - Since the accrual object is created by transferring the purchase order into the Accrual Engine, the only available currency is the purchase order currency – which is regarded as transaction currency.

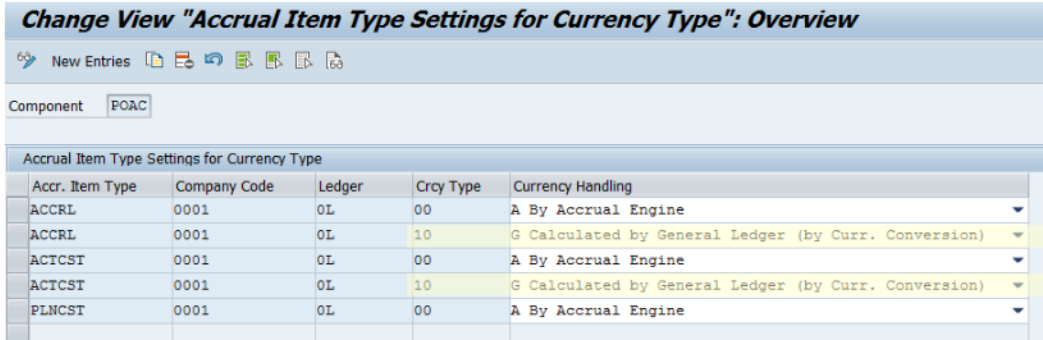




Additional Currencies in Accrual Engine

- In the IMG activity *Assign Currency Types to Accrual Item Types* you can assign additional currency types to the accrual item type.
- For example you can define currency type 10 (company code currency) with currency handling as *Calculated by General Ledger*.
- This means that in some screens of the Accrual Engine the amounts in this currency type 10 will be available as read-only fields:
  The amount is calculated for display by applying the currency conversion settings as defined in the General Ledger customizing, see IMG activity *Define Settings for Ledgers and Currency Types.*
- Note: The entries for currency type 00 that exist in IMG activity *Assign Currency Types to Accrual Item Types* were generated by the other IMG activity *Define Accrual Item Types.*

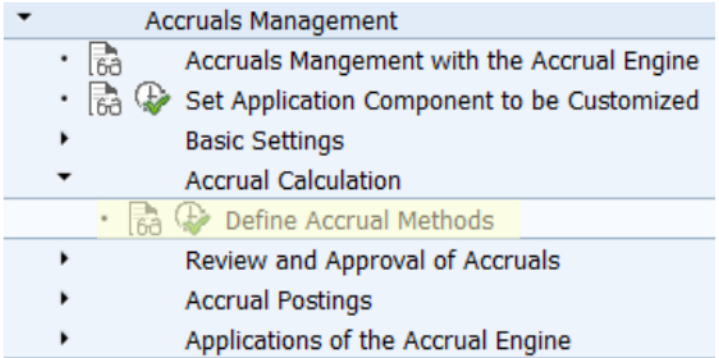


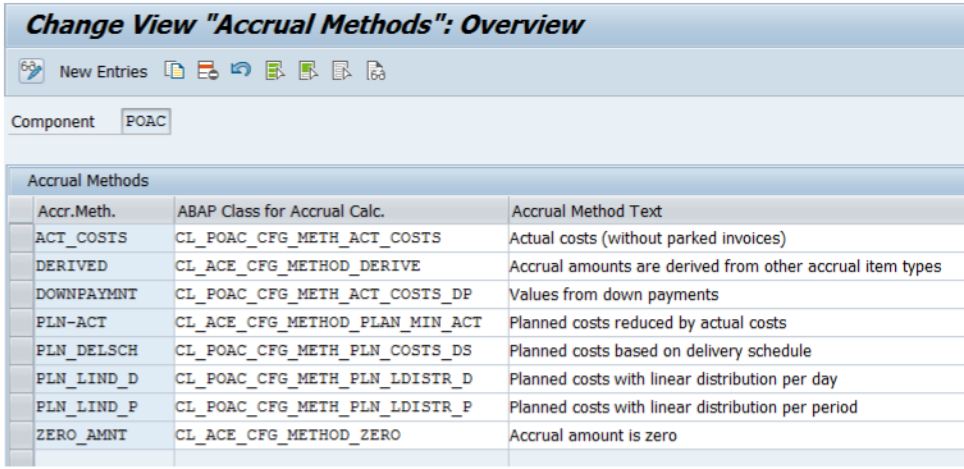


Customizing
Accrual Calculation

Purchase Order Accruals: Define Accrual Methods

- The accrual item type defines which amounts are to be accrued and whether full or delta postings shall be performed.
- But the algorithm how the accrual amounts shall be calculated for each period are *not* defined by the accrual item type; instead these algorithms are defined by the separate Customizing entity **accrual method**.
- An *accrual method* is in principle identical to an ABAP class method: Each accrual method is assigned to exactly one ABAP class method. In this ABAP class method or function module the accrual calculation algorithm is implemented.
- SAP delivers the most relevant algorithms as default Customizing content.
- It is possible to develop customer-defined accrual methods: The ABAP class must implement the interface IF_ACE_CFG_METHOD.





Purchase Order Accruals: SAP-Delivered Accrual Methods

SAP delivers several accrual methods as default customizing content:

- Some of these accrual methods can be used for calculating **planned costs**.
  These methods are important because they represent the different possibilities how the planned costs of a purchase order item can be distributed over its lifetime. This distribution then determines the accrual amounts in the different fiscal periods.

- Some other accrual methods like ZERO_AMNT, DERIVED, PLN-ACT are needed for technical reasons. For example if an accrual item becomes obsolete, for example because the purchase order item is deleted, the Accrual Engine automatically assigns the method ZERO_AMNT to it in order to achieve that in the next accrual posting run, the accrual amount will be set to zero.

Green: Accrual method for actual costs. Since this method just selects the postings that exist for a purchase order item, there is only one such method: There is only one way to select existing postings.

Grey: Accrual method that can be used to calculated additional values.

Sky blue: Accrual methods that are of technical nature.

Yellow: Accrual methods that can be used for calculating the planned costs. From customer-perspective these are the **important** methods!

Change View "Accrual Methods": Overview

New Entries

Component POAC

Accrual Methods

Accr.Meth.	ABAP Class for Accrual Calc.	Accrual Method Text
ACT_COSTS	CL_POAC_CFG_METH_ACT_COSTS	Actual costs (without parked invoices)
DERIVED	CL_ACE_CFG_METHOD_DERIVE	Accrual amounts are derived from other accrual item types
DOWNPAYMNT	CL_POAC_CFG_METH_ACT_COSTS_DP	Values from down payments
PLN-ACT	CL_ACE_CFG_METHOD_PLAN_MIN_ACT	Planned costs reduced by actual costs
PLN_DELSCH	CL_POAC_CFG_METH_PLN_COSTS_DS	Planned costs based on delivery schedule
PLN_LIND_D	CL_POAC_CFG_METH_PLN_LDISTR_D	Planned costs with linear distribution per day
PLN_LIND_P	CL_POAC_CFG_METH_PLN_LDISTR_P	Planned costs with linear distribution per period
ZERO_AMNT	CL_ACE_CFG_METHOD_ZERO	Accrual amount is zero

Accrual Engine:
How the Periodic Accrual Amounts are Calculated

- According to IFRS accruals may be posted if there is a potential debt to some ‘external’ legal entity (e.g. to a supplier).
- The logic/algorithm how this debt and the related accrual amount has to be determined is specific for each use-case.
- The Accrual Engine supports in general all potential algorithms: The *accrual methods* and their related ABAP class methods are Customizing: This way it is possible to develop customer-defined algorithms in addition to the algorithms that SAP delivers as default Customizing settings.
- The Accrual Engine especially supports the following procedure: The accruals are calculated in a three-step approach:
  - The system calculates two amounts: Planned costs and actual costs in the following sense:
    - The amount that has been ‘received’ already.
      For example the amount of service that was received or goods delivered by a supplier for a purchase order item up to a certain key date. The application *Purchase Order Accruals* uses by default the delivery schedule of the purchase order item to calculate this amount. In other words, the system assumes that the deliveries were indeed received on the dates as planned in the delivery schedule. These amounts are stored in the Accrual Engine in an *accrual item type* that is referred to as **Planned Costs**.
    - Independently of the planned costs, the system calculates the actual costs that have already been posted.
      For example in case of non-valuated goods receipts, the actual costs are posted by the supplier invoice. So the system selects all invoices that have a posting date before the key date. These amounts are stored in the Accrual Engine in an *accrual item type* that is referred to as **Actual Costs**.
  - The system calculates the accrual amount as plan minus actual:
    The difference between planned and actual costs represents the debt to the supplier – of course only if this difference (plan minus actual) is greater than zero: The system calculates this difference and stores it in an *accrual item type* that is referred to as **Accruals (ACCRL)**.

Purchase Order Accruals: How the Periodic Accrual Amounts are Calculated

Since the application *Purchase Orders Accruals* is based on the Accrual Engine, it

- Supports in principle all kind of accrual calculation algorithms.
- Offers a few features that are specifically designed for the case that the accrual amounts are calculated by the three-step approach of having separate accrual item types for
  - First step: The Accrual Engine calculates the amounts for
    - **Planned** amounts (=costs) and
    - **Actual** amounts (=costs)
  - Second step: The **accruals** are calculated by subtracting the actual from planned amounts. If the result is negative, it is set to zero since accruals cannot be negative from a business point of view.
  - Note: Optionally additional *accrual item types* are possible, for example for displaying additional interesting amounts like parked invoices.
- The following features are only available for the above three-step approach
  - The optional period end closing transaction for review (or approval) in which a reviewer (or approver) can adjust the accrual amount offers -beyond others- three amount columns: Planned Costs, Actual Costs and Accrual Amount. The two columns, planned costs and actual costs, will only be filled if the three-step approach is used.
  - The UIs for displaying an accrual object, for example transaction POACTREE03, will automatically display these three amounts (planned, actual, accrual) in a user-friendly table where the user can see all those amounts within the same table.

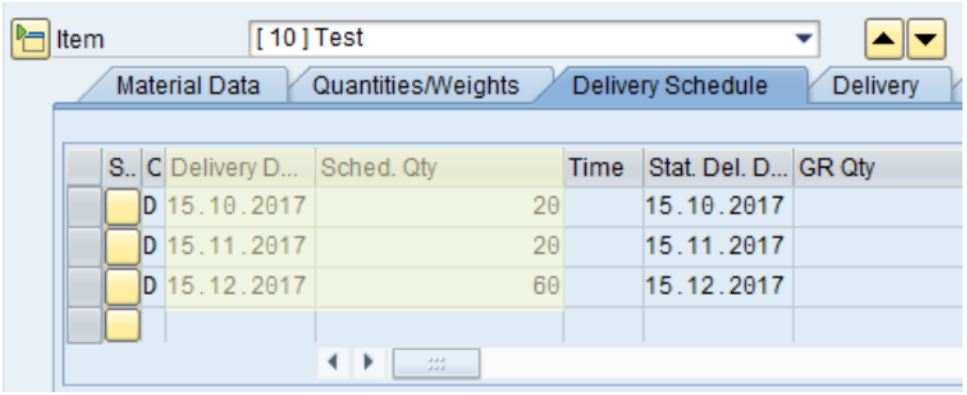
Purchase Order Accruals: SAP-Delivered Accrual Methods

- The following slides explain how the SAP-delivered accrual methods are working.
- Like all other SAP-delivered customizing, these accrual methods are available in client 000.

Purchase Order Accruals:
Accrual Methods for Planned Costs: PLN_DELSCH

- **PLN_DELSCH** *Planned costs based on delivery schedule*
  This accrual method evaluates the delivery schedule of the purchase order item, that was maintained in transaction ME21N or ME22N. The amount is calculated using the net price entered in the purchase order item.

- Using this method for calculating the planned costs requires from a business point of view that the quantities and delivery dates given in the delivery schedule of the purchase order item are properly maintained; because using this method means that the delivery schedule reflects reality in the sense that goods and services were indeed received at the delivery dates with these quantities.



Screen-shot from transaction ME23N
(display purchase order)

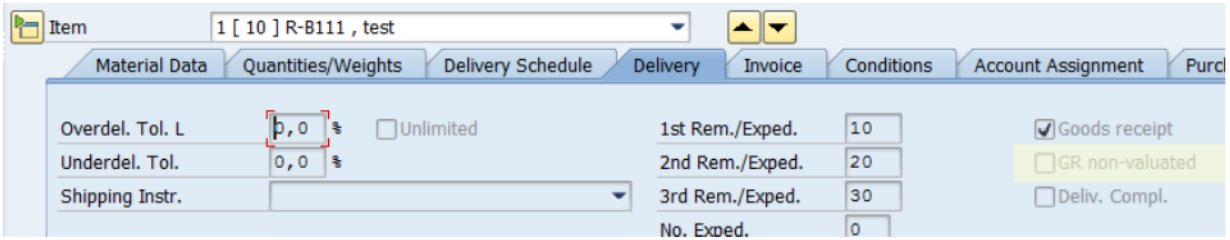
Purchase Order Accruals: Accrual Methods for Planned Costs: PLN_DSNVGR

- **PLN_DSNVGR** *Planned costs based on delivery schedule or non-val. GR*
  - For PO items for which **non**-valuated goods-receipts are posted (indicator *GR non-valuated* = X in PO item):
    This method determines the planned costs by evaluating the posted non-valuated goods receipts.
    In other words: The posted non-valuated goods receipt represent the quantity that has been received from the supplier.
    The planned costs are determined by multiplying this quantity with the net price of the PO item.
  - For PO items for which no goods receipts at all or valuated goods-receipts are expected:
    This method behaves like the other accrual method PLN_DELSCH: It evaluates the delivery schedule to determine the planned costs.

- Using this method is possible if you have both type of PO items: Some with non-valuated goods receipts and some without goods receipts or with valuated goods receipts – and for those PO items for which a non-valuated goods receipt is expected, you want to achieve that the quantities of the posted goods receipts (multiplied by PO item net price) represent the amount that was received from the supplier. Technically speaking: The non-valuated goods receipts are used to determine the planned costs.

- The reason why this method can handle both type of PO items is that you do not need to derive different accrual methods based on the indicator ***GR non-valuated*** (DB field EKPO-WEUNB) in the PO item.

- This accrual method is available with Support Package 1 in release S/4HANA 1809.

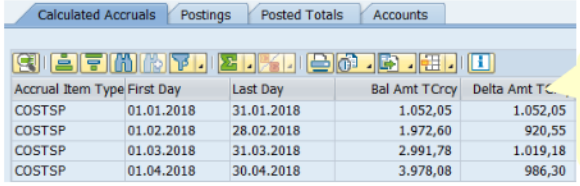


Screen-shot from transaction ME23N (display purchase order)

Purchase Order Accruals:
Accrual Methods for Planned Costs: Linearization

Accrual methods that perform straight line distribution of the PO item value:

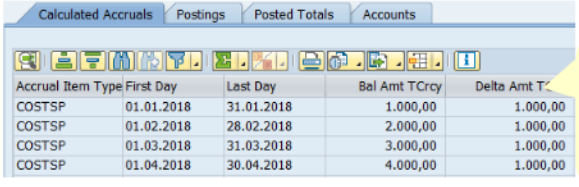
- **PLN_LIND_D** *Planned costs with linear distribution (days)*
  This method distributes the net amount of the purchase order item linearly (straight line) based on the number of days between a start and an end date.



Accrual Item Type	First Day	Last Day	Bal Amt TCrcy	Delta Amt TC
COSTSP	01.01.2018	31.01.2018	1.052,05	1.052,05
COSTSP	01.02.2018	28.02.2018	1.972,60	920,55
COSTSP	01.03.2018	31.03.2018	2.991,78	1.019,18
COSTSP	01.04.2018	30.04.2018	3.978,08	986,30

Based on days: Result = different (delta) amount in each period

- **PLN_LIND_P** *Planned costs with linear distribution (periods)*
  Similar to accrual method PLN_LIND_D. The only difference is that the accrual amounts are calculated not on a daily basis, but for fiscal periods.

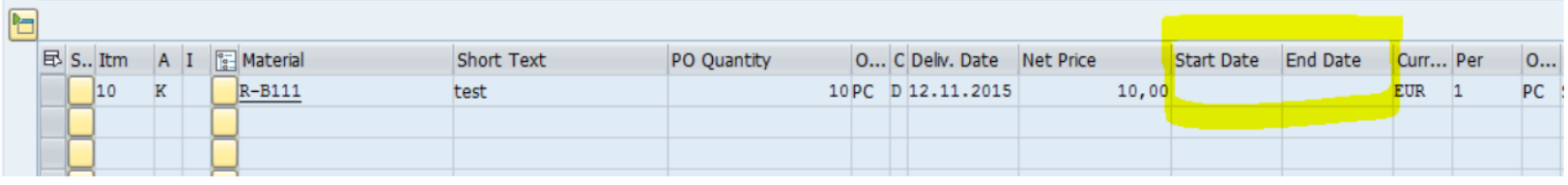


Accrual Item Type	First Day	Last Day	Bal Amt TCrcy	Delta Amt TC
COSTSP	01.01.2018	31.01.2018	1.000,00	1.000,00
COSTSP	01.02.2018	28.02.2018	2.000,00	1.000,00
COSTSP	01.03.2018	31.03.2018	3.000,00	1.000,00
COSTSP	01.04.2018	30.04.2018	4.000,00	1.000,00

Based on fiscal periods: Result = same (delta) amount in all periods

- These two methods are intended for the **Lean Services** procurement and *Enhanced Limits*: Start- and end date can be entered in the purchase order item in transaction ME21N or ME22N in this case. These dates are copied into the accrual subobject into the fields *Start of Life* and *End of Life*: The accrual method distributes the PO item value between these two dates.

- Note that the *Start of Life* and *End of Life* can be modified during transfer of the purchase order item into the Accrual Engine using BAdI BADI_POAC_MMPO_2_ACE_TRANSFER or BAdI POAC_LIFETIME_DATES.

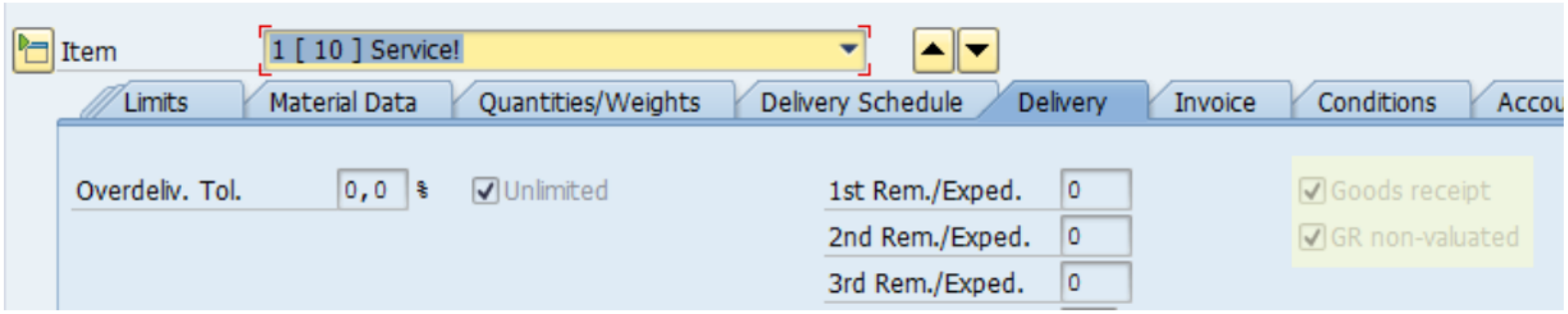


S..	Itm	A	I	Material	Short Text	PO Quantity	O...	C	Deliv. Date	Net Price	Start Date	End Date	Curr...	Per	O...
	10	K		R-B111	test	10	PC	D	12.11.2015	10,00			EUR	1	PC

Purchase Order Accruals: Accrual Method for Actual Costs

The accrual method for actual costs determines the costs that have been posted already for the PO item by supplier invoices or goods receipts; it does not take into account existing accrual postings, because the accruals are determined as planned costs minus actual costs. And the latter are determined by this method:

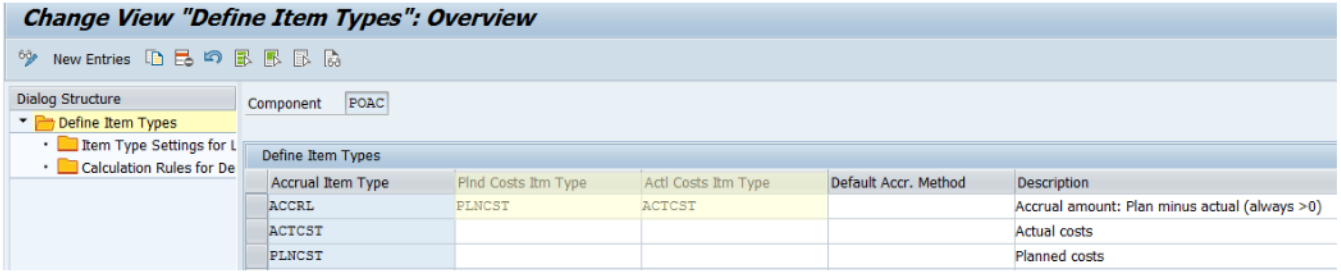
- **ACT_COSTS** *Actual costs (without parked invoices)*
  This method evaluates the purchase order history of the purchase order item in order to identify which costs have already been posted by supplier invoices or valuated goods receipts:
  - In case in the purchase order item the indicator *Goods receipt* is set and(!) *GR non-valuated* is **not** set, that is valuated goods receipts are posted, then the actual costs are posted by the goods receipt - and not by the supplier invoice which only posts to the GR/IR clearing account in this case. The accrual method returns the amount of posted valuated goods receipts in this case.
  - Otherwise the accrual method returns the amount of posted supplier invoice (items) because they are posting the costs – instead of posting to a GR/IR clearing account.



Purchase Order Accruals: Accrual Method for Accruals

One accrual method that can be used for calculating the accruals:

- **PLN-ACT** *Planned costs reduced by actual costs*
  This method is used in the three-step approach where the accruals shall be calculated by subtracting actual costs from planned costs: As a prerequisite for using this accrual method you have assigned in the IMG activity *Define Accrual Item Types* an accrual item type for planned costs and an accrual item type for actual costs to the accruals accrual item type that is using this method.



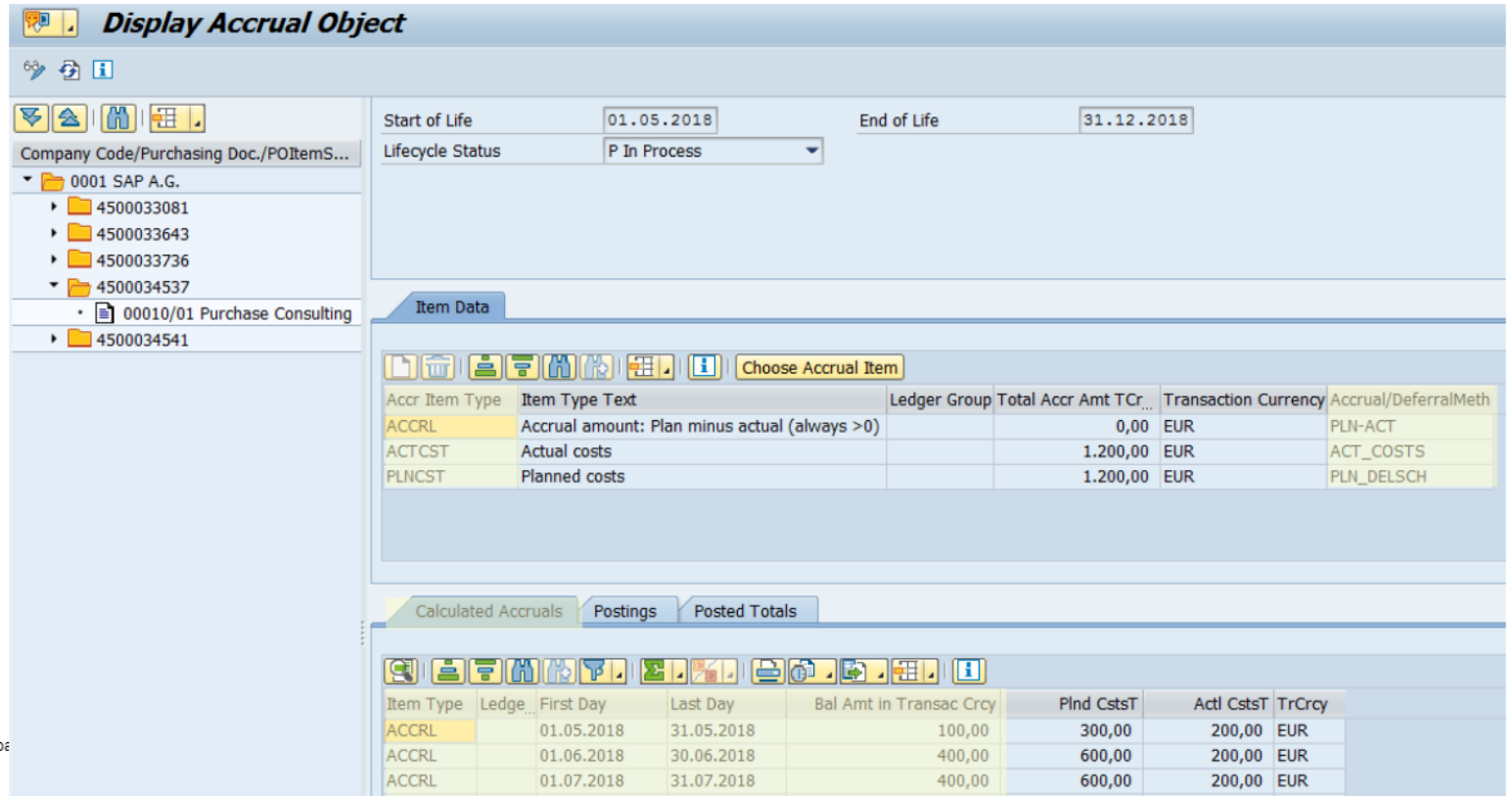
- This method performs the following three-step calculation:
  - It first calculates the amount for the planned costs by calling the accrual method that is entered (in current the accrual item) for the accrual item type that is entered for planned costs in view V_TACE_ACRM_POAC.
  - Then it calculates the amount for the actual costs by calling the accrual method that is entered (in current the accrual item) for the accrual item type that is entered for actual costs in view V_TACE_ACRM_POAC.
  - Finally it calculates the difference by subtracting the actual amount from the planned amount. If the result is below zero, it is set to zero.

- Note: If you do not want to use the three-step approach, you have to develop your own ABAP class that you can assign to your accrual method - that you can then use for the accruals accrual item type (ACCRL).

Purchase Order Accruals:
Accrual Methods for Accruals: Display in POACTREE03

- To illustrate how the three-step approach works:
  In transaction POACTREE03 you can display the accrual items in section Item Data: Each accrual item has as key the accrual item type – and also contains the accrual method.

- Double clicking on an accrual item will display in tab *Calculated Accruals* the result of the accrual method.



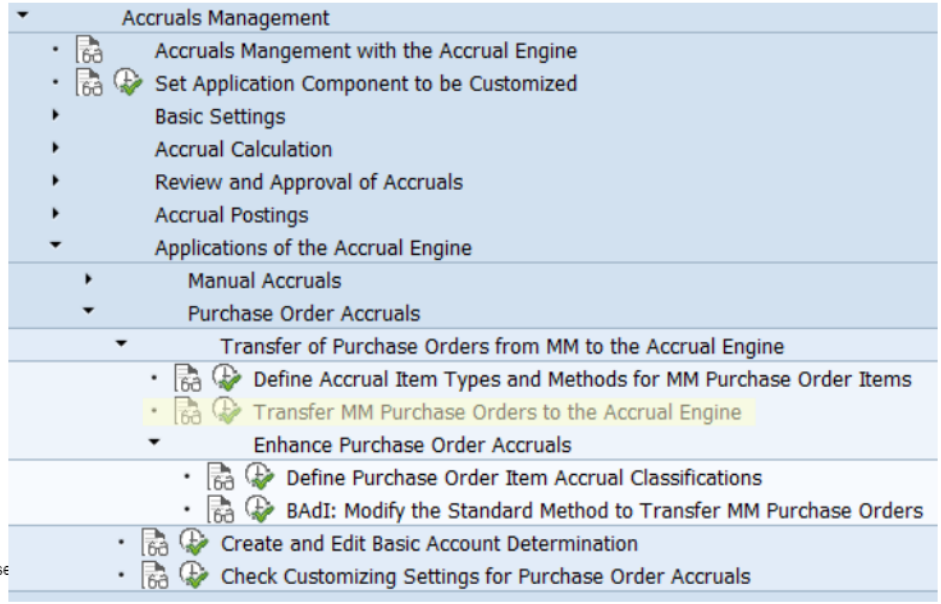
Transfer Purchase Orders into the Accrual Engine

Transfer of Purchase Order Items into Accrual Engine: Overview

- When a purchase order (item) is created in MM, for example using transaction ME21N, the system determines whether accruals are potentially relevant for it.
- If yes, then the system creates an accrual (sub)object for the purchase order (item) in the Accrual Engine.
  - This creation of accrual objects for a purchase order can be done either
    - **Offline**, after the purchase order was created.
      Existing purchase orders are transferred into the Accrual Engine using transaction POAC_MM2ACE_TRANSFER.
    - **Online**, when the purchase order is being created in materials management.
  - Note: Accrual objects for purchase orders can be displayed using transaction POACTREE03.
- Once an accrual (sub)object was created for a purchase order (item), the Accrual Engine will calculate and post accruals at the end of each period. A period is usually the fiscal period, but the Accrual Engine also supports other frequencies such as days, quarters or fiscal years.
- Optionally during period end closing, a manual review of the calculated accrual amounts can be performed before they are posted.
- Finally, during period end closing, you post the accruals by starting the periodic accrual posting run.

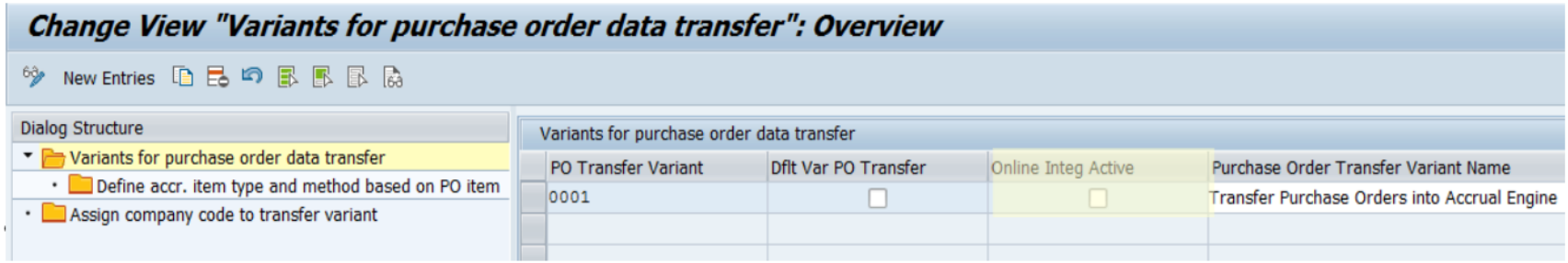
Offline Integration of Accrual Engine with Purchase Order

- When you prepare the go-live with *Purchase Order Accruals*, most likely there will be already existing purchase orders that have been created beforehand. Such purchase orders can be transferred into the Accrual Engine using transaction **POAC_MM2ACE_TRANSFER**. This transaction is available in the IMG as activity *Transfer MM Purchase Orders into the Accrual Engine*, see transaction ACEIMG: *Applications of the Accrual Engine -> Purchase Order Accruals -> Transfer of Purchase Orders from MM into the Accrual Engine -> Transfer MM Purchase Orders into the Accrual Engine.*
- You can use this program also for updating existing accrual objects, for example in case you changed the Customizing despite an accrual object was already created for the purchase order.



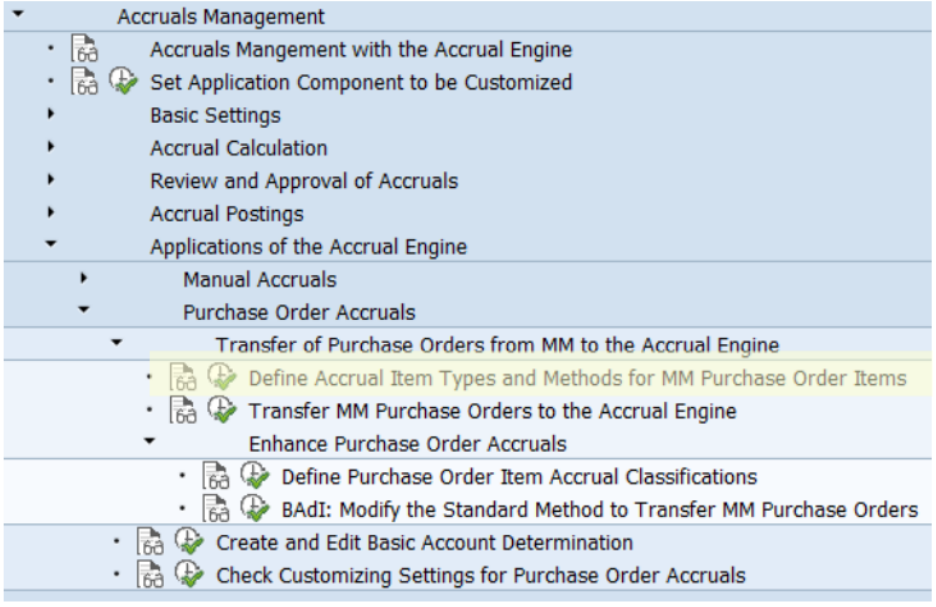
Online Integration of Accrual Engine with Purchase Order

- After you verified that the customizing settings you made lead to the accruals you expect, you can activate the **online** integration of the MM purchase order with the Accrual Engine:
  - Once you activated the online integration, the creation of a new purchase order will directly create also an accrual object – in case this purchase order is relevant for accruals (see next slides): There is no need any more to use the transaction **POAC_MM2ACE_TRANSFER** to transfer the purchase order into the Accrual Engine.
  - Also changing the purchase order will update the data of the accrual object accordingly.
- The activation of the online integration is done in the variant in IMG activity *Define Accrual Item Types and Methods for MM Purchase Order Items* see screen-shot.
- Since each company code can be assigned to a different variant, means that the online integration can be activated on company code level.
- Technically, the online integration is performed by function modules POAC_MMPO_PUSH_PREPARE and POAC_MMPO_PUSH_NUMBER.



Customizing Purchase Order Integration with Accrual Engine: Main IMG Activity

- In order to decide whether an accrual (sub)object has to be created for a purchase order (item) the system evaluates Customizing settings. They can be maintained using transaction ACEIMG, folder *Transfer of Purchase Orders from MM into the Accrual Engine*.
- In this folder the main Customizing activity is *Define Accrual Item Types and Methods for MM Purchase Order Items*.
- These customizing settings are valid for both options: Offline and online integration between Accrual Engine and purchase order.



Transfer Purchase Orders Into the Accrual Engine: Process Steps

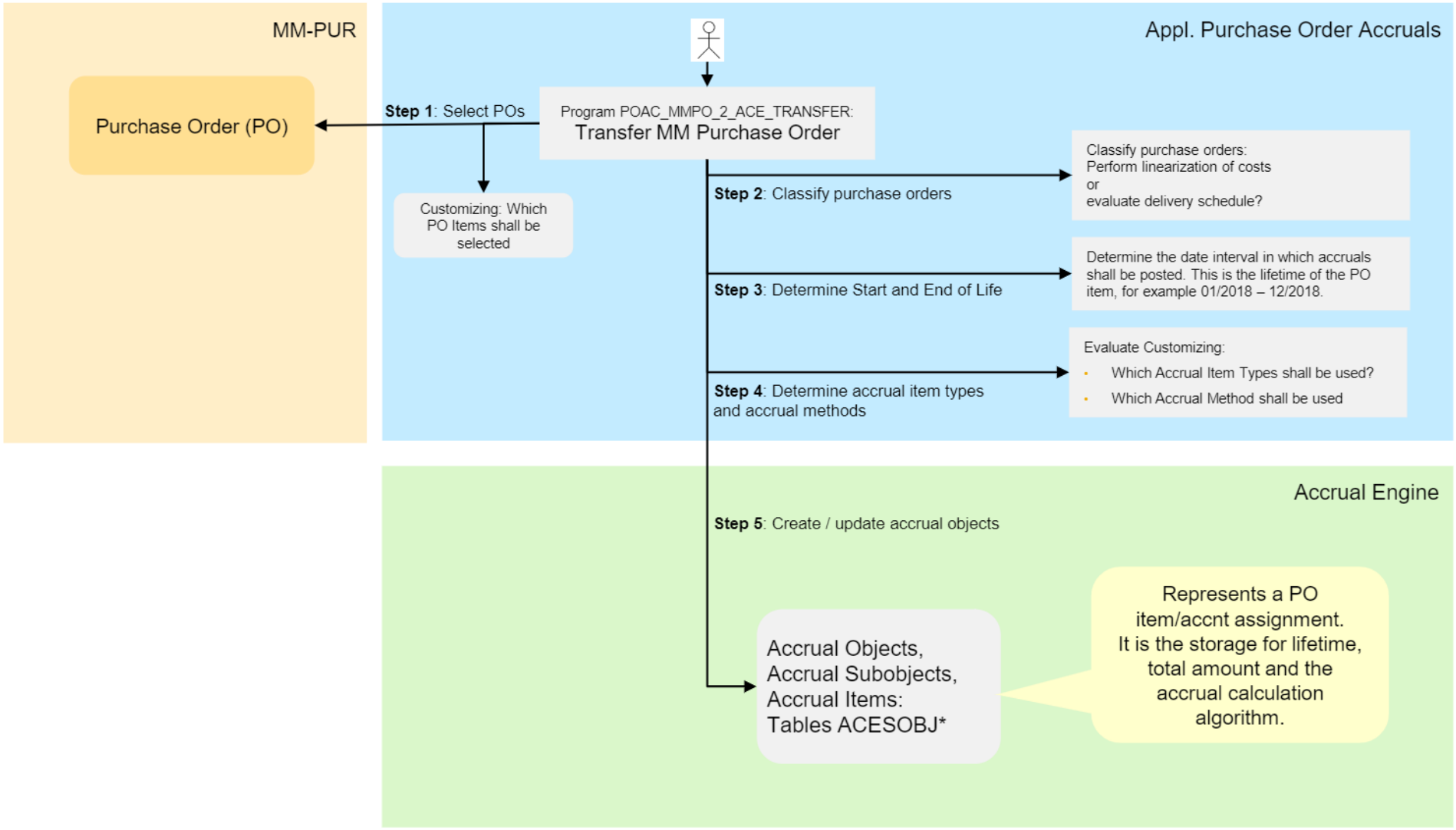
Steps During Transfer of Purchase Orders into the Accrual Engine

- During transfer of purchase orders into the Accrual Engine, offline and online, the system performs the following steps:

1. The system **selects** the purchase order items which are relevant to be accrued, that is, for which an entry exists for the *PO Document Type* and the *PO Item Category* in the Customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items -> Define accrual item type and method based on PO item*.
2. Afterwards the system decides according to which algorithm the accruals shall be calculated: In order to determine the right algorithm, the system first **classifies** the purchase order item with respect to accruals.
3. After the classification was done, the system determines the ***Start of Life*** and ***End of Life*** dates, that is, the date interval in which accruals will be posted.
4. Then the system **determines the accrual item types and accrual methods** (=algorithm) for this accrual subobject.
5. Finally the system **creates (or updates) the accrual subobject** in the Accrual Engine

Note: The above steps can be influenced not only by Customizing but also by the BAdI BADI_POAC_MMPO_2_ACE_TRANSFER.

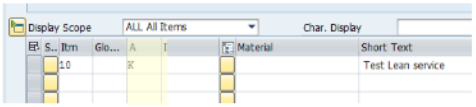
Transfer PO from MM into the Accrual Engine: Big Picture Architecture



Step 1: Transfer of Purchase Orders into the Accrual Engine: Excluded Purchase Order Items: Selection

- For some purchase order items no accrual objects shall be created:
  - Purchase orders that represent a purchasing to stock (EKPO-KZVBR = <space>) do not need to be accrued, since no costs are associated to such purchase order items.
  - Purchasing of fixed assets: No accruals are needed for such purchase order items (EKPO-KZVBR = A)
  - Purchase orders that represent an inter-company stock transfer (EKKO-BSAKZ = T): They are not related to an external supplier, so no accruals are needed.

- Note that a purchase order item can be changed, e.g. using transaction ME22N. So it can occur that an accrual subobject already exists for example for a purchase order item that currently has EKPO-KZVBR = A: Example:
  - A user had created the purchase order item with account assignment category = K (cost center). The system sets EKPO-KZVBR = V in this case;



  - Then the user transferred the PO item into the Accrual Engine – and later he changed the account assignment category from K to A. The system then changes EKPO-KZVBR from V to A.
  - As a consequence, the transaction POAC_MM2ACE_TRANSFER **needs to select** this PO item despite it has KZVBR = A in order to be able to update the **existing** accrual subobject: The accrual items must be set to obsolete!
  - Note: Of course the system not create an accrual subobject for PO items with KZVBR = A if it did not exist before.

Step 1: Transfer of Purchase Orders into the Accrual Engine: Excluded Purchase Order Items: BAdI

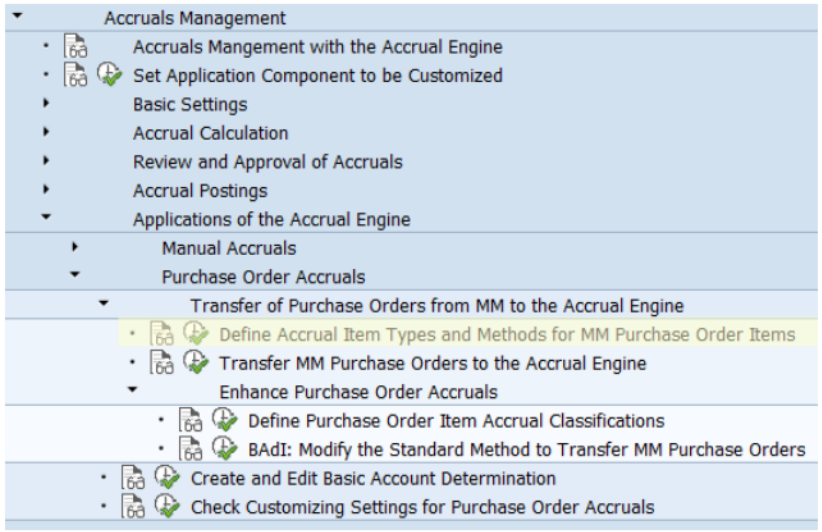
- If you want to calculate and post accruals for purchase order items that are not being selected by default by the transaction POAC_MM2ACE_TRANSFER, for example purchase order items with EKPO-KZVBR = A you can adjust the select-options of the system by implementing the method IF_BADI_POAC_MMPO_2_ACE_TRANSF~**MODIFY_POITEM_SEL_CRITERIA** of BAdI BADI_POAC_MMPO_2_ACE_TRANSFER:
  - The content of the parameters …_selopt can be modified accordingly.

- In addition to the BAdI method MODIFY_POITEM_SEL_CRITERIA also the other BAdI method MODIFY_LIFETIME_EVT_RESULT needs to implemented:
  - This method is called by all relevant life-time events of a purchase order, for example when a purchase order item is changed:
  - In the above example with EKPO-KZVBR is = A: If this purchase order item is changed, normally the system would delete the accrual subobject or set it to obsolete.
    But this is not desired: You explicitly want to have accruals for this purchase order item.
  - In method MODIFY_LIFETIME_EVT_RESULT you need to change the parameter CV_RC to 0 (zero) for this purchase order item.

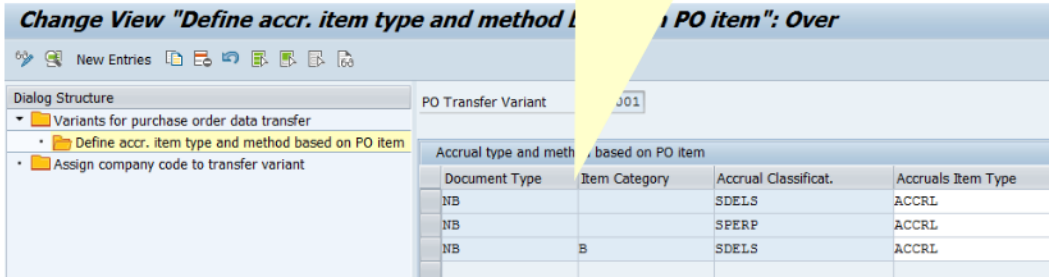
Step 1: Transfer of Purchase Orders into the Accrual Engine: PO Document Type and Item Category

In Customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items* you define –beyond others- which purchase order items shall be accrued:

- In section ***Define accrual item type and method based on PO item*** you create entries for combinations of *Purchasing Document Type* and *Purchasing Document Item Category*. **These entries define for which purchase order items accruals are relevant at all:**
  For a purchase order item the system will create an accrual subobject only if there is an entry in this Customizing table. If no entry exists in this table for the document type and item category, then no accrual subobject will be created: No accruals will be calculated or posted for this purchase order item.



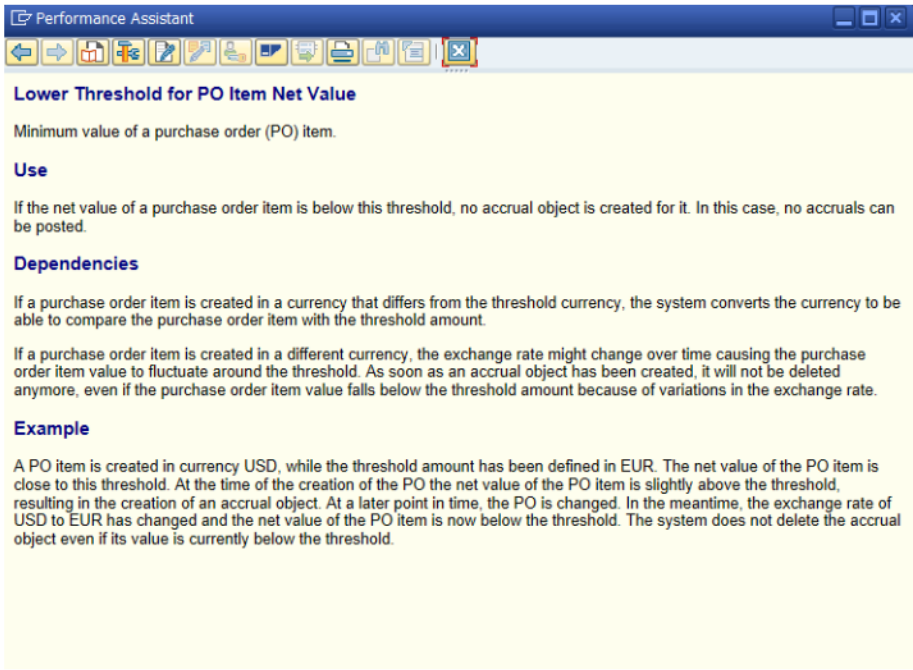
Only for combinations of *PO Document Type* and *PO Item Category* that are entered here, accrual objects will be created; this way you can restrict the scope of the accruals solution, for example during a test or evaluation phase.

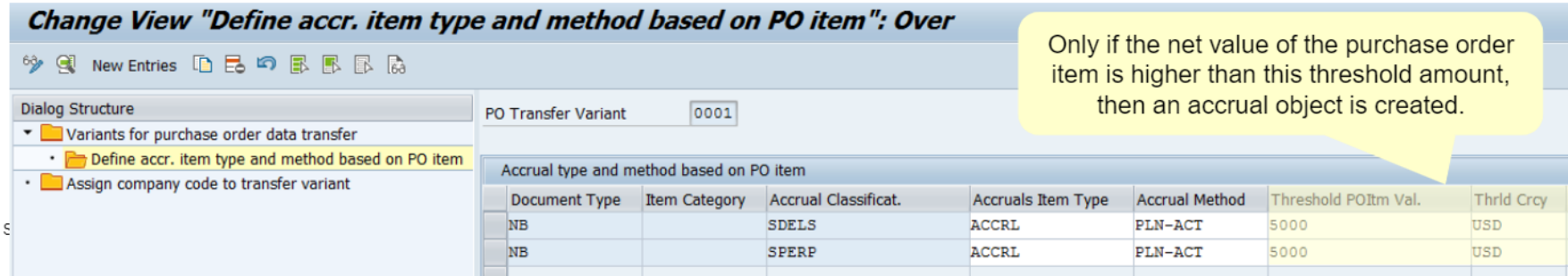


Step 1: Transfer of Purchase Orders into the Accrual Engine: Thresholds for Purchase Order Item Values

In Customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items* you define a threshold amount to exclude from "small" purchase orders items from being accrued:

- In section ***Define accrual item type and method based on PO item*** you can enter a threshold amount for the PO item net value.
- There is a comprehensive F1 help available for this field:





Only if the net value of the purchase order item is higher than this threshold amount, then an accrual object is created.

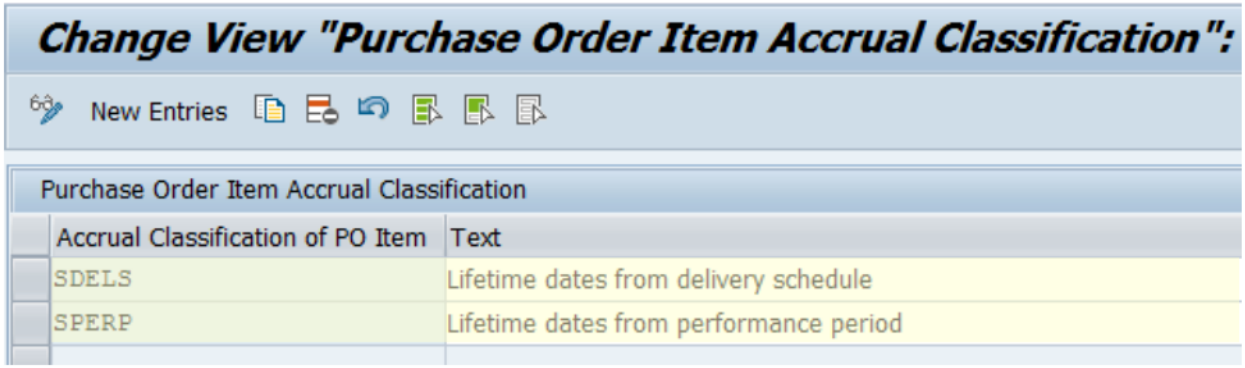
Step 2: Transfer of Purchase Orders into the Accrual Engine: Classify Purchase Order items

- After a purchase order item has been selected, that is, the system has determined in a first step that accruals will presumably be required for the purchase order item, in the second step the system **classifies** each purchase order item with respect to accruals.

- This accrual classification will determine which algorithm the system will use to calculate the accruals for the individual periods.
  - Note: In this step, the system will also determine the lifetime of the purchase order. A start date and an end date are determined. Accruals will then be calculated between those dates.
- Accrual item types and accrual methods will be determined by the accrual classification and the purchase order type and purchase order item category. This will be explained in detail later.

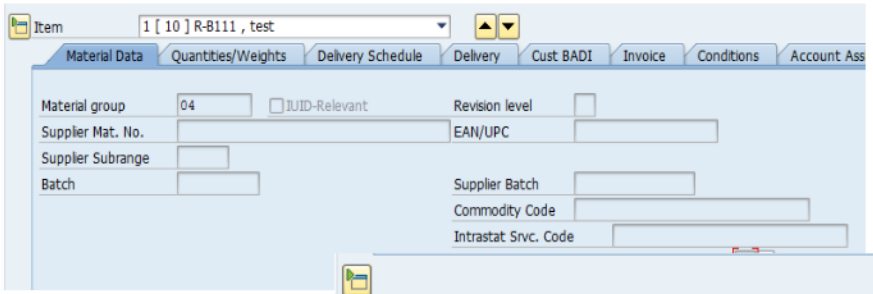
Step 2: Purchase Order Item Accrual Classifications

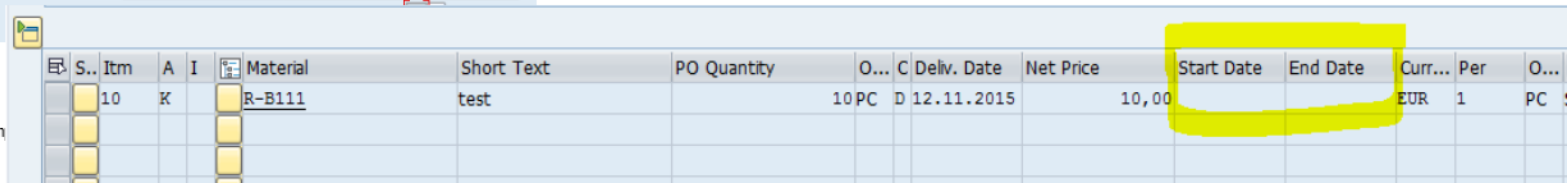
- By default, the system supports two accrual classifications of purchase order items: The values
  - **SDELS** *Lifetime dates from delivery schedule* - and
  - **SPERP** *Lifetime dates from performance period*
    These values are predefined in the SAP standard delivery and cannot be changed by the customer.
- See IMG activity *Define Purchase Order Item Accrual Classifications*, view V_TPOAC_ACRCLASS.



Step 2: Purchase Order Item Accrual Classifications: SPERP

- The classification value **SPERP** is used by the system if the purchase order item represents a Lean Service or an Enhanced Limit.
- In case of Lean Services the *Product Type Group* of the purchase order item has the value 2.
- In those cases the user can enter in the purchase order item (transaction ME22N) a start- and an end date. These dates define the period of time in which the service is planned to be received from the supplier.
- If a purchase order item was classified as SPERP, the system will –in case the default customizing is used- calculate the planned costs by performing a linearization of the total amount of the purchase order item between start- and end date.





Step 2: Purchase Order Item Accrual Classifications: SDELS

- The classification value **SDELS** is the default value that the system uses as classification for a purchase order item.
- A different classification value will be used by the system only if
  - Either the purchase order item represents the procurement of a Lean Service
  - Or the BAdI method
    IF_BADI_POAC_MMPO_2_ACE_TRANSF->
    DET_POITEM_ACCR_CLASSIFICATION
    returns a customer-defined classification value like Z001 or Z002.
- If a purchase order item was classified as SDELS, the system will –in case the default customizing is used- calculate the planned costs by evaluating the delivery dates that are given in delivery schedule of the purchase order item: The planned costs for a delivery date are calculated based on quantity of the delivery schedule entry and net price given in the purchase order item.

Step 2: Customer-Defined Purchase Order Item Accrual Classifications

- There are potential use-cases where the predefined accrual classifications SDELS and SPERP are not sufficient.

- Example:
  The accruals shall be calculated using a linearization between a start- and end date despite the purchase order item does not represent a *Lean Service*. In this case the system “does not know” which dates to use as start- and end date. The start date is defined as a customer defined field ZSTART_DATE in the purchase order item table EKPO.

- **Several extension activities** are needed to achieve the desired accrual calculation logic!

Step 2: Customer-Defined Purchase Order Item Accrual Classifications

- **First Extension Activity:**
  Customer defines his own classification value in Y or Z namespace, for example value Z0001, in the Customizing activity
  Define Purchase Order Item Accrual Classifications.

Change View "Purchase Order Item Accrual Classification": Overview

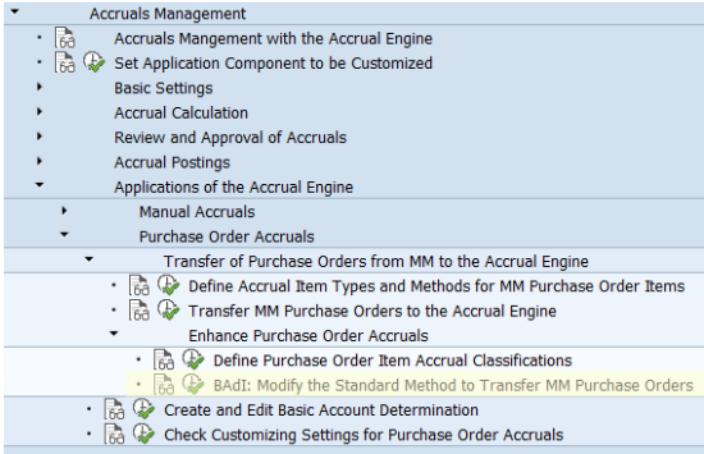
New Entries

Purchase Order Item Accrual Classification

Accrual Classification of PO Item	Text
SDELS	Lifetime dates from delivery schedule
SPERP	Lifetime dates from performance period
Z0001	Planned costs linearized, start- and end date are taken from PO header
Z0002	Planned costs linearized, start- and end date are taken from customer-defined fields

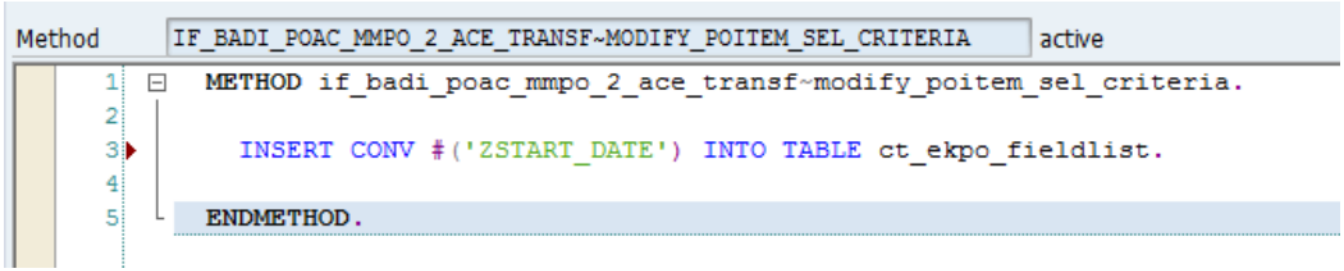
Step 2: Customer-Defined Purchase Order Item Accrual Classifications: BADI_POAC_MMPO_2_ACE_TRANSFER

- **Second Extension Activity:**
  Customer needs to create an implementation for BAdI BADI_POAC_MMPO_2_ACE_TRANSFER:
  The method IF_BADI_POAC_MMPO_2_ACE_TRANSF->**DET_POITEM_ACCR_CLASSIFICATION** must be implemented.
- This BAdI will be called by the system when a purchase order item is transferred into the Accrual Engine.
- The BAdI method can
  - change the classification value from SDELS or SPERP to a customer-defined value like Z0001.
  - Change the *Start of Life* and *End of Life* date that the Accrual Engine uses for the linearization. In our example the BAdI implementation would fill *Start of Life* date with the value from EKPO-ZSTART_DATE.
  - Note: If the classification value is changed to <space>, no accrual object will be created!



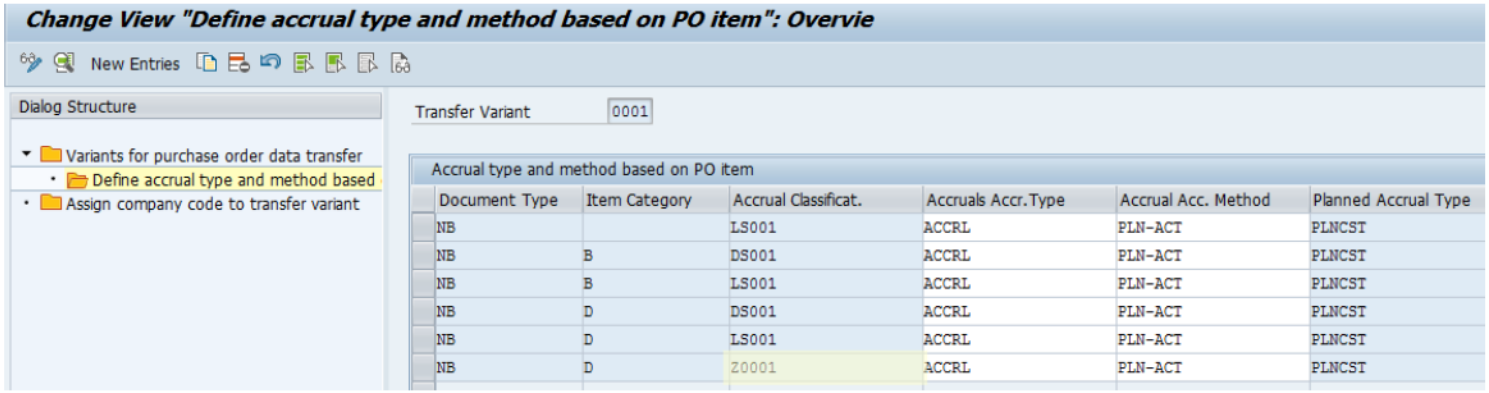
Step 2: Customer-Defined Purchase Order Item Accrual Classifications: BAdI: Select Additional Fields

- **Still Second Extension Activity:**
  In the example: In order to fill *Start of Life* in the BAdI method IF_BADI_POAC_MMPO_2_ACE_TRANSF->**DET_POITEM_ACCR_CLASSIFICATION** the content of field ZSTART_DATE must be moved from structure IS_EKPO into the field CV_VALIDITY_FROM.
- But by default IS_EKPO-ZSTART_DATE will be empty at runtime despite it is filled on the database. Reason is that in order to increase performance, the system selects only those fields from the database which are needed in standard logic (without BAdI).
- If the content of additional fields is required during runtime, these fields have to be inserted into the corresponding field list using BAdI method IF_BADI_POAC_MMPO_2_ACE_TRANSF->**MODIFY_POITEM_SEL_CRITERIA**:



Step 2: Customer-Defined PO Item Accrual Classifications: Determine Accrual Item Types and Methods

- **Third Extension Activity:**
  In the Customizing activity
  Define Accrual Item Types and Methods for MM Purchase Order Items -> Define accrual item type and method based on PO item
  you must create an entry for all relevant combinations of *Purchasing Document Type* and *Item Category* and your accrual classification Z0001:

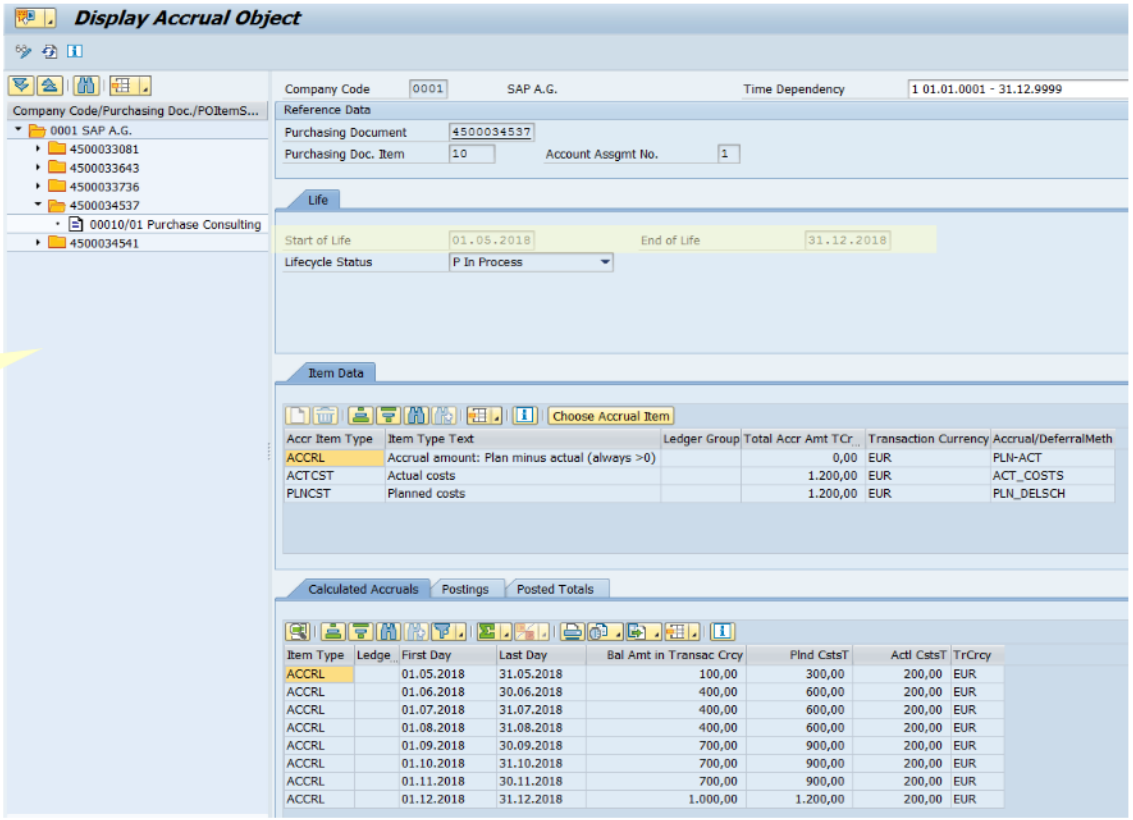


- In this screen you also enter the accrual item types (accrual, planned costs, actual costs) and their accrual methods that the system shall use for the accrual calculation.
- This way the system will use these accrual item types and accrual methods when an accrual subobject is created for an PO item that has this combination of PO Document Type, Item Category and Accrual Classification.
  Note: The accrual classification was performed by the BAdI BADI_POAC_MMPO_2_ACE_TRANSFER.

Step 3: Lifetime of an Accrual Subobject: Purpose

- Each accrual subobject in the Accrual Engine has a lifetime: The lifetime is a period of dates defined by the date fields called **Start of Life** and **End of Life**.
- The lifetime is especially important if the periodic accrual amounts are calculated by a linearization of the total PO item amount over a period of time: This period of time is per definition the lifetime of the accrual subobject.

Screen-shot of transaction POACTREE03.

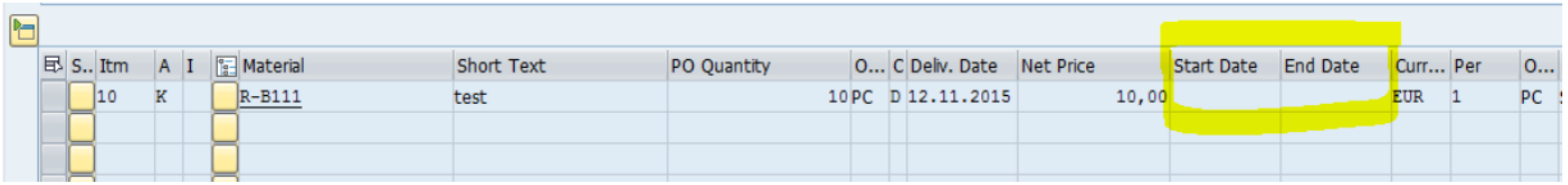


Step 3: Lifetime of an Accrual Subobject: How it is determined

- When a purchase order is transferred into the Accrual Engine, the system determines the lifetime of the accrual subobject from the dates given in the purchase order. The lifetime is then stored in the accrual subobject. The following cases are possible:

- The accruals shall be calculated according to the delivery schedule.
  This means: the accrual classification was determined as **SDELS**. In this case the system evaluates the first and last date of the deliveries. These dates define the lifetime.
  Exceptions:
  - If the first delivery date is in the future, then the system uses as Start of Life date not the first delivery date, but the creation date of the purchase order, field EKKO-BEDAT 'Purchasing Document Date'.
  - For item category E 'Enhanced Limit': In this case the use can enter a *Start Date* and an *End Date* in the PO item. These dates are used as *Start of Life* and *End of Life*, similar like for Lean Services.

- The accruals shall be linearized between a *Start of Life* and *End of Life* date.
  This is by default the case only for Lean Services, that is, if the accrual classification was determined as **SPERP**. In this case the system uses the *Start Date* and *End Date* of the purchase order item as lifetime.

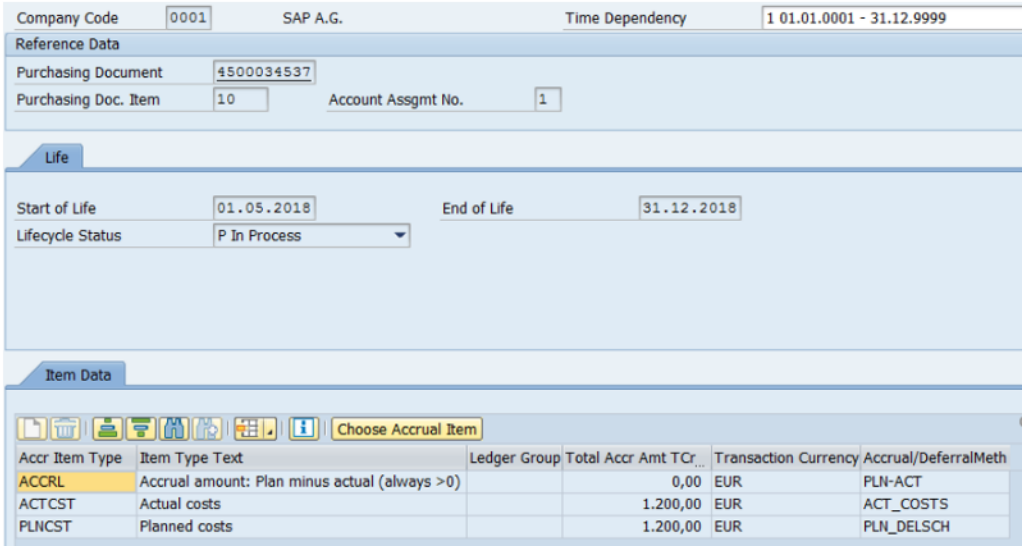


S..	Itm	A	I	Material	Short Text	PO Quantity	O...	C	Deliv. Date	Net Price	Start Date	End Date	Curr...	Per	O...
	10	K		R-B111	test	10	PC	D	12.11.2015	10,00			EUR	1	PC

- The customer can also define his own accrual classifications like **Z0001**. In this case the lifetime needs to be determined by the BAdI BADI_POAC_MMPO_2_ACE_TRANSFER in method IF_BADI_POAC_MMPO_2_ACE_TRANSF->DET_POITEM_ACCR_CLASSIFICATION.

Step 4: Determine Accrual Item Types and Accrual Methods

- After the system has determined the accrual classification and lifetime for the purchase order item (=step 2), as next step the system will derive the **accrual item types** and **accrual methods** that shall be used by the Accrual Engine to calculate the accrual amounts for the single periods:
- Each accrual item type represents an amount that shall be calculated by the Accrual Engine: It is the key field that represents an accrual item of the accrual subobject.
- The accrual method represents the algorithm how the amount shall be calculated for the accrual item type: It is an attribute of the accrual item of the accrual subobject.



Screen-shot of transaction POACTREE03: The accrual items and their methods that were created as part of the accrual subobject for the purchase order item.

Step 4: Determine Accrual Item Types and Accrual Methods: Customizing: List Screen

- After the PO item was classified, the accrual item types and accrual methods are derived based on the table entries in Customizing activity
  Define Accrual Item Types and Methods for MM Purchase Order Items -> Define accrual item type and method based on PO item.

Based on the two fields

- PO Document Type and
- PO Item Category

of the purchase order and the

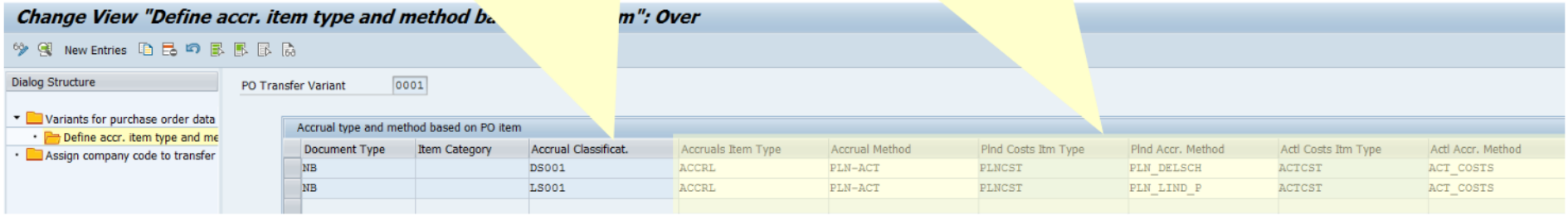
- accrual classification
  that was determined in step 2for the PO item,

the accrual item types and accrual methods are determined.

Three accrual item types are determined: At least one for the

- Accruals. And optionally one for
- Planned costs and one for
- Actual costs.

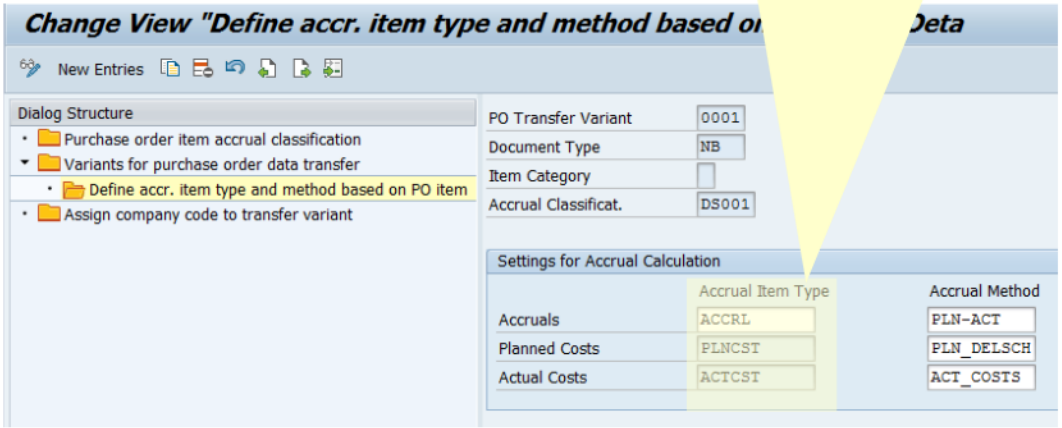
Also, for each of those accrual item types an accrual method is determined.



Step 4: Determine Accrual Item Types and Accrual Methods: Customizing: Detail Screen

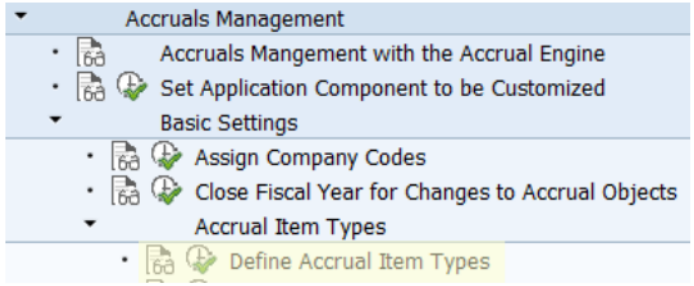
- Despite three accrual item types can be determined, the user enters only the accrual item type for the **accruals** in this screen: The other two accrual item types for **planned** and **actual** costs are filled automatically if the three-step approach is used; that is, if the accrual item types for planned and actual costs are assigned in the other Customizing activity *Define Accrual Item Types*.
- If no such relationships are defined, that is, if the three-step approach is not used, then the system will use only the Accruals accrual item type: In this case you must use your customer-defined accrual method that calculates the accrual amount using your customer-defined algorithm.
- The recommended approach is to use the three-step approach (accruals = planned costs minus actual costs).

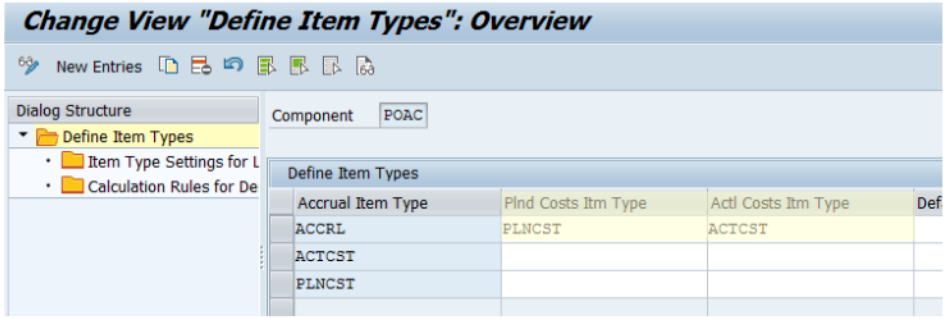
The user enters only ACCRL: The other accrual item types PLNCST and ACTCST are taken automatically from the settings in Cust. activity *Define Accrual Item Types*

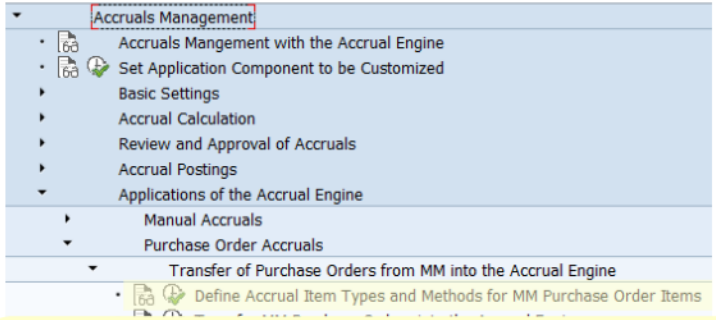


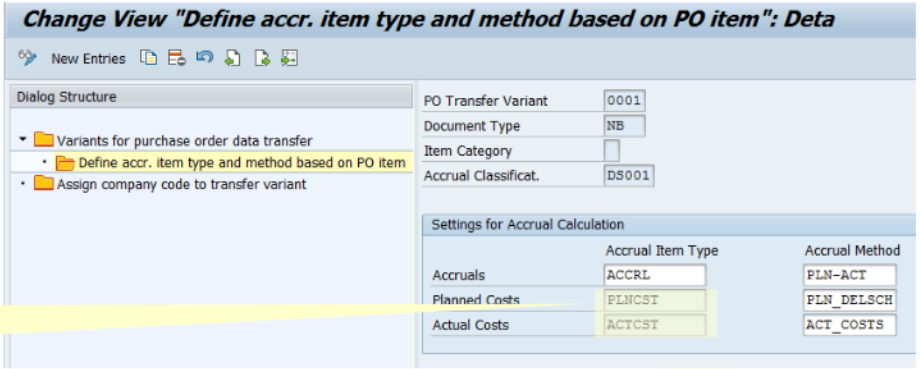
Step 4: Determine Accrual Item Types and Accrual Methods: Customizing: Planned and Actual Costs

- In the example shown in the screen-shot in the last slide, the three-step approach is used, that is, an accrual item type for planned costs and an accrual item type for actual costs are assigned to the *Accruals* accrual item type:





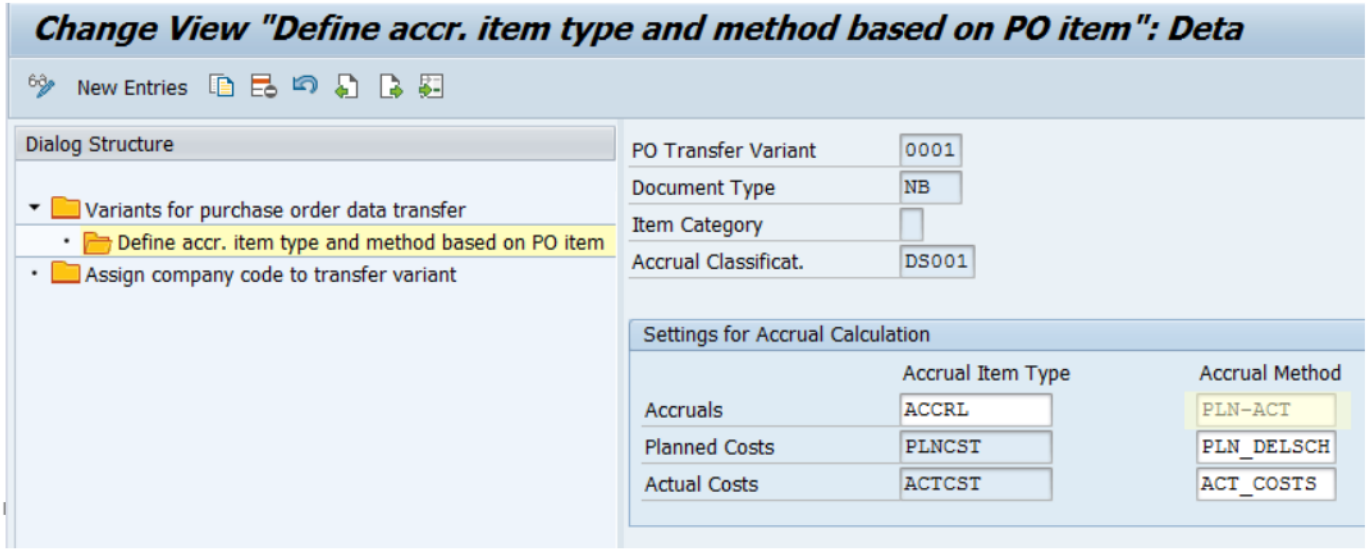




The user enters only ACCRL: The other accrual item types PLNCST and ACTCST are taken automatically from the settings in Cust. activity *Define Accrual Item Types*

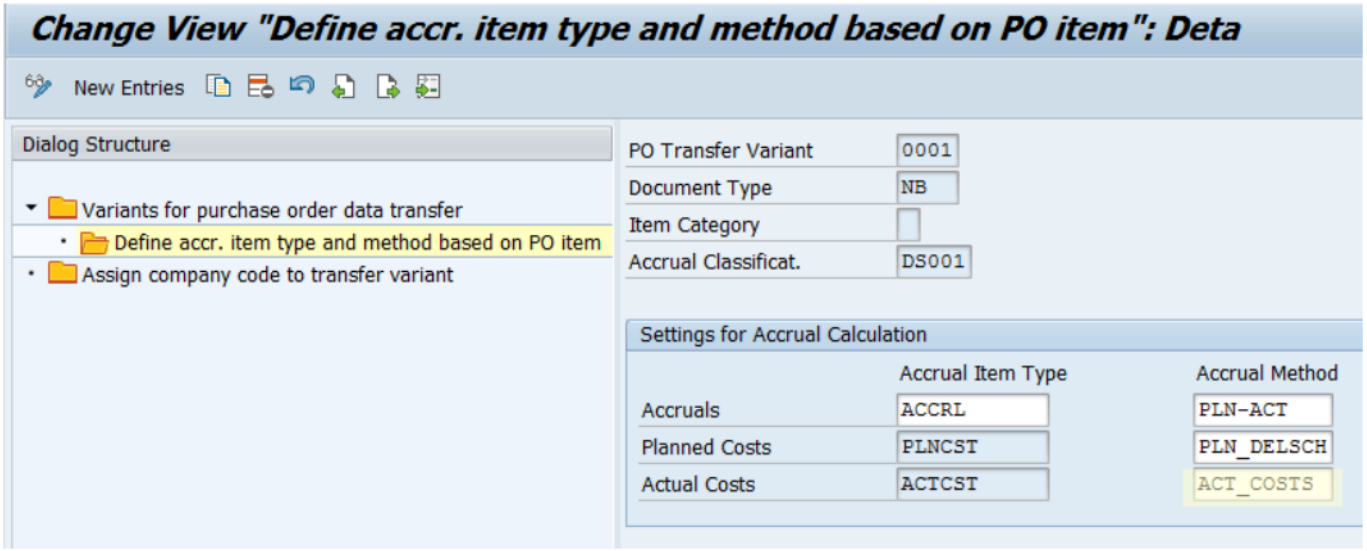
Step 4: Determine Accrual Item Types and Accrual Methods: Detail Screen: Accrual Method for ACCRL

- Despite the accrual item types for planned costs and actual costs are determined automatically from the Accruals accrual item type (here ACCRL), the user needs to enter the accrual methods for all accrual item types that are used.
- In the three-step approach, the following rule applies:
  - For the Accruals accrual item type (ACCRL in screen-shot below) you always should use the accr. Method **PLN-ACT**: This methods performs the subtraction: It subtracts the actual costs from the planned costs; if the result is negative, is uses zero – since accruals can never become negative.
    For details see corresponding slides for this accrual method.



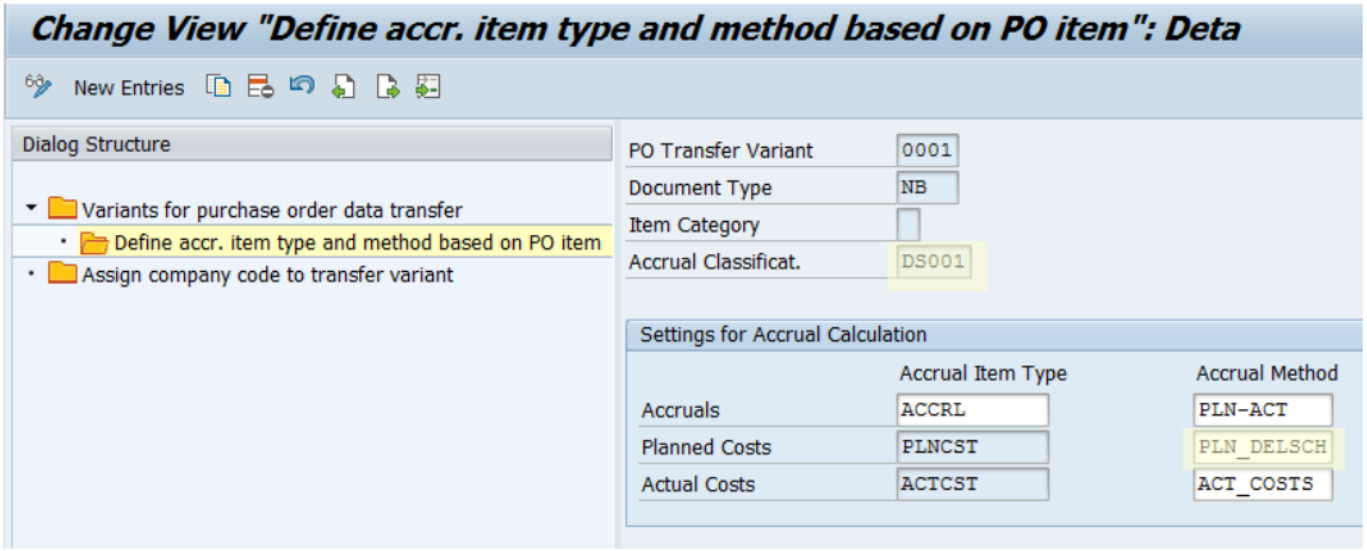
Step 4: Determine Accrual Item Types and Accrual Methods: Detail Screen: Accrual Method for ACTCST

- In the three-step approach, you can use the accrual method **ACT_COSTS** for the Actual Costs item type (here: ACTCST):
  - This method determines the actual costs that have already been posted (up to a given date) for the purchase order item/accnt. Assignment.
    For details see corresponding slides for this accrual method.



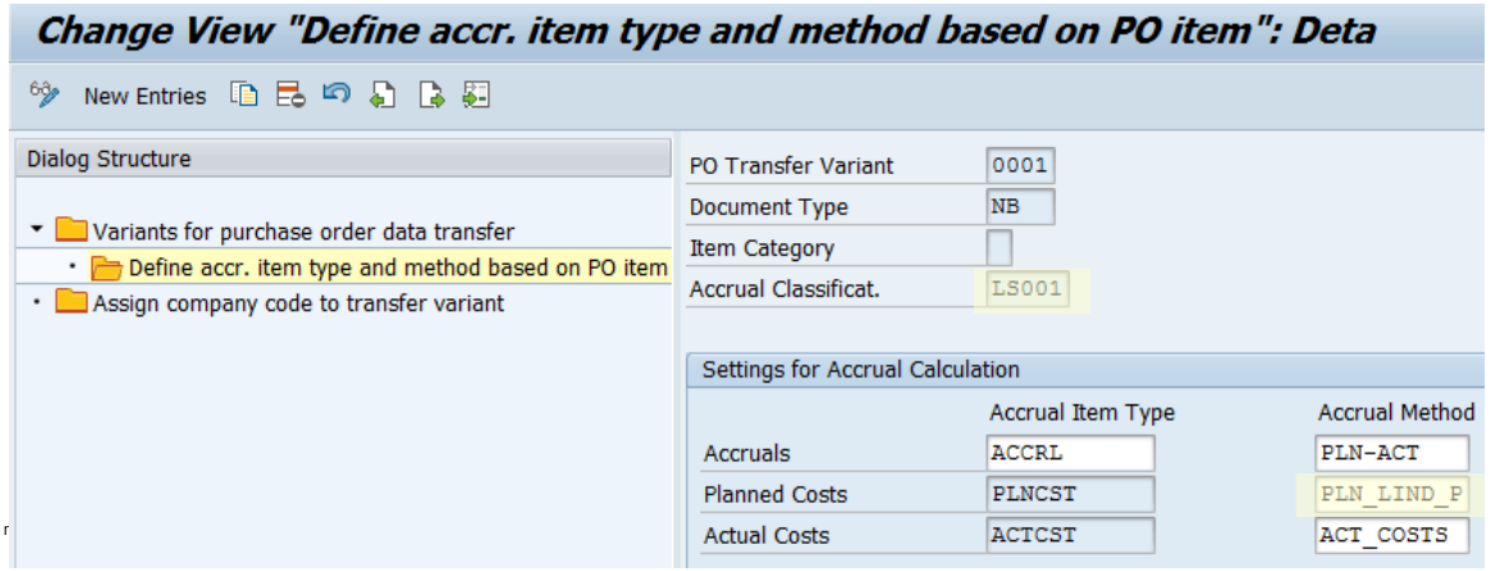
Step 4: Determine Accrual Item Types and Accrual Methods: Detail Screen: Accrual Method for PLNCST

- In the three-step approach, for the *Planned Costs* accrual item type, you need to enter an accrual method that „fits“ to the accrual classification:
- For accrual classification SDELS (Planned costs according to delivery schedule) you can use the accrual method **PLN_DELSCH** for the *Planned Costs* accrual item type (here: PLNCST):
  - This method determines the planned costs by evaluating the delivery dates and quantities of the delivery schedule of the PO item.
    For details see corresponding slides for this accrual method.



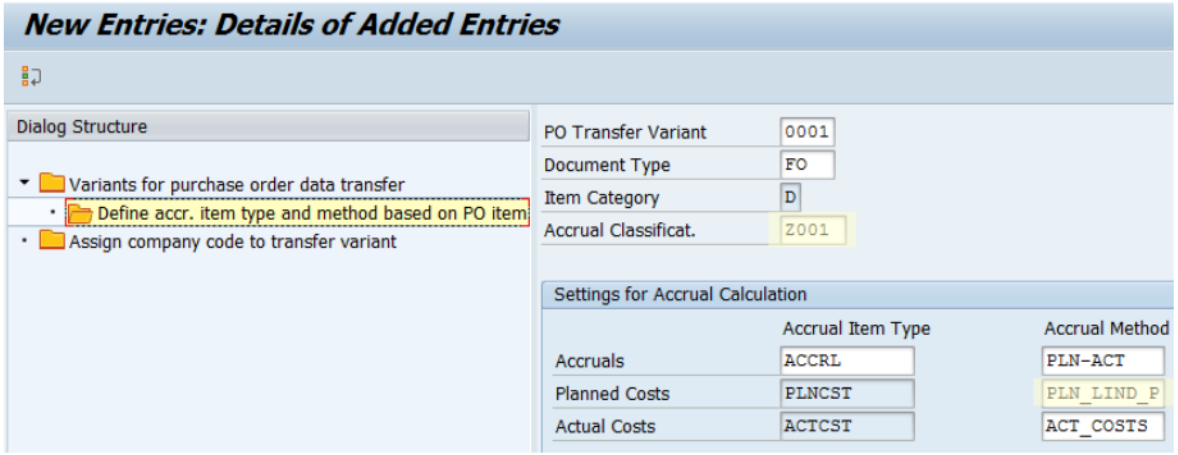
Step 4: Determine Accrual Item Types and Accrual Methods: Detail Screen: Accrual Method for PLNCST

- For accrual classification SPERP (Planned Costs linearized between start- and end date) you can use the accrual method **PLN_LIND_P** for the Planned Costs accrual item type (here: PLNCST):
  - This method determines the planned costs by performing a linearization of the total net amount of the PO item between a start and an end date. Start and end date are determined automatically from the PO item in case of Lean Services. For details see corresponding slides for this accrual method.



Step 4: Determine Accrual Item Types and Accrual Methods: Detail Screen: Accrual Method for PLNCST

- An important use-case for customer-defined accrual classifications like Z0001 is that you want to calculate the planned costs differently than the system would do by default for the classification values SDELS and SPERP.
- Example: You want the planned costs to be calculated according to a linearization between a start and end date – despite you are **not** using Lean Services.
- Note: Customer-defined classifications like Z001 and the start- and end date need to be determined by the BAdI method IF_BADI_POAC_MMPO_2_ACE_TRANSF>DET_POITEM_ACCR_CLASSIFICATION
  For details see corresponding slide.



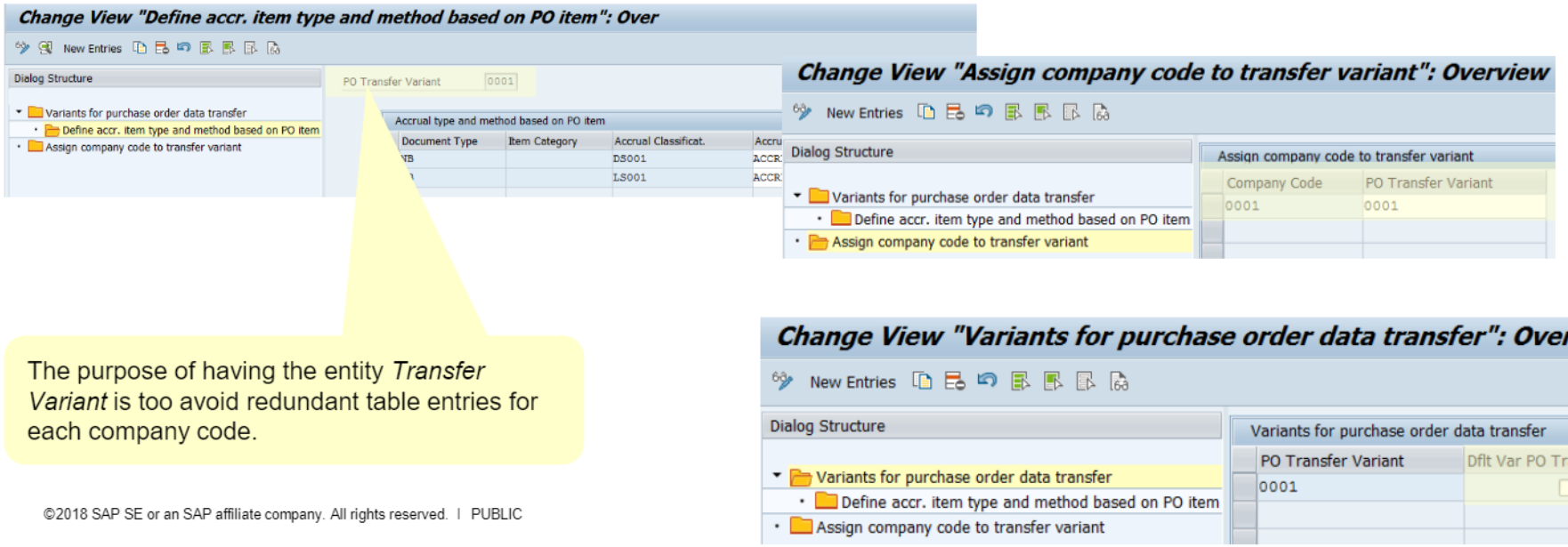
Step 5: Create Accrual (Sub)Objects

- After the accrual item types and accrual methods have been determined for the purchase order item, the system will create the accrual (sub) object in the Accrual Engine.
- Before this happens, the customer can modify the accrual subobject and its accrual items using the BAdI method IF_BADI_POAC_MMPO_2_ACE_TRANSF>**MODIFY_ACCRUAL_SUBOBJECT**.
- This BAdI method is needed only in exceptional cases if the existing Customizing and the other BAdI methods are not sufficient to build-up the accrual subobject as desired.

Customizing: Company Code-Dependency

In order to avoid identical customizing table entries for several company codes in Customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items,*

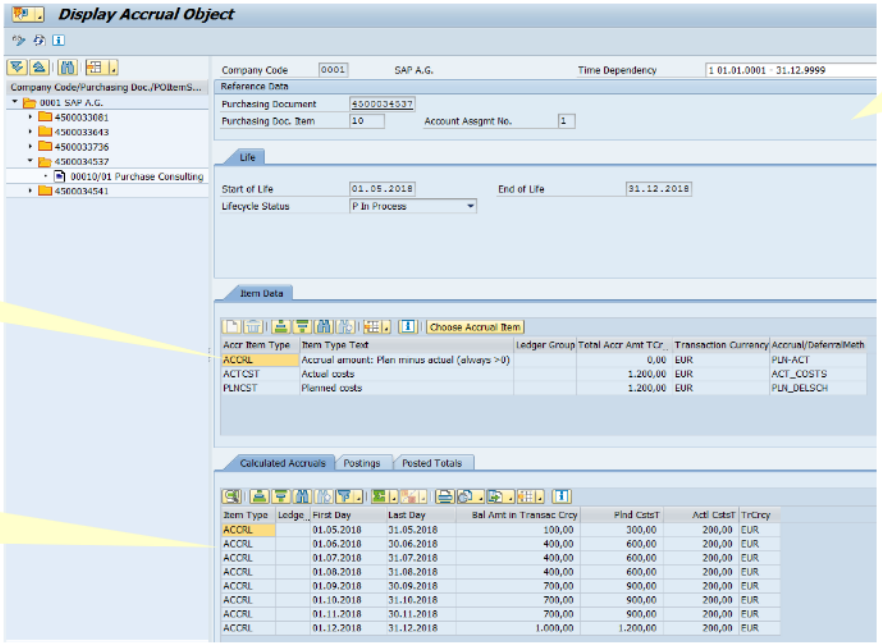
- you define all settings in section ***Define accrual item type and method based on PO item*** not on the level of company code but on the level of a *Transfer Variant*.
- Afterwards you assign this *Transfer Variant* to one or several company codes.
- As an alternative you can set also the *Default* indicator in the *Transfer Variant*. In this case you do not need to assign it to single company codes: For each company code to which no *Transfer Variant* is assigned, the system will use the default variant.



The purpose of having the entity *Transfer Variant* is too avoid redundant table entries for each company code.

Display Accrual Object: Transaction POACTREE03

- You can check the result of the transfer of a purchase order into the accrual engine using transaction POACTREE03.
- This transaction displays the accrual (sub) object, that is, the
  - Data that were replicated from the purchase order item like the total amount of the PO item and the life time.
  - Data that were derived during the transfer into the accrual engine like accrual item types and their accrual methods.
  - Calculated accruals (calculated on the fly, not saved), postings and review/approval info for the single periods.



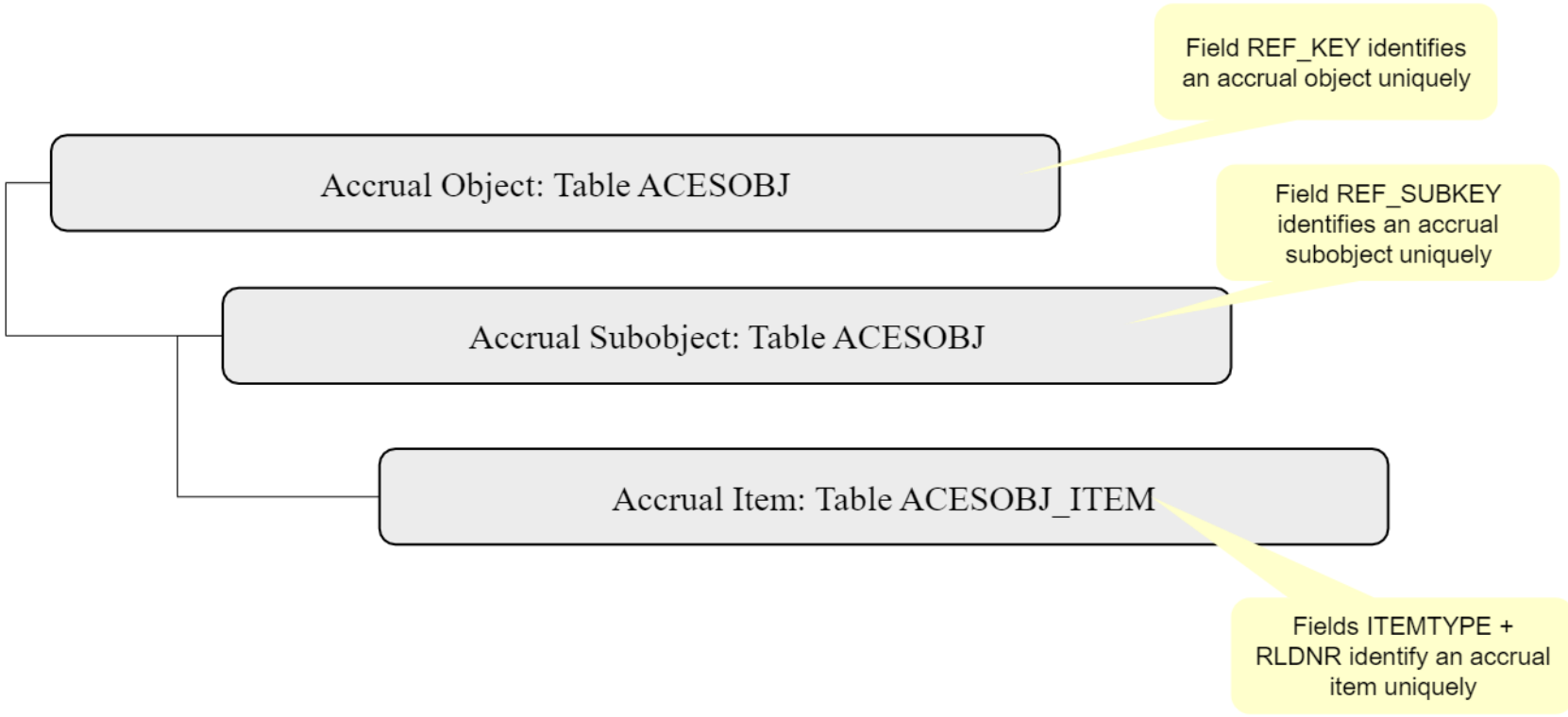
Screen-shot of transaction POACTREE03.

1. Double Click on an item in the list.

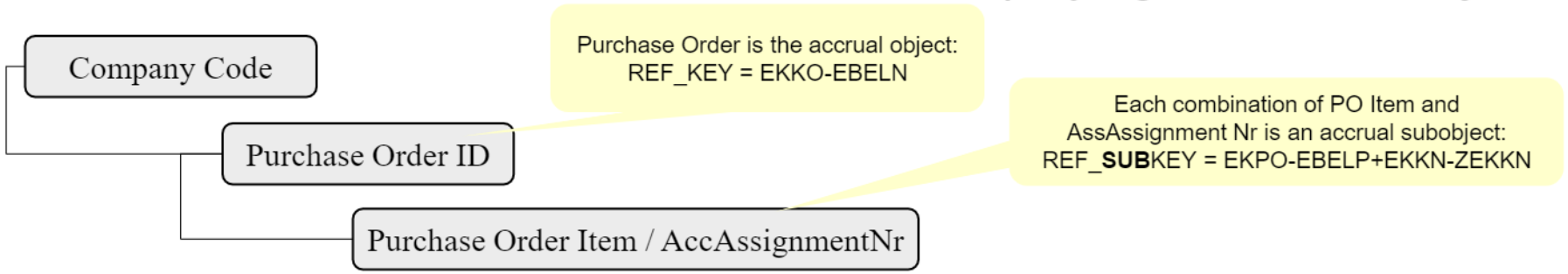
2. As a consequence the calculated amounts, posted amounts etc. for this accrual item are displayed.

Technical Details:
Relation Between Purchase Order
and
Accrual Object

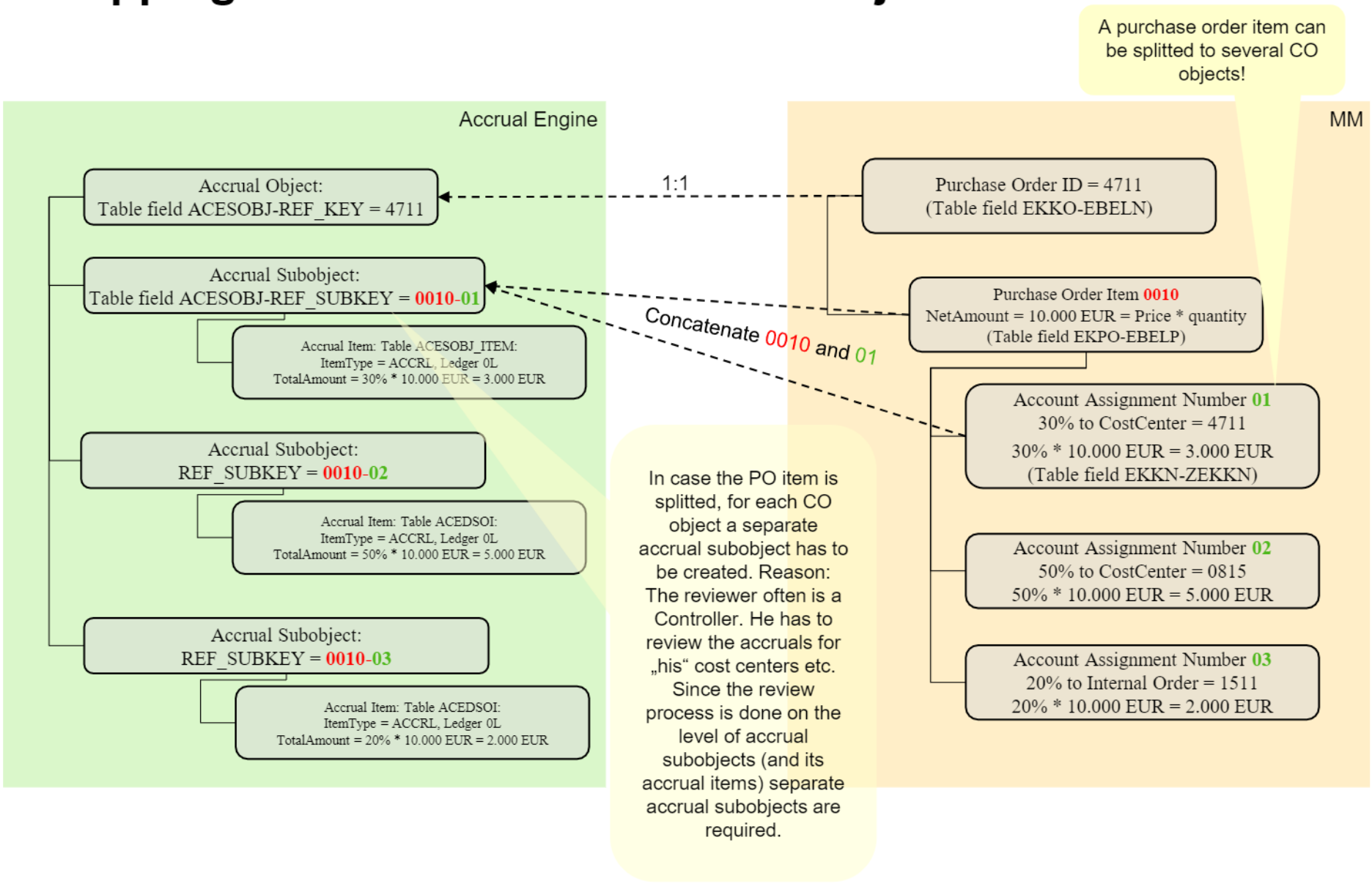
Data Structure in Accrual Engine



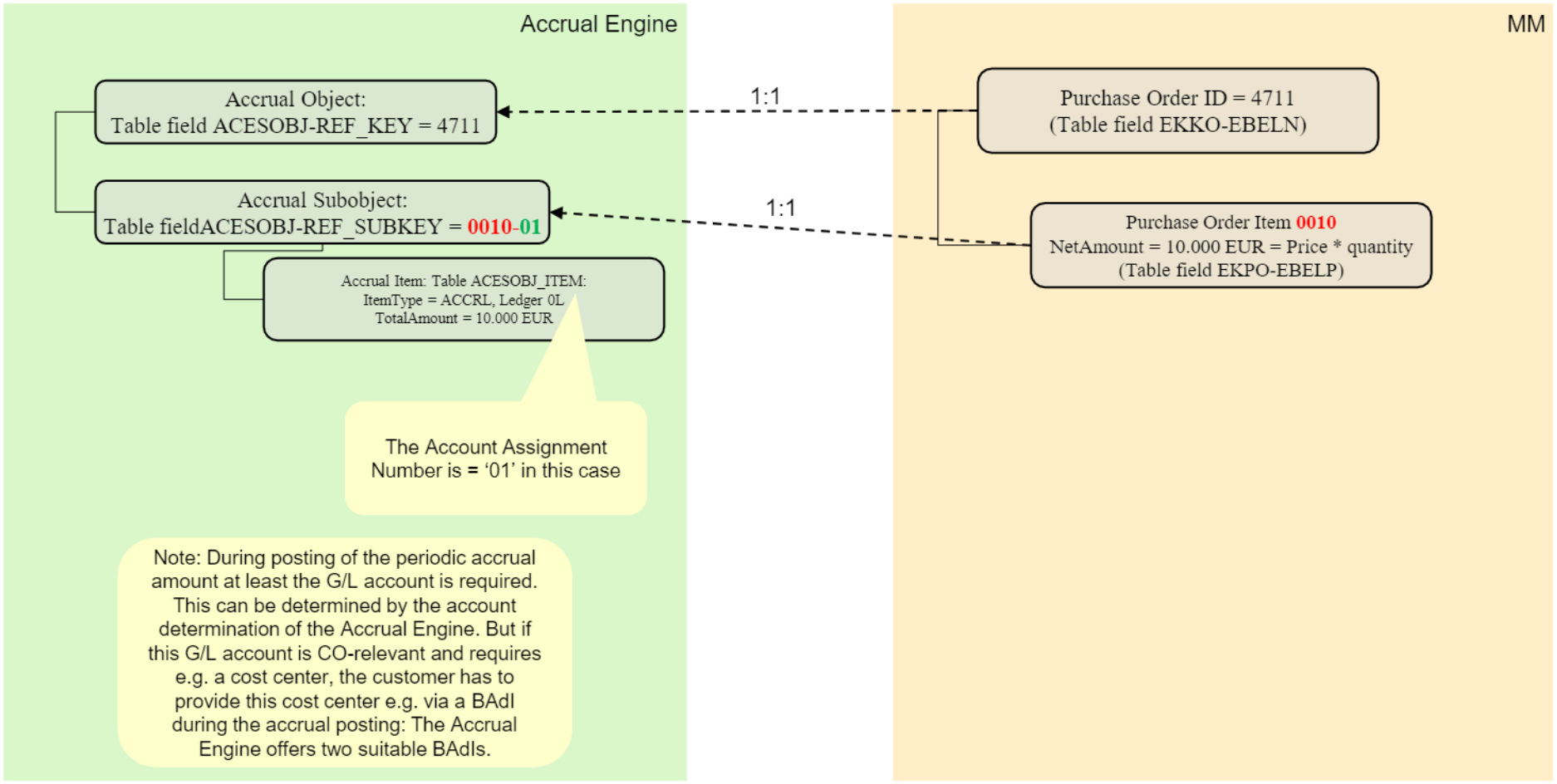
Tree structure in transaction POACTREE03 for displaying an accrual object:



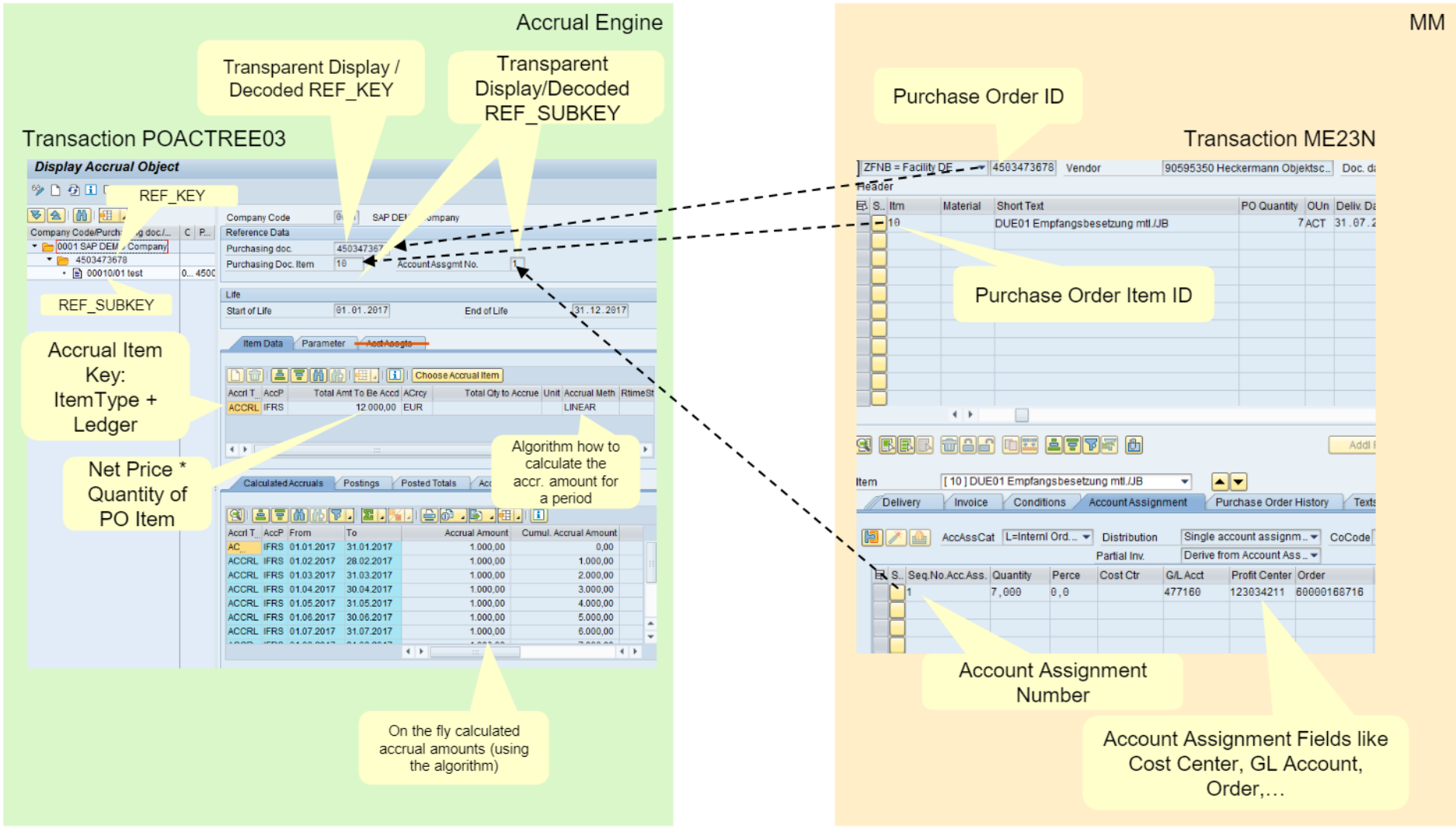
Mapping between PO and Accrual Object



Mapping between PO and Accrual Object: Special Case: No Acc Assignment given in PO Item



Mapping between PO and Accrual Object: UI Point of View

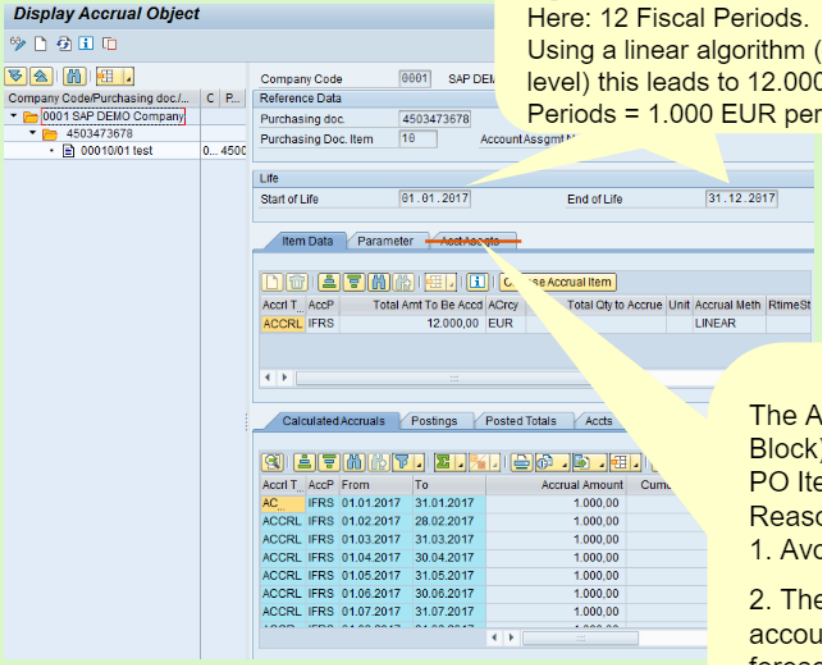


Mapping between MM-PO and Accrual Engine “Basis Data”

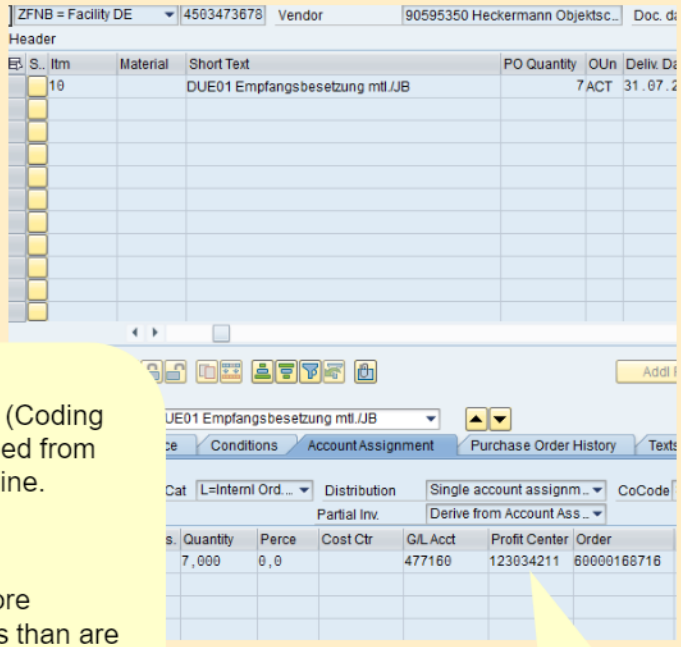
Accrual Engine

MM

Transaction POACTREE03



Transaction ME23N



Date interval over which the total amount (here: 12.000 EUR) shall be „distributed“ by the calculation algorithm.
Here: 12 Fiscal Periods.
Using a linear algorithm (on period level) this leads to 12.000 EUR / 12 Periods = 1.000 EUR per period

The Account Assignment (Coding Block) Fields are not copied from PO Item into Accrual Engine.
Reason:
1. Avoid redundant data

2. The PO can handle more account assignment fields than are foreseen in the Accrual Engine (table ACESOBJ_ASSGMT does not contain all required fields)

Account Assignment Fields like Cost Center, GL Account, Order,…

Life-Time Events of Purchase Orders and Their Effect on Accruals

Time-Dependency in the Accrual Engine versus Time-Independency of Purchase Order Data

- The purchase order is time-independent: Every change that a user performs in the purchase order, for example using transaction ME22N, is valid immediately for all times: The change overwrites the original value in the purchase order. The user does not need to enter a date from which this change would be valid.

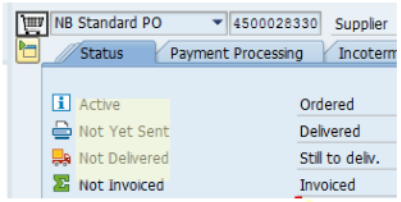
- The accrual object in the Accrual Engine is time-dependent: For each change a user performs, he has to enter a date from which onwards this change shall be valid.
  - The reason for the time-dependency in the Accrual Engine is that an accrual object in general represents **contract-like data**. And a contract can be time-dependent.
  - Example rental contract:
    - The rental contract is created in January 2017 with monthly rate of 500 EUR. Its life-time is 02/2017 to 1/2019.
      The corresponding accrual object would have a total amount to be accrued of 500 EUR * 24 months = 12.000 EUR.
    - In July 2018 the rental contract is changed: Starting from October 2018 the monthly rate increases from 500 EUR to 510 EUR.
      In other words, **from 01.10.2017 onwards** the total amount to be accrued increases from 12.000 EUR to 12.000 EUR + 10 EUR * 4 months = 12.040 EUR.

- In the application *Purchase Order Accruals* an accrual object can be created for a purchase order.
  When a user changes data in the purchase order, these changes can lead to a change of the corresponding accrual object.
  - Example: If the user changes the net price in the purchase order item, the total amount to be accrued in the accrual subobject needs to be adjusted.

- When maintaining a purchase order e.g. with transaction ME22N, a user cannot enter a date from which his change is valid: So the system automatically determines a reasonable date from which onwards this change shall be valid in the accrual object.
  - The logic how this date is determined is hard-coded in the system.

Life-Time Events in the Purchase Order and Their Effect on Accruals: Create or Delete PO Items

There are several events that influence the accrual amounts that the Accrual Engine calculates for a purchase order:

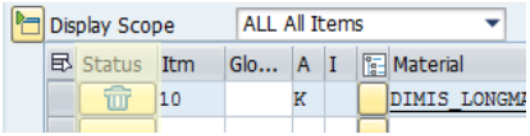


Screen-shot from transaction ME23N(Display Purchase Order)

- Creation of the purchase order
  The customizing of the Purchase Order Accruals application determines whether an accrual object will be created. The purchase order must have an suitable status.
  The new purchase order is created in the Accrual Engine time-independent (table ACESOBJ).

- Creation of a new purchase order item:
  The customizing of the *Purchase Order Accruals* application determines whether an accrual subobject will be created.
  For each account assignment given in a purchase order item, a separate accrual subobject will be created.
  The customizing of the *Purchase Order Accruals* application determines which accrual items are created and which algorithms they use to calculate and post the periodic accrual amounts.
  The new purchase order item is created in the Accrual Engine to be technically valid all time, that is, from 01.01.0001 until 31.12.9999 (table ACSOBJ_ITEM, fields LIFE_START_DATE and LIFE_END_DATE).

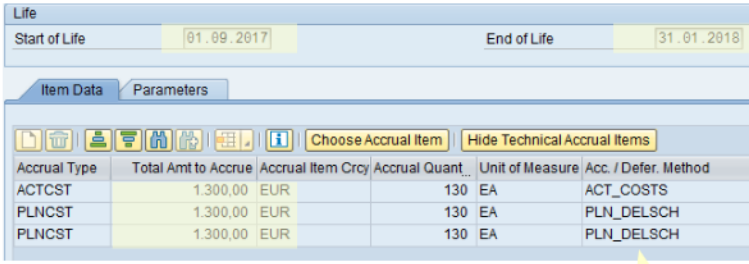
- Deletion of an existing purchase order item:
  Once a purchase order item was created and saved, it is not possible to delete it again; but the user can mark this item as to be deleted (EKPO-LOEKZ). If accruals have already been posted, then the accrual subobject cannot be deleted any more.
  The status of the accrual items of the corresponding accrual subobject will be set to *Obsolete*: The accruals will be set to zero as a consequence in future fiscal periods.
  This change is valid in the Accrual Engine is valid all time, that is also for former periods.



Life-Time Events in the Purchase Order and Their Effect on Accruals: Change PO Item (1)

Changes of an existing purchase order item that affect accruals

- In general it depends on the accrual method, that is, on the accrual calculation algorithm which changes in the purchase order will affect the accruals. Since the algorithms can be programmed by the Customer, it is not possible to provide a complete list of changes that will affect the accruals.
- If the three-step approach is used (accruals = plan minus actual), then all changes in the purchase order (item) that affect the planned costs will affect the accruals.
- Only few data are replicated by the system from the purchase order (item) into the Accrual Engine:
  - Total planned costs
  - *Start of Life* date and *End of Life* date are determined during the replication. These dates determine the date interval between which the costs are planned to be accrued.
- Changes in the purchase order (item) that affect these replicated data will lead to an update in the accrual subobject.
- These changes are valid in the Accrual Engine for all time, that is, from 01.01.0001 until 31.12.9999 (table ACSOBJ_ITEM, fields LIFE_START_DATE and LIFE_END_DATE).

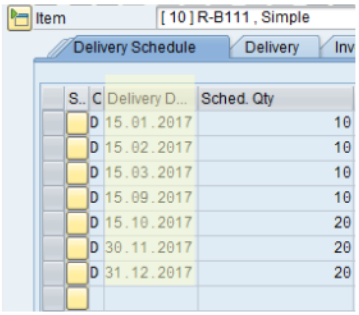


Screen-shot from transaction POACTREE03 (Display Accrual Object)

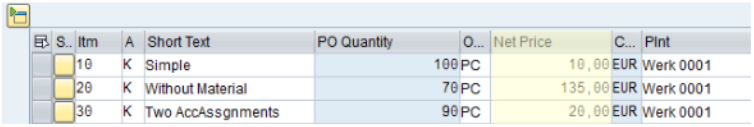
Life-Time Events in the Purchase Order and Their Effect on Accruals: Change PO Item (2)

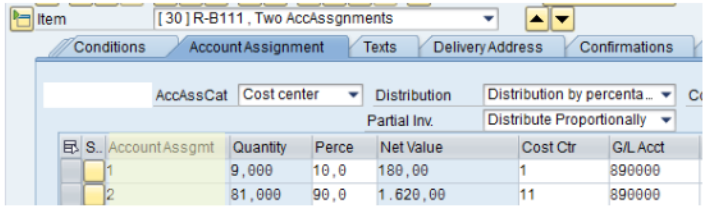
Changes of an existing purchase order item that affect accruals assuming the three-step approach is used:

- **Changing the delivery schedule**
  Changing the delivery date or quantity in existing entries, see screen-shot of transaction ME23N.
  This will affect the total planned costs and/or the life time.
- **Creating a new entry in the delivery schedule**
  (or deleting an existing one).
  This will affect the total planned costs and/or the life time.
- **Changing the net price in the purchase order item**
  This will affect the total planned costs.
- **Changing the item category of a PO item**
  For example from *Standard* to *Limit*. This can lead to different accrual item types and methods due to the Customizing in IMG activity *Define Accrual Item Types and Methods for MM Purchase Order Items* (transaction ACEIMG). See separate slide for details!
- **Adding a new account assignment**
  This will lead to a split of the accrual subobject into two subobjects. The new accrual subobject is created in the Accrual Engine to be technically valid all time, that is, from 01.01.0001 until 31.12.9999 (table ACSOBJ_ITEM, fields LIFE_START_DATE and LIFE_END_DATE).



Screen-shots from transaction ME23N (Display Purchase Order)





Life-Time Events in the Purchase Order and Their Effect on Accruals: Change PO Item (2)

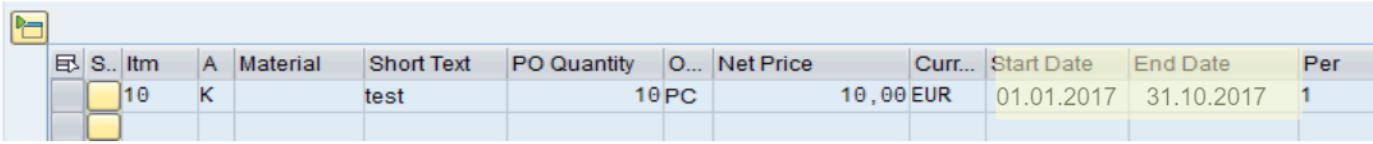
- Some comments on the effect of changes in the purchase order item if accrual method PLN_LIND_P *Planned costs with linear distribution* is used:

  This method distributes the total amount of the accrual subobject linearly between the *Start of Life* and *End of Life* date that is given in the accrual subobject. As a consequence

  – changes in the purchase order that change the total amount of the purchase order item will lead to different accruals. For example changing the net price of the purchase order item in transaction ME22N.

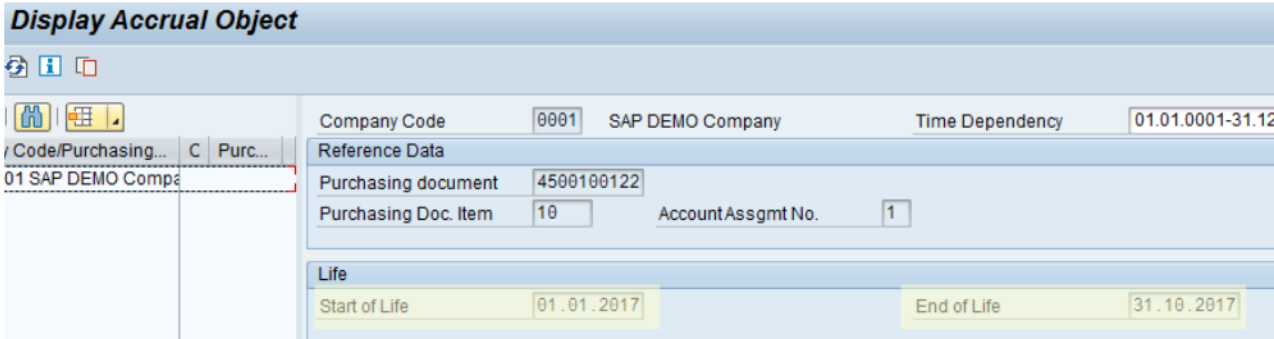
  – The method PLN_LIND_P can be for example for purchase order items that represent a *Lean Service*. In *Lean Services* the user can enter a *Start Date* and *End Date* in the purchase order item between which the service is planned to be received from the supplier. These dates are replicated into the accrual subobject as *Start of Life* and *End of Life*. As a consequence, changing the start or end date in the purchase order item in transaction ME22N will affect the accruals.
  Note: Lean Services means that in the purchase order item, the field Product Type Group has the value 2.

Screen-shot from transaction ME23N (Display Purchase Order)



S..	Itm	A	Material	Short Text	PO Quantity	O...	Net Price	Curr...	Start Date	End Date	Per
	10	K		test	10	PC	10,00	EUR	01.01.2017	31.10.2017	1

Screen-shot from transaction POACTREE03 (Display Accrual Object)

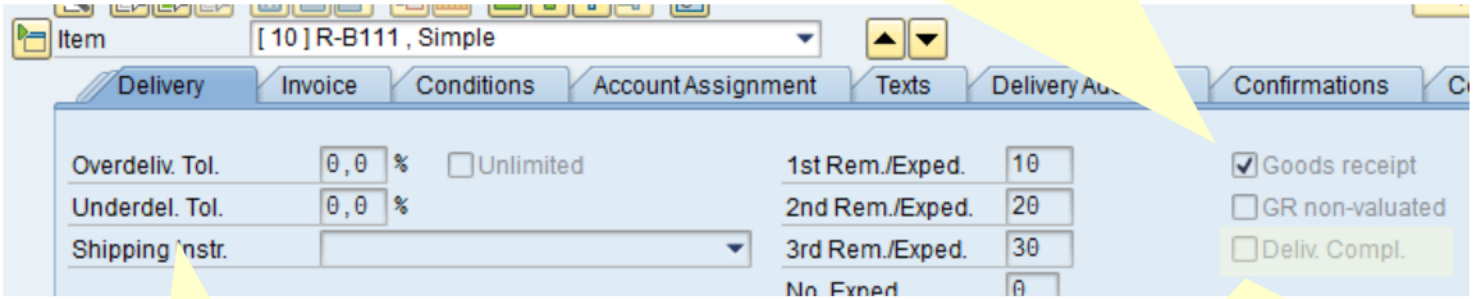


Life-Time Events in the Purchase Order and Their Effect on Accruals: Set *Delivery Complete* Indicator in PO Item (1)

- Setting the indicator *Delivery Complete* in the purchase order item
  If valuated goods receipts are posted for a purchase order item, these goods receipts post the costs in Accounting. Since accruals are usually posted for costs that are expected for future fiscal periods, no accruals are required as soon as the last goods receipt was posted:
  As soon as a user has set the indicator *Delivery Complete* in the purchase order item, the accrual amount for the future fiscal periods must be zero. What *future* exactly means in this case will be explained in the next slide!

If
a) the indicator *Goods receipt* is true and
b) the indicator *GR non-valuated* is false

Then the goods receipt will perform a posting in Accounting. If the purchasing document item has an account assignment like cost center, then costs will be posted.



Screen-shot from transaction ME23N (Display Purchase Order)

The indicator *Deliv. Compl.* (=Delivery Complete) in the purchase order item is set manually by a user. If it is set then this means that no further goods receipt, that is, not further costs, is expected: No accruals are needed any more.

Life-Time Events in the Purchase Order and Their Effect on Accruals: Set *Delivery Complete* Indicator in PO Item (2)

- In the purchase order item, a user can set the indicator *Delivery Complete*. This indicator is time-independent: The purchase order item does not store the information from which date onwards this indicator is valid.
- For the accrual calculation setting this final indicator means that the accrual amount must be = 0 after the posting date of the final goods receipt. Before this posting date, still goods receipts are expected – and as a consequence potentially accruals are required.
- *Example*
  - *According to the delivery schedule of the purchase order item, there is a goods receipt expected for period 1/2017 with an amount of 300 EUR. But the corresponding goods receipt was not yet posted.*
  - *In period 2/2017 the period end closing for period 1/2017 is performed. Before the accruals are posted for period 1/2017 by the periodic accrual run during the closing process, the missing goods receipt is posted. But it is posted with a posting date in period 2/2017 instead of 1/2017. And since this goods receipt was the goods receipt, the user sets now the indicator Delivery Complete in the purchase order item.*
  - *Afterwards the periodic accrual run for period 1/2017 is started. This run must post accruals for this purchase order item, because in period 1/2017 the goods receipt is still missing –despite in the purchase order item the Final Delivery Complete was already set!*

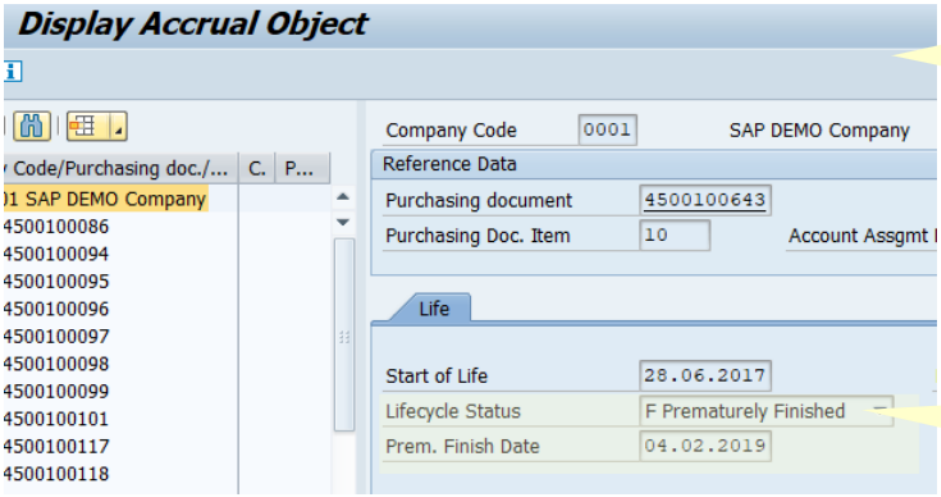
Life-Time Events in the Purchase Order and Their Effect on Accruals: Set *Delivery Complete* Indicator in PO Item (3)

- In order to achieve that the accruals are zero after the indicator *Delivery Complete* was set, the system performs the following steps:

1. During replication of the purchase order into the Accrual Engine: If the *Delivery Complete* indicator is true in the *purchase order item*, then the system changes the status of the accrual subobject to Prematurely Finished ("F").

2. And it saves the posting date of the last goods receipt in the accrual subobject in field *Premature Finish Date*. This way it is achieved that after the posting date of the last goods receipt, the posted accruals will be released: The next accrual posting run will perform a release posting in order to end up with an accruals balance of zero.

Note: If the three-step approach is not used, then the used (customer-defined) accrual method must return zero as accrual amount after the posting date of the last goods receipt. This case must be considered in the source code of the customer-developed accrual method.



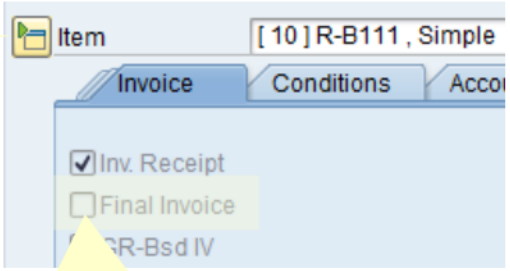
Screen-shot from transaction POACTREE03 (Display Accrual Object)

The *Lifecycle Status* and the *Premature Finish Date* are filled since in the PO item the indicator *Delivery Complete* is set.

Life-Time Events in the Purchase Order and Their Effect on Accruals: Set *Final Invoice* Indicator in PO Item (1)

- Setting the indicator *Final Invoice* in the purchase order item
  If **no** valuated goods receipts are posted for a purchase order item, the supplier invoices post the costs in Accounting. Since accruals are usually posted for costs that are expected for future fiscal periods, no accruals are required as soon as the last invoice was posted:
  As soon as a user has set the indicator *Final Invoice* in the purchase order item, the accrual amount for the future fiscal periods must be zero. What *future* exactly means in this case will be explained in the next slide!
- In other words: For accruals the indicator *Final Invoice* has –in case of no valuated goods receipts- the same effect like the indicator *Delivery Complete* in case of valuated goods receipts.

Screen-shot from transaction ME23N (Display Purchase Order)



The indicator *Final Invoice* in the purchase order item is set either manually by a user or automatically during posting the final invoice. If it is set then this means that no further supplier invoice, that is, not further costs, is expected: No accruals are needed any more.

Life-Time Events in the Purchase Order and Their Effect on Accruals: Set *Final Invoice* Indicator in PO Item (2)

- In the purchase order item, a user can set the indicator *Final Invoice*. This indicator is time-independent: The purchase order item does not store the information from which date onwards this indicator is valid.

- For the accrual calculation setting this final indicator means that the accrual amount must be = 0 after the posting date of the final goods receipt. Before this posting date, still goods receipts are expected – and as a consequence potentially accruals are required.

- *Example*

- *According to the delivery schedule of the purchase order item, there is a supplier invoice expected for period 1/2017 with an amount of 300 EUR. But the corresponding supplier invoice was not yet posted.*
- *In period 2/2017 the period end closing for period 1/2017 is performed. Before the accruals are posted for period 1/2017 by the periodic accrual run during the closing process, the missing supplier invoice is posted. But it is posted with a posting date in period 2/2017 instead of 1/2017. And since this supplier invoice was the final invoice, the user sets now the indicator Final Invoice in the purchase order item.*
- *Afterwards the periodic accrual run for period 1/2017 is started. This run must post accruals for this purchase order item, because in period 1/2017 the supplier invoice is still missing –despite in the purchase order item the Final Invoice indicator was already set!*

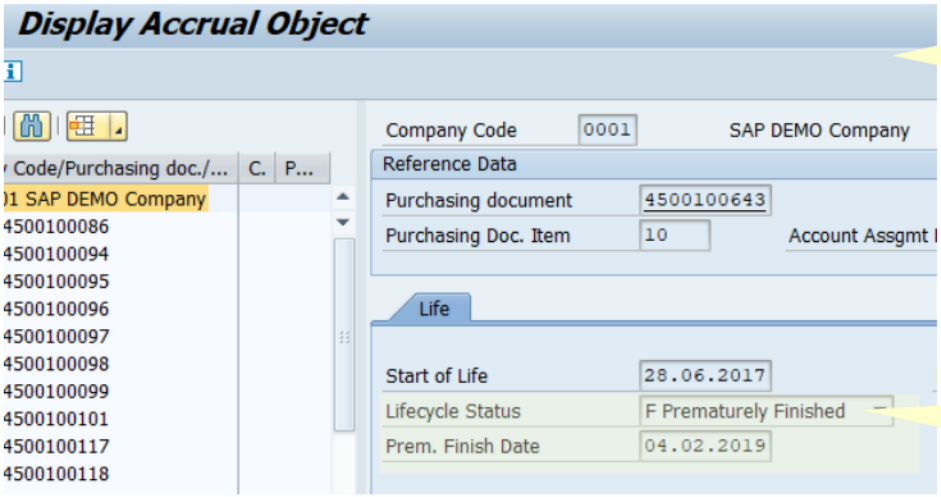
Life-Time Events in the Purchase Order and Their Effect on Accruals: Set *Final Invoice* Indicator in PO Item (3)

- In order to achieve that the accruals are zero after the indicator *Final Invoice* was set, the system performs the following steps:

1. During replication of the purchase order into the Accrual Engine: If the *Final Invoice* indicator is true in the *purchase order item*, then the system changes the status of the accrual subobject to Prematurely Finished ("F").

2. And it saves the posting date of the final invoice in the accrual subobject in field *Premature Finish Date*. This way it is achieved that after the posting date of the final invoice, the posted accruals will be released: The next accrual posting run will perform a release posting in order to end up with an accruals balance of zero.

Note: If the three-step approach is not used, then the used (customer-defined) accrual method must return zero as accrual amount after the posting date of the final invoice. This case must be considered in the source code of the customer-developed accrual method.



Screen-shot from transaction POACTREE03 (Display Accrual Object)

The *Lifecycle Status* and the *Premature Finish Date* are filled since in the PO item the indicator *Final Invoice* is set.

Life-Time Events in the Purchase Order and Their Effect on Accruals: Change PO Item Category or Customizing

- Changing the item category of the purchase order item
  The customizing that defines how a purchase order item is to be transferred into the Accrual Engine depends -beyond others- on purchasing document type and purchasing item category. Assume a user changes for example the item category of an existing purchase order item despite already an accrual subobject already exists for it. In this case a different customizing setting can become relevant: for example different accrual item types shall be used and/or different accrual methods. As a consequence, in the accrual subobject potentially
  - some new accrual items will be created,
  - some existing accrual items will be deleted (in case no accrual postings exist yet),
  - some existing accrual items will be marked as obsolete (if accrual postings already exist),
  - some existing accrual items will be updated, for example if only the accrual method changes.

  Such changes, especially the creation of new accrual items or the existence of obsolete accrual items might be confusing for an end user when he displays the accrual subobject for example using transaction POACTREE03.
  To avoid such confusion it is recommended to use in the Customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items* (viewcluster VC_TPOAC_PO_ACRTM) the **same accrual item types** for all entries in section *Define accrual item type and method based on PO item* in this customizing activity.
- If the transformation of the purchase order item into an accrual subobject is not only defined by the customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items* (viewcluster VC_TPOAC_PO_ACRTM) but in addition by an implementation of BAdI BADI_POAC_MMPO_2_ACE_TRANSFER or BAdI POAC_ACCRUAL_OBJECT_ITEMS, then potentially any change of the purchase order (item) can lead to the above described changes of accrual items. This is in principle not an issue, but it can be regarded as confusing by end users.

Life-Time Events in the Purchase Order and Their Effect on Accruals: Change Check Result by BAdI Method

- The result of the life-time event check can be modified by
  - method IF_BADI_POAC_MMPO_2_ACE_TRANSF~ MODIFY_LIFETIME_EVT_RESULT of BAdI ES_POAC_MMPO_2_ACE_TRANSFER
  - method IF_POAC_LIFETIME_EVENT~CHANGE_LIFETIME_EVENT_CHECK of BAdI POAC_LIFETIME_EVENT.

Purchase Order Accruals: Limitations

Current Limitations

- Purchase order terms with item category “Limit” (value B, EKPO-PSTYP = 1)
  - There exist exactly one entry in the delivery schedule: Calculating the accruals according to the delivery schedule does not make sense as a consequence.
  - There is no explicit start and end date available in the purchase order item that could be used for performing a linearized distribution of the total amount. The system uses default values:
    - As start date the system will use the document date of the purchase order (field EKKO-BEDAT).
    - As end date the system will use the delivery date: There exist exactly one entry in the delivery schedule.
  - The system uses the purchase order item net value as total amount to be accrued. But more suitable would likely be the expected value (field ESUH-COMMITMENT).
  - If a different behavior for accruals is desired, the BAdI POAC_MMPO_2_ACE_TRANSFER or the BAdIs of Enhancement Spot POAC_ACCR_OBJECT have to be used.

Current Limitations (2)

- Purchase order terms with item category “Service” (value D, EKPO-PSTYP = 9)
  - There exist exactly one entry in the delivery schedule: Calculating the accruals according to the delivery schedule does not make sense as a consequence.
  - Start and end dates for a linearization are only available
    - If the business function PSM_USFED_PEROP_1 is active (public sector)
    - In the Services tab in transaction ME23N. This services tab corresponds to tables ESLH and ESLL: In fields ESLL-PER_SDATE and ESLL-PER_EDATE the start and end date are given. But these tables are currently not evaluated.

    Instead, the system uses default values:
    - As start date the system will use the document date of the purchase order (field EKKO-BEDAT).
    - As end date the system will use the delivery date: There exist exactly one entry in the delivery schedule.
  - If a different behavior for accruals is desired, the BAdI POAC_MMPO_2_ACE_TRANSFER or the BAdIs of Enhancement Spot POAC_ACCR_OBJECT have to be used.

Current Limitations (3)

- Open Down Payments (to Suppliers) are not considered
  - If a down payments to a supplier were posted that has not yet been cleared by a supplier invoice, then instead of posting accruals, the open down payment should be recognized into P&L, see also IFRIC 22. In other words, the open down payment amount should reduce the balance of the accrual account.
    This posting logic is not yet implemented in the Accrual Engine.

Optional Period End Closing Activity:

Review and Approve Accrual Amounts*

*Or Planned Costs / PercentageOfCompletion

Review And/Or Approval of Periodic Accrual Amounts: Motivation

- By default, the periodic accruals amounts are calculated by the Accrual Engine as planned costs minus actual costs. This means that the system **assumes** that the planned costs reflect reality.

- *Example:*
  At 31.05.2018 the system proposes the amount of 2.000 EUR as accrual amount for item 10 of purchase order 4711: The planned costs were calculated as 5.000 EUR, but the posted invoices for this purchase order item are only 3.000 EUR.
  The planned costs of 5.000 EUR were calculated by a linearization of the PO item net value of 12.000 EUR over the life time of the purchase order – which is the date interval between the PO creation in 01/2012 and the delivery date of the planned final delivery in 12/2018.
  The accrual amount of 2.000 EUR means that the system assumes that the company has received the goods or services with a value of 5.000 EUR – and only the invoice was not yet posted for some reason, for example because the supplier did not send the invoice yet.

- So the accrual amounts that are calculated this way by the Accrual Engine are just a **proposal**, based on an assumption.

- As a consequence, it makes sense that the proposed accruals are **reviewed** (and/or **approved**) by a person who can judge whether the assumption is correct or not.

- Instead of reviewing the accrual amounts directly it is recommended to review the planned costs instead! See next slide for more details.

Review of Planned Costs Instead of Accruals

- If the accruals are calculated by the Accrual Engine as planned costs minus actual costs- which is the default and highly recommended- then you should activate the review not for the accrual amounts, but for the **planned costs**!

- Performing the review for the planned costs might sound surprising at first glance, but turns out to be more suitable for several reasons:

Reasons for reviewing planned costs (rather than the accruals directly):

1. Reviewers are sometimes not accountants but project leads etc.:
   They do in general not know what accruals are.

2. Late invoices / goods receipts after review/approval was finished:
   The accruals shall be reduced automatically by the amount of the invoice/goods receipt.

3. Sometimes the *percentage of completion* is reviewed.
   The percentage of completion represents a progress
   It is the planned costs that represent this progress, not the accruals -- which represent the missing costs.

See corresponding slides for more details.

Difference between Review And Approval

- Review and approval of periodic accrual amounts are implemented in the following way in the Accrual Engine:
- **Review** is always an **optional** activity: If nobody performs the review of the proposed accrual amounts for the given purchase order item, the system will post the proposed accrual amount.
- **Approval** means that the system will post the proposed accrual amount for the purchase order item only if the approver has granted his approval.
- Both steps, review and approval of the periodic accrual amounts can be active at the same time.
  - This way a 4-eye principle (dual control) system can be established: For example the purchase order owner performs the review of the accrual amounts and afterwards a G/L accountant performs the approval.
- In both steps, review as well as approval, the reviewer/approver can **adjust** the proposed accrual amounts or planned costs:
  - If the reviewer/approver adjusts the proposed accrual amount (or the planned costs) for a purchase order item, he must enter a reason code and optionally also a comment why he has adjusted it.
  - The system writes change documents each time a user adjusts an amount. The change documents can be displayed with transaction POACTREE03 -> Display Changes.
  - In the review and approval screens, attachments can be added that explain why the accrual amount or planned costs have been adjusted.

Missing Approval of Periodic Accruals: Set Accruals to Zero

- In case approval is active for the periodic accrual amounts and at the end of the period the proposed accrual amount is **not approved** for the accrual object, the periodic accrual posting run will bring the accruals to zero in this period.
  - This means that the periodic accrual posting run will perform a posting nevertheless: This posting will bring the accrual balance of this accrual object to zero.

- The reason why the periodic accrual posting run brings the accrual balance to zero instead of simply doing no posting at all is to avoid too high accruals in case some actual costs (e.g. invoices) were posted in this period:
  - According to the formula accruals = planned costs - actual costs, the accruals need to be reduced by the actual cost posting. This posting of the reduction must be posted in any case in order to avoid being over-accrued.

- Simple example:
  - Purchase order with a total value of 12.000 USD. In each month a delta of 1.000 USD planned costs. No valuated goods receipts expected, so the supplier invoice will post the costs.
  - Period 1: No actual costs (supplier invoices) posted. The accruals of 1.000 USD are approved – so the periodic accrual posting run posts accruals of 1.000 USD.
  - Period 2: A supplier invoice of 1.800 USD is posted. The accruals are proposed as 2.000 USD – 1.800 USD = 200 USD. The accruals are not approved because the invoice refers to the first two periods – which means that the invoiced costs were lower than originally planned.
  - From a business point of view the expectation is that the accruals are zero at the end of period 2. But since in period 1 already 1.000 USD were posted as accruals, the periodic posting run in period 2 must post – 1.000 USD (“minus one thousand”).

Review+Approval: Supported User Roles

For the review and/or approval of the periodic accrual amounts that the Accrual Engine proposes, the following user roles are supported:

1. **Purchase Order Owner**
   This person is supposed knows the purchase order in detail. Typically this is a project lead or cost center responsible.
   In general the purchase order owner is supposed to be the preferred person to judge the progress and accruals of the purchase order.
   - The system supports several ways to identify the purchase order owner: It can be the goods recipient of the PO item, the PO requestor (‚requisitioner') or the creator of PO.

2. **Controller**
   Since posting of accruals means posting of costs, the accruals affect the budget of cost centers etc. That's why it can be reasonable to involve Controllers in the review/approval process for periodic accruals.
   Controllers can also act as fallback if the purchase order owner cannot be reached in time to perform the review/approval.

3. **G/L Accountant**
   The G/L accountant usually is interested in the accrual amounts because they affect the gain/loss in the P&L statement – and as a consequence at the year end also the taxes that the company has to pay on it's gain.

Review+Approval: Process Steps

The following steps can be performed for review and/or approval of periodic accruals:

1. Generate proposals:
   Before the review or approval can be performed at end of the fiscal period, the proposal accrual amounts have to be generated. This is done using transaction **ACEPROPOSALRUN**. It does the following: It calculates and saves the planned costs, actual costs (by summarizing posted supplier invoices etc.) and accruals (as planned costs minus actual costs).
   This transaction is typically executed after the last invoice and goods receipt was posted for the fiscal period, but can also be executed in the middle of the period: In the latter case the actual costs and accruals might be not yet final, but the planned costs can be correctly calculated by the accrual method – and the review of the planned costs / PoC can start afterwards.

2. Perform review of the proposed amounts (accruals or planned costs/PoC).
   For reviewing the following role-specific transactions are available:
   - For Purchase Order Owner: Transaction **FACRARVWBU**
     - Note: Only review is supported for the purchase order owner in release 1809. Approval is not (yet) supported.
   - For Controller: Transaction **FACRARVWCO**
     - Note: Only review is supported for the Controller in release 1809. Approval is not (yet) supported.

3. Perform approval of the proposed or reviewed accrual amounts.
   The approval can be performed in addition or instead of the review.
   Only the G/L accountant is currently supported as approver:
   - For G/L Accountant: Transaction **FACRAAPPRVGL**
     - Note: Only approval is supported for the G/L accountant in release 1809. Review is not (yet) supported.

4. After the review/approval was done, the accruals can be posted.
   This is done using transaction **ACEPOSTINGRUN**.

Review+Approval: Authorization Checks (1)

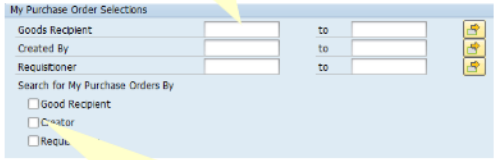
- A challenge with respect to authorization checks in the review and approval transactions is that the object being processed is the purchase order item – but the reviewers and/or approvers are in general not purchasers – so they will not have the authorization to display the purchase order itself.
- And different type of users can perform the review/approval:
  Purchase order owner, controller or G/L accountant.
- For each type of user specific authorization checks are required that fit to his role.

Review+Approval: Authorization Checks (2)

- In the review and approval transactions authorization checks are implemented that are specific for the user role of the reviewer/approver.
- These authorization checks are implemented as default implementation of BAdI BADI_FACRA_AUTH_CHECK, in ABAP class CL_BADI_FACRA_AUTH_CHECK.
- The following authorization checks are implemented in the BAdI. Note that the default implementation can be replaced by a customer-defined implementation.

1. For Purchase Order Owners:
   - In the review transaction FACRARVWBU the purchase order owner is only allowed to review the purchase order items where **his UserID** is entered as goods recipient (or requisitioner or creator). If he is defined as substitute for another user in the workflow, he is also allowed to review the corresponding purchase order items of this user.
   - **Substitutes** can be defined in the menu of transaction SBWP:
     Settings -> Workflow Settings -> Edit Substitute. You can use any substitution profile.
     Note: For defining substitutes the workflow transaction SBWP is used, despite the workflow itself is not used for the review by the transactions FACRARVW*.
2. For Controllers:
   - The Controller must have the **CO reporting authorization** for the cost object for which he started the review transaction FACRARVWCO.
3. For G/L Accountants:
   - The G/L accountant must have **display authorization for the company code** and/or business are for which he started the approval transaction FACRAAPPRVGL.

Screen-shot from transaction FACRARVWBU: The user ID of a substitute can be entered.



Screen-shot from transaction FACRARVWBU: The checkboxes can be used to review one's own PO items.

Review+Approval: Authorization Checks (3)

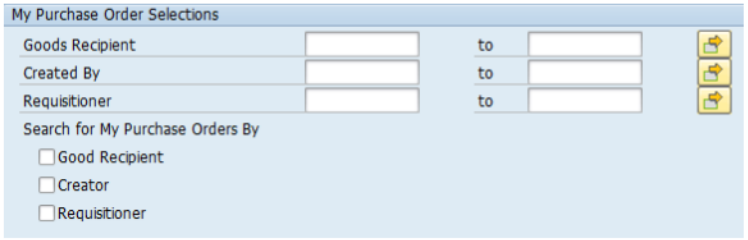
- When processing data with the Accrual Engine the user needs to have some authorizations that are specific for the Accrual Engine.
- Authorizations for the following authorization objects (see transaction SU21) are required:
  - F_ACES_DST ‚Accrual Engine in S4: Accrual Objects'
  - F_ACES_PST ‚Accrual Engine in S4: Accrual Postings'
  - F_ACES_PER ‚Accrual Engine in S4: Periodic Accrual Amounts'
- For reviewers and approvers, these authorizations are needed in addition to the user-role specific authorizations.
- In the review and approval transactions the authorizations for auth. object F_ACES_PER are checked directly on database level in the corresponding CDS view (DDL source).
- **Important:** If the review/approval transactions do not display records for a company code, the root cause can be missing authorization for auth. object **F_ACES_PER**. This missing authorization is **not** visible in transaction **SU53** because it is checked on database level, not in ABAP runtime.

Review+Approval by Purchase Order Owner

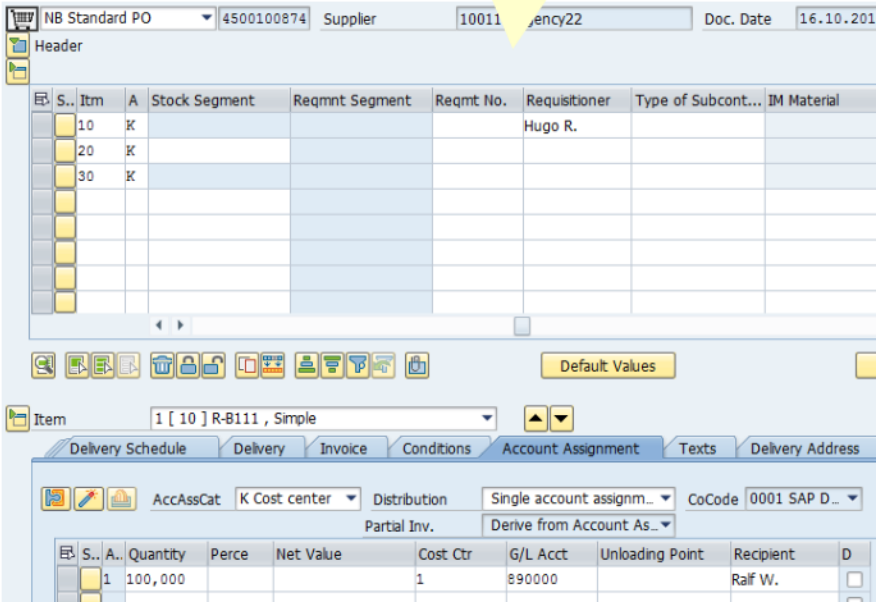
- The purchase order owner is supposed to be the most competent person to judge the progress (= percentage of completion) and accruals for the purchase order.

- Different users can act as purchase order owner:
  - **Requisitioner** of the purchase order item.
    This is the user who as requested the creation of the purchase order.
  - **Goods recipient** of the purchase order item.
    This is the user who will receive the ordered goods or services.
  - **Creator** of the purchase order.
    This is the person who has created the purchase order in the system.

- See also selection screen of the review transaction FACRARVWBU:



Screen-shot from transaction ME22N (Change Purchase Order).



Validation of Goods Recipient & Requisitioner in PO

- In the purchase order the user who creates or changes a purchase order can enter any string in fields Goods Recipient and Requisitioner: It is not guaranteed by the system that these fields contain UserIDs.
- To overcome this ambiguity the system offers
  - BAdIs for the validation of the field Goods Recipient. For more details see https://blogs.sap.com/2015/04/13/badi-implementation-for-the-validation-of-recipient-field-in-pr-po-and-reservation/
    - BAdI ME_PROCESS_REQ_CUST
    - BAdI ME_PROCESS_PO_CUST
    - BAdI MB_RESERVATION_BADI

BAdI Name and its method to validate recipient with PR, PO and Reservation:

PR	ME_PROCESS_REQ_CUST	PROCESS_ITEM (method)
PO	ME_PROCESS_PO_CUST	PROCESS_ITEM (method)
Reservation	MB_RESERVATION_BADI	DATA_CHECK (method)

  - For the field Requisitioner there is also a BAdI available for its determination: BAdI MD_PURREQ_CHANGE. For more details see https://archive.sap.com/discussions/thread/3532262

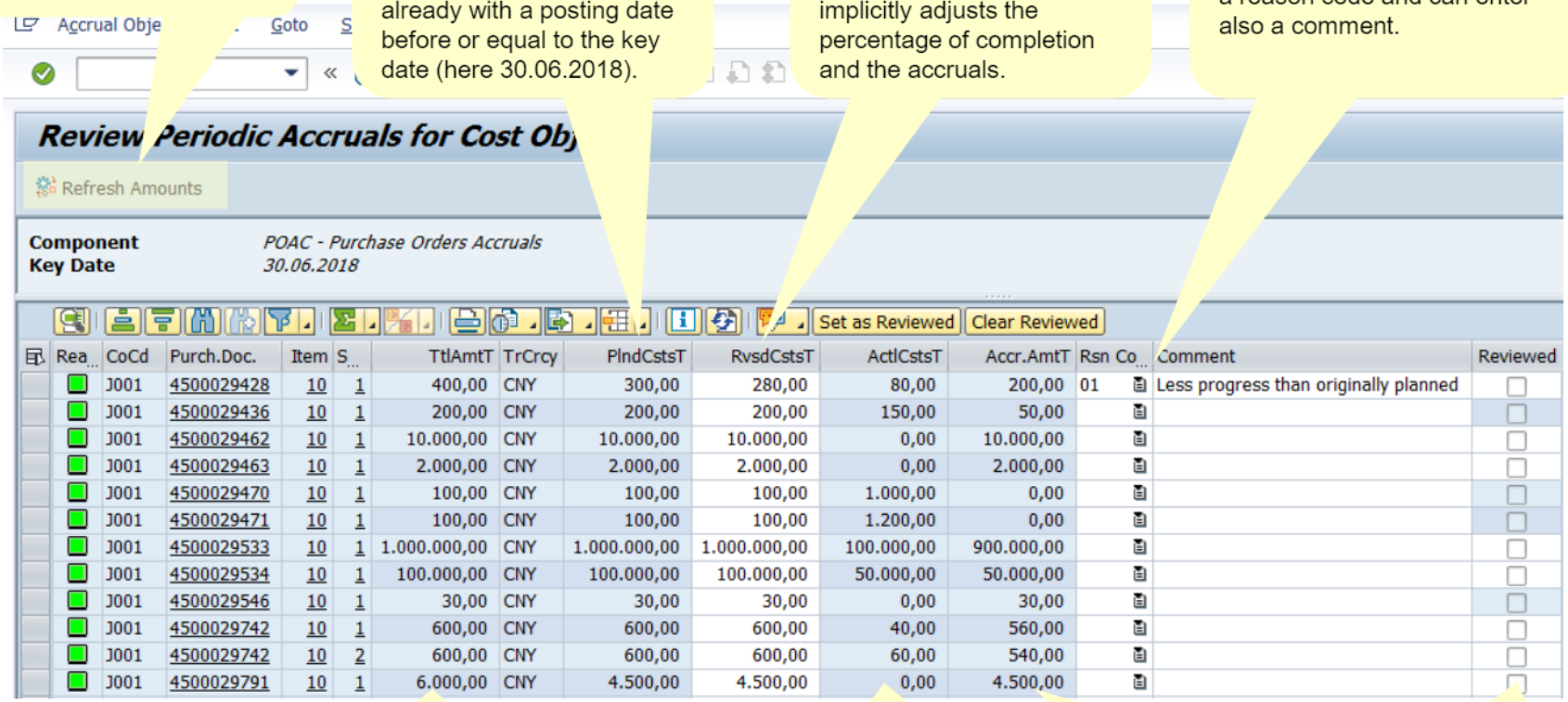
Review Screen: Transaction FACRARVWCO

If the reviewer feels that the shown amounts are outdated, he can press this button

Planned costs, that is, the costs that **should** have been posted by supplier invoices/goods receipts already with a posting date before or equal to the key date (here 30.06.2018).

Revised (planned) costs: The reviewer can adjust the planned costs in this column. By doing so he implicitly adjusts the percentage of completion and the accruals.

If the reviewer adjusts the revised costs, he has to enter a reason code and can enter also a comment.



Rea...	CoCd	Purch.Doc.	Item	S...	TtlAmtT	TrCrcy	PlndCstsT	RvsdCstsT	ActlCstsT	Accr.AmtT	Rsn Co...	Comment	Reviewed
	J001	4500029428	10	1	400,00	CNY	300,00	280,00	80,00	200,00	01	Less progress than originally planned	
	J001	4500029436	10	1	200,00	CNY	200,00	200,00	150,00	50,00			
	J001	4500029462	10	1	10.000,00	CNY	10.000,00	10.000,00	0,00	10.000,00			
	J001	4500029463	10	1	2.000,00	CNY	2.000,00	2.000,00	0,00	2.000,00			
	J001	4500029470	10	1	100,00	CNY	100,00	100,00	1.000,00	0,00			
	J001	4500029471	10	1	100,00	CNY	100,00	100,00	1.200,00	0,00			
	J001	4500029533	10	1	1.000.000,00	CNY	1.000.000,00	1.000.000,00	100.000,00	900.000,00			
	J001	4500029534	10	1	100.000,00	CNY	100.000,00	100.000,00	50.000,00	50.000,00			
	J001	4500029546	10	1	30,00	CNY	30,00	30,00	0,00	30,00			
	J001	4500029742	10	1	600,00	CNY	600,00	600,00	40,00	560,00			
	J001	4500029742	10	2	600,00	CNY	600,00	600,00	60,00	540,00			
	J001	4500029791	10	1	6.000,00	CNY	4.500,00	4.500,00	0,00	4.500,00			

Total amount of this PO item / account assignment. If there is only one account assignment in the PO item, then this amount is identical to the net value of hte PO item.

Actual costs. These are the costs that have been posted by **supplier invoices and goods receipts** with a posting date before or equal to the key date (here 30.06.2018).

The **accruals** are calculated automatically as revised costs **minus** actual costs. This means that the system assumes that the planned costs reflect reality: The missing costs need to be posted as accruals.

By selecting the *Reviewed* checkbox also other users can see that the reviewer did perform the review (even if the reviewer did not adjust the amount).

Review Screen: Example/Detail

1. When the user starts the review app for first time in this period, the columns *Planned Costs* and *Revised Costs* contain the same amount.

The accrual amount is calculated as *Revised Costs* minus *Actual Costs*.

The *Reviewed* checkbox is read only here because the accrual amount is below the lower threshold (defined in customizing).

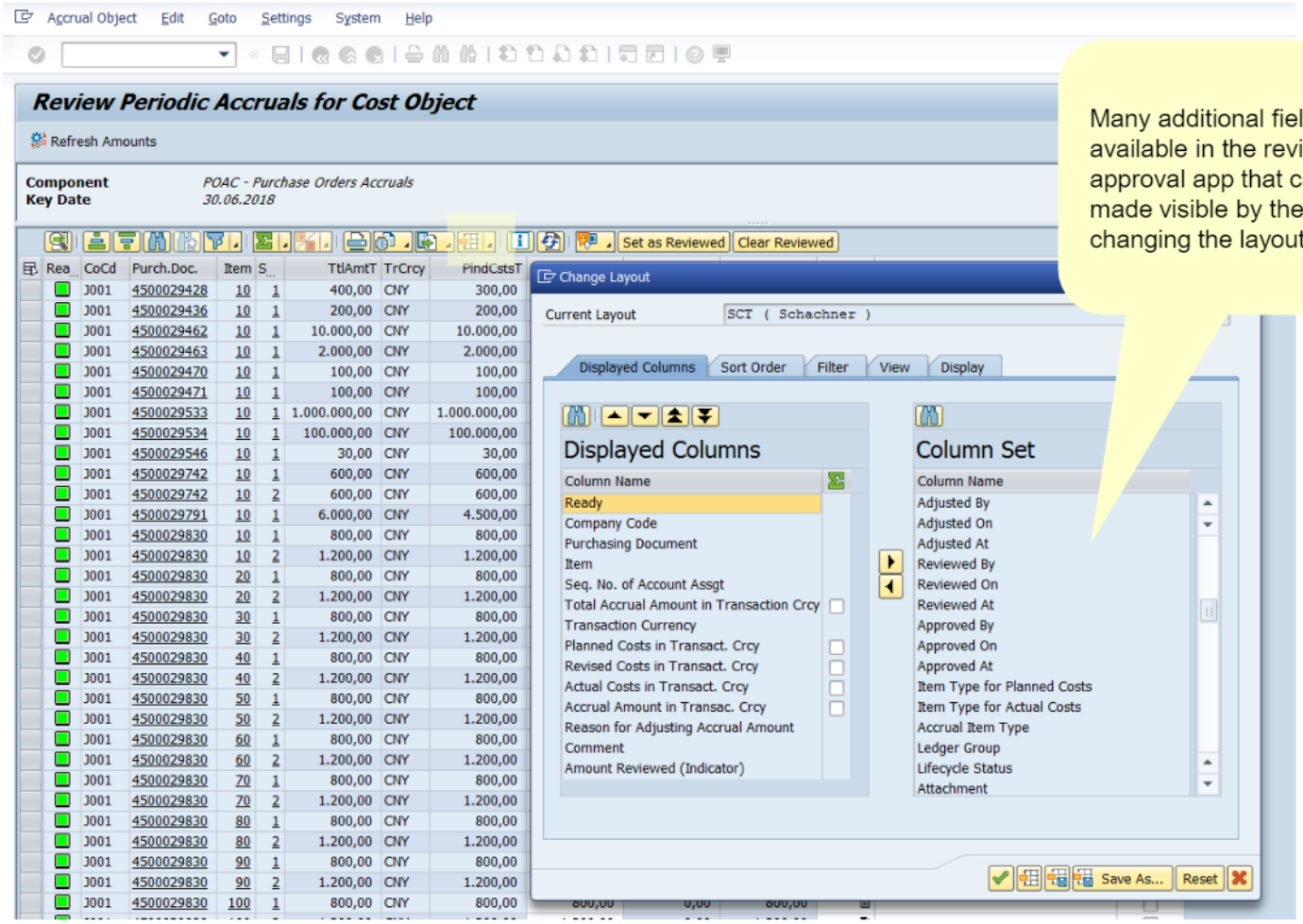
PlndCstsT	RvdCstsT	ActlCstsT	Accr.AmtT	Rsn Co...	Comment	eviewed
300,00	300,00	80,00	220,00			☐
200,00	200,00	150,00	50,00			☐
10.000,00	10.000,00	0,00	10.000,00			☐

2. The reviewer has manually adjusted the planned costs for key date 30.06.2018 from 300 to 280.

The system has adjusted on the fly the accruals by -20.

PlndCstsT	RvsdCstsT	ActlCstsT	Accr.AmtT	Rsn Co...	Comment	Reviewed
300,00	280,00	80,00	200,00	01	Less progress than originally planned	☐
200,00	200,00	150,00	50,00			☐
10.000,00	10.000,00	0,00	10.000,00			☐

Review And Approval Screen: Additional Fields

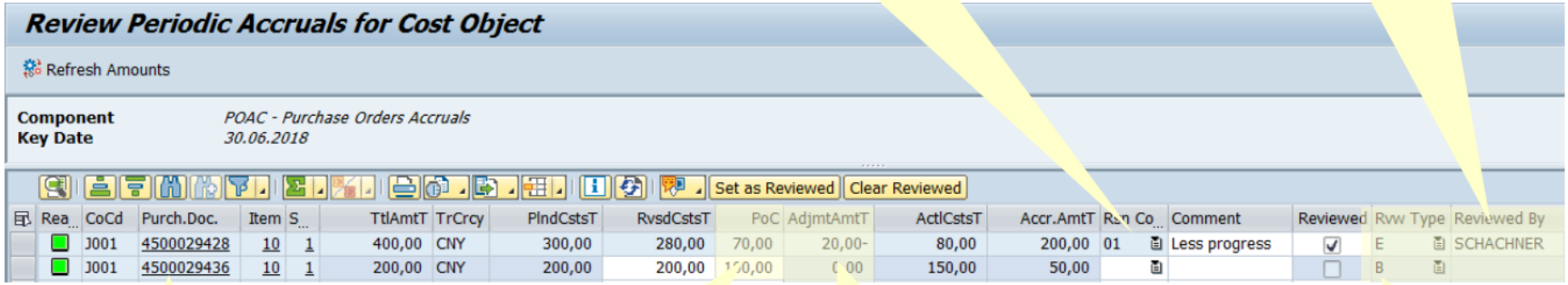


Review And Approval Screen: Additional Fields: Examples

- Below you find some more columns that contains helpful information.

Note: Some fields are read-only because the *Reviewed* checkbox is set.

You can see which user did set the *Reviewed* checkbox. Similar fields exist for the adjustment of amounts and for the approval.



Rea...	CoCd	Purch.Doc.	Item	S...	TtlAmtT	TrCrcy	PlndCstsT	RvsdCstsT	PoC	AdjmtAmtT	ActlCstsT	Accr.AmtT	Rsn Co...	Comment	Reviewed	Rvw Type	Reviewed By
	J001	4500029428	10	1	400,00	CNY	300,00	280,00	70,00	20,00-	80,00	200,00	01	Less progress	☑	E	SCHACHNER
	J001	4500029436	10	1	200,00	CNY	200,00	200,00	100,00	0 00	150,00	50,00			☐	B	

Note: By clicking on the purchasing document number you will navigate to the display of the accrual object, transaction POACTREE03.

The *Percentage of Completion* can be adjusted instead of the Revised Costs. In this example, the PoC is 70% = Revised Costs / Total Amount = 280 / 400.

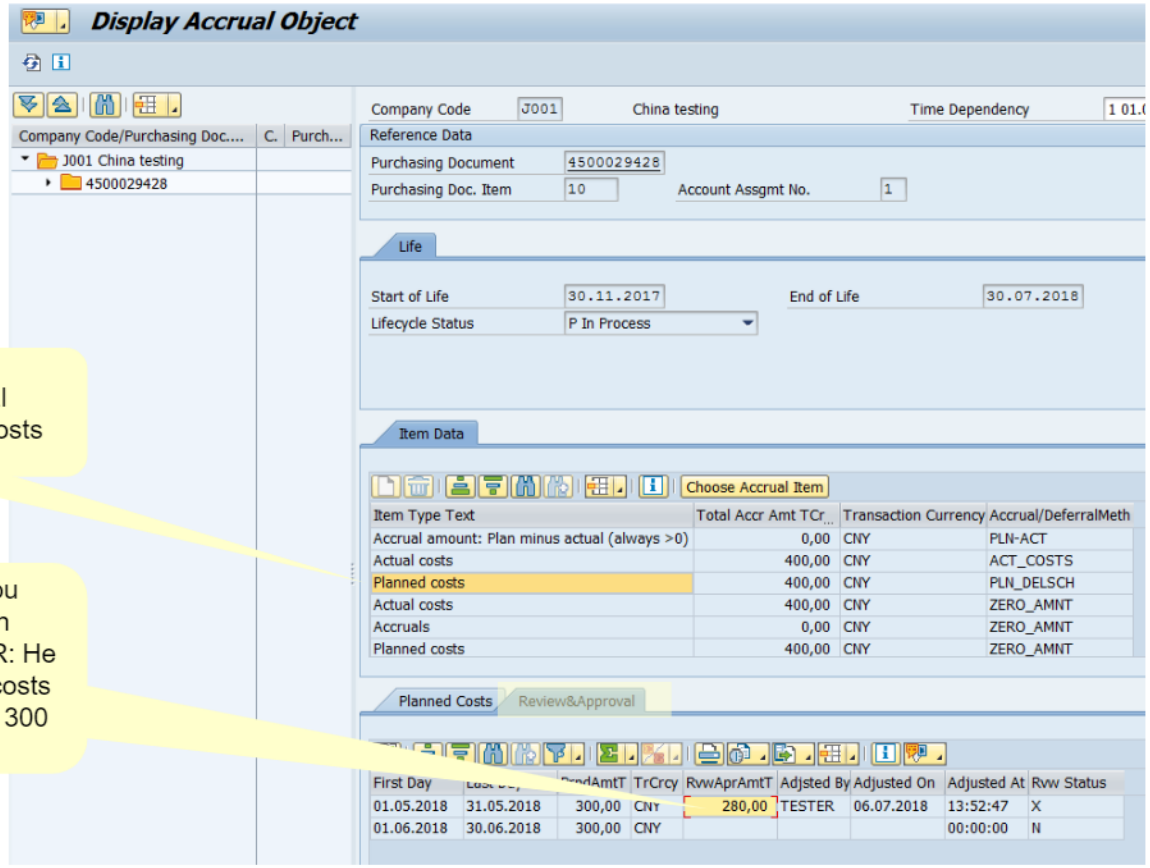
The *Adjustment Amount* is the delta amount by which the revised costs (or accruals) have been adjusted by the reviewer.

The *Review Type* is **B** means Accrual amount is **below** lower threshold.

The value E means: Explicit (=manual) review required.

Display Reviewed Accruals in Transaction POACTREE03

- You can use display of accrual objects, transaction POACTREE03, in order to check which user did the review, which amounts the reviewer adjusted in which periods etc.
- If review is active for the planned costs, these review information is available for the item type that represent the planned costs, see screen-shot.



Reviewers are Sometimes not Accountants

- The review of the periodic accrual amounts needs to be performed by users that know the corresponding purchase order in detail, the purchase order owner: These users can be for example
  - Project leads in a consulting project,
  - Cost center responsibles that act as goods recipient of the purchase order item.

- These uses are typically **not** accountants:
  - They might not know what accruals are.
  - They are not involved in the period end closing process – and as a consequence might be not able to perform the review/approval in time within the short period end closing timeframe.

- So the review needs to start already before end of the period:

- As a consequence it can happen that after the review, **additional invoices** are posted – which must reduce the accruals!

- This issue is solved, if the reviewer revises not the accrual amount, but the ‚total' costs that are supposed to exist at the end of the period: These ‚total' costs consist of actual costs (e.g. invoices) plus accruals. If an additional invoice is posted, the actuals increase by the invoice amount – and the accruals decrease by this amount: The ‚total' costs remain unchanged. These total costs are the revised planned costs: The reviewer/approver has checked and optionally adjusted the planned costs for this period.

Review: Late Invoice Example

- The review of planned costs (instead of review of the accrual amounts) leads to the posting of correct accruals even if additional supplier invoices are posted after the review/approval was performed:

- Example:
  - At 31.05.2018 the system calculates the planned costs as 5.000 EUR.
  - The posted invoices for this purchase order item with posting dates before or on 31.05.2018 are 3.000 EUR.
  - As a consequence the accruals are proposed on 31.05.2018 as 5.000 EUR – 3.000 EUR = 2.000 EUR.
  - In the review screen, the reviewer can adjust the planned costs.
    For example he changes the 5.000 EUR to 4.000 EUR manually. The system saves this change and stores the information that the **revised planned costs** for this period are 4.000 EUR. The accruals are now updated on the fly to be 1.000 EUR (= 4.000 EUR – 3.000 EUR).
  - Now, after the review was performed, an additional late supplier invoice with an amount of 750 EUR is posted with posting date 19.05.2018. This invoice increases the actual costs from 3.000 EUR to 3.750 EUR. Consequently, the accruals are now calculated as 250 EUR = 4.000 EUR – 3750 EUR.
  - In other words, the late invoice just **shifts** 750 EUR from accrued costs to „actual“ costs. The total costs, that is, the revised planned costs, do not change: They were fixed during the review to be 4.000 EUR for this period.
  - An advantage of reviewing the planned costs is that the review can be performed **already in the middle of the period**: If the reviewer can already then estimate the costs that will occur until the end of the period, he can enter this amount as revised planned costs. If the expected invoices are posted afterwards, this will just shift the costs.

Review of Percentage of Completion

- In the review and approval apps the user can adjust the percentage of completion of the purchase order item – as an alternative to adjusting the proposed planned costs for the period:
  - In some use-cases the reviewer does not know the costs and cannot really estimate the costs that have occurred in the period. But he can estimate the percentage of completion for the purchase order item.

- Example:
  - At end of period 05/2018 the planned costs are calculated by the Accrual Engine as 5.000 EUR.
  - The total net value of the PO item is 12.000 EUR.
    This means that the **percentage of completion** is 5.000 / 12.000 = 41,67%.
  - This PoC of 41,67% is proposed by the system. Now, in the review app, the reviewer adjusts it to 30%.
    As a consequence the system automatically adjusts the **revised planned costs** to 3.600 EUR = 12.000 EUR * 30%.
  - Since the actual costs are 3.000 EUR, this means that the proposed accruals were originally proposed as 2.000 EUR (=5.000 EUR – 3.000 EUR), but have been adjusted by the reviewer to 600 EUR (=3.600 EUR – 3.000 EUR).

- Formula how the system calculates the PoC:

$$\text{Percentage of Completion} = \frac{\text{Revised Planned Costs}}{\text{Total Amount of PO Item}}$$

- The *Percentage of Completion (PoC)* is calculated by the system only if the review is active for the planned costs.
  - If the review is active for the accrual amounts, the field percentage of completion is not filled by the system.

Review and Approval: Technical Details

The planned costs, actual costs and accruals, incl. the revised amounts are stored in database table ACESOBJ_ITEM_PER.

- The table fields ACESOBJ_ITEM_PER-PERIOD_AMNT* contains the originally proposed amount.
- The table fields ACESOBJ_ITEM_PER-ADJUSTED_PER_AMNT contains the amount that was adjusted by a reviewer or approver.

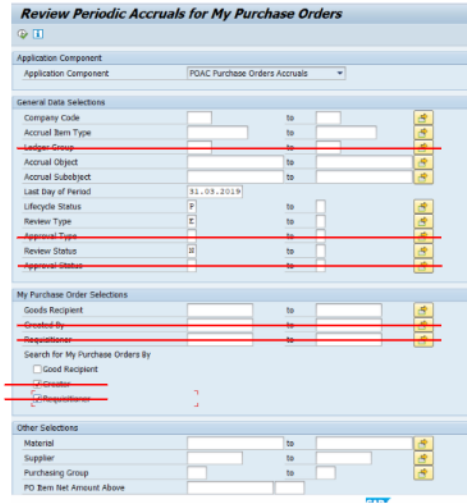
Review and Approval Transactions: Simplify Selection Screen

- The selection screens of the review transactions **FACRARVWBU and FACRARVWCO** are complex: The contain many fields. Some fields might be not needed by the customer.

- Examples:
  - The field Ledgergroup is not needed in the customer system because the accrual item types are customized to post with ledgergroup = space.
  - The fields Approval Type and Approval Status is not needed because approval is not activated.
  - The field Business Area is not needed because profit centers are used instead.
  - Specific for transaction FACRARVWBU - Review My Purchase Order Accruals:
    - The fields Created By, Creator and Requisitioner are not needed because the reviewer shall be the goods recipient.

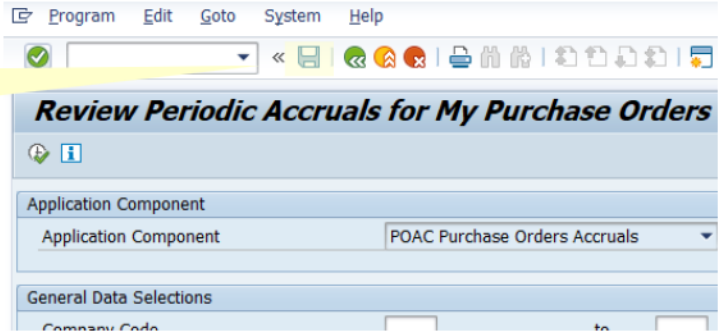
- All not needed fields can be hidden:
  - The customer can create a corresponding transaction variant and develop a transaction which calls the standard transaction with this variant.
  - See next slide for an example.

Goal: The fields that are striked-through shall be hidden.

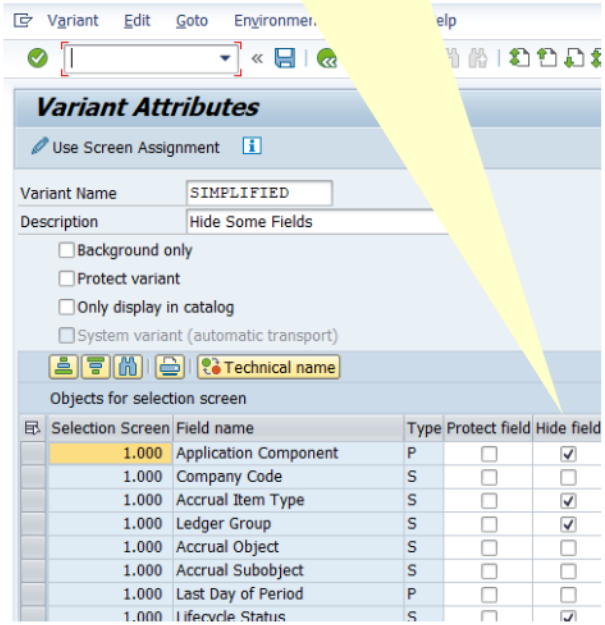


How to Hide Fields from the Selection Screen: Create Variant

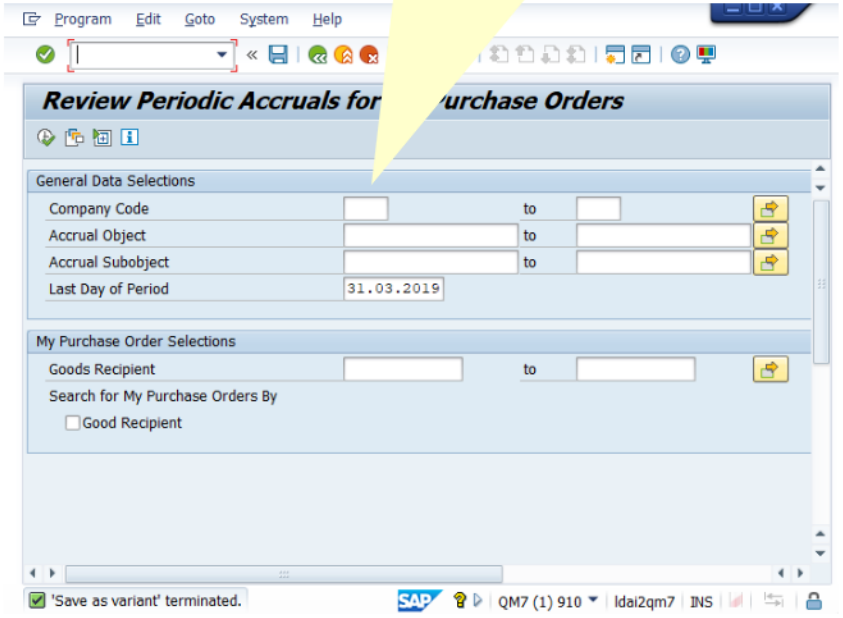
1. Start the transaction, for example FACRARVWBU.
2. Press the Save button which means: Save as a variant.



3. Set the indicator *Hide field* for all fields that shall be hidden.
4. Enter a Variant Name and
5. Save this variant.



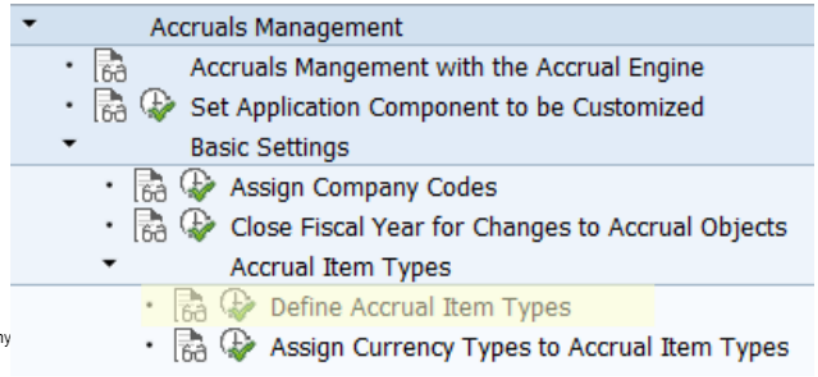
6. Result: The selection screen looks now much simpler: All not needed fields are gone.

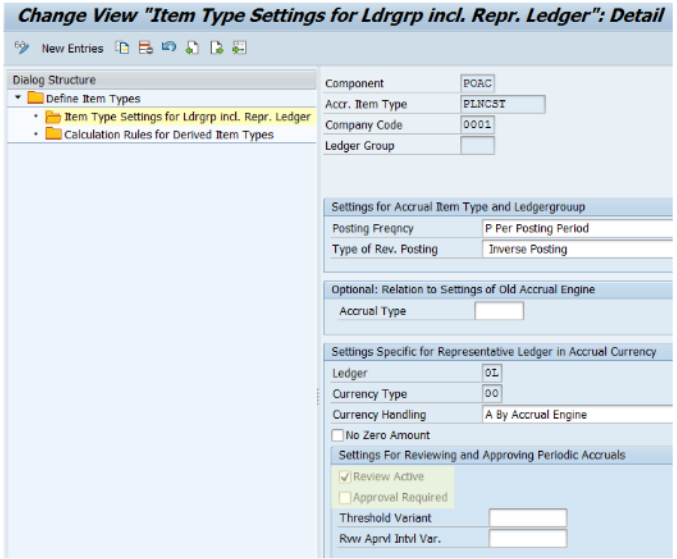


Customizing
for Review/Approval of Accrual Amounts

Activation of Review and/or Approval Process

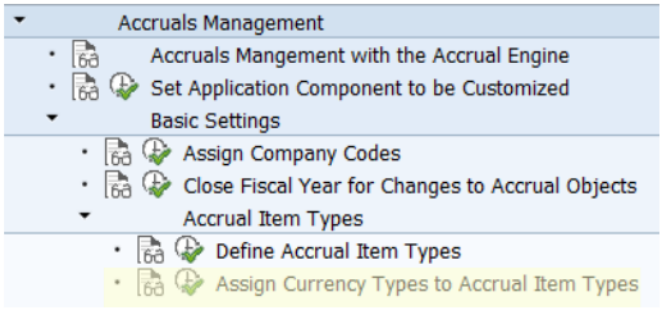
- Review and/or approval of periodic accrual amounts is activated in customizing of the accruals management (Accrual Engine) on the level of company code, accrual item type and ledgergroup.
- In release 1809 the review can be activated only for currency type 00 which means that the reviewer and approver can **adjust** the proposed accrual amounts in **transaction currency**. All other currencies are read-only during the review.
- The corresponding IMG activity is *Define Accrual Item Types -> Item Type Settings for Ledgergroup and Representative Ledger,* see transaction ACEIMG.
  - The checkbox *Review Active* activates the review process.
  - The checkbox *Approval Required* activates the approval process.
- You can activate review and/or approval process only for the **planned costs** accrual item type. For the other two accrual item types for actual costs and accruals you do **not** activate it!

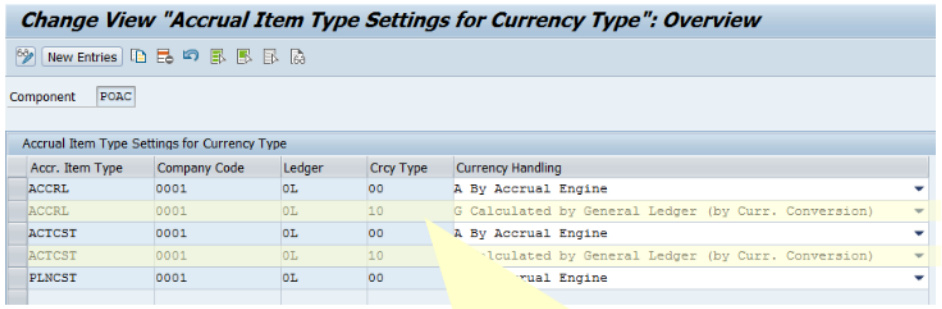




Enable Multiple Currencies in Review & Approval Screens

- Adjusting periodic accrual amounts during review and/or approval is possible only in transaction currency.
- But you can enable additional currencies as read-only fields in the review and approval screens:
- In IMG activity *Assign Currency Types to Accrual Item Types* you can create entries for the additional G/L currencies that you want to display in the review and approval screens.





In this example the amounts shall be displayed also in currency type 10 (company code currency) in the review and approval screens.

- Note that you can enable only currency types that exist in the General Ledger, see transaction FINSC_LEDGER -> *Company Code Settings for the Ledger*.

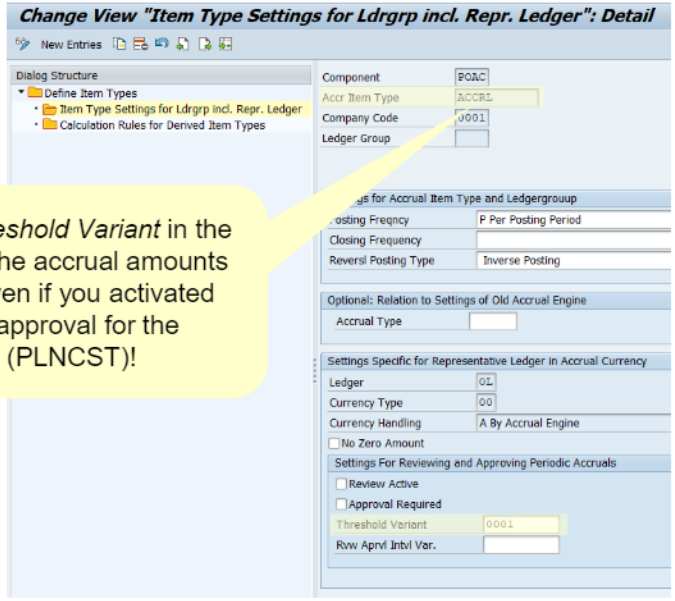
Review and Approval: Thresholds for Periodic Accrual Amounts

- For the review of periodic accrual amounts you can define two thresholds:
  - **Upper Threshold**:
    If the proposed accrual amount is above this threshold, a review/approval of this amount is required.
  - **Lower Threshold**:
    If the proposed accrual amount is below this threshold, this amount will not be posted.
  - If the proposed accrual amount is between lower and upper threshold, no review or approval is required: The approval is granted automatically.

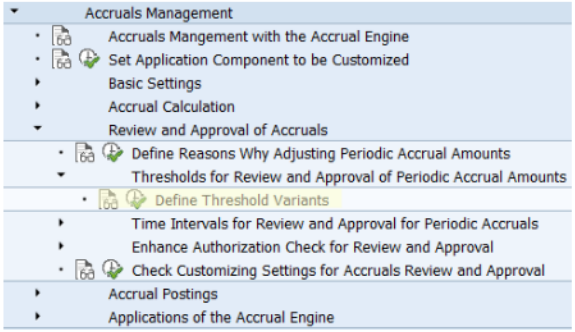
- In the IMG activity *Define Accrual Item Types -> Item Type Settings for Ledgergroup and Representative Ledger,* you can enter a threshold variant.

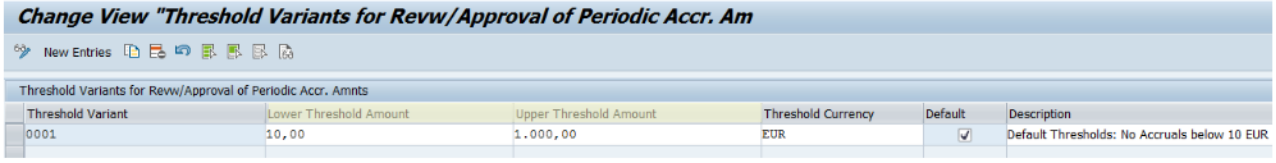
- The usage of threshold variants is optional.

- The threshold variant is defined in the IMG activity *Define Threshold Variants.*
  - If you mark a threshold variant as default, the system will use this variant if no other variant is entered in the Item *Type Settings for Ledgergroup and Representative Ledger.*



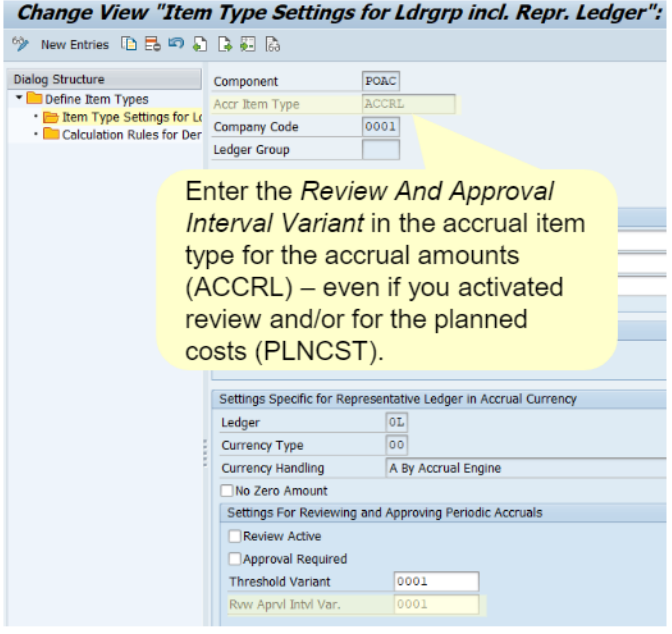
Enter the *Threshold Variant* in the item type for the accrual amounts (ACCRL) – even if you activated the review or approval for the planned costs (PLNCST)!

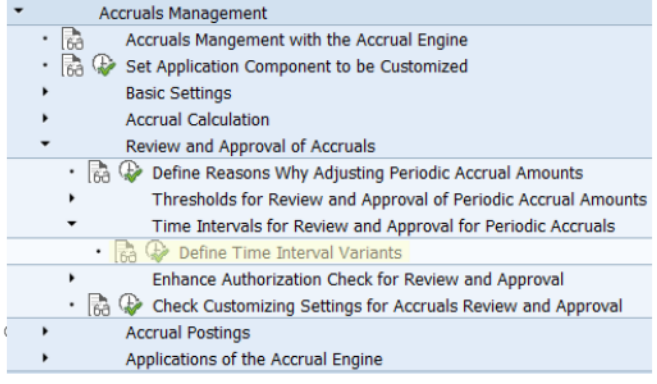




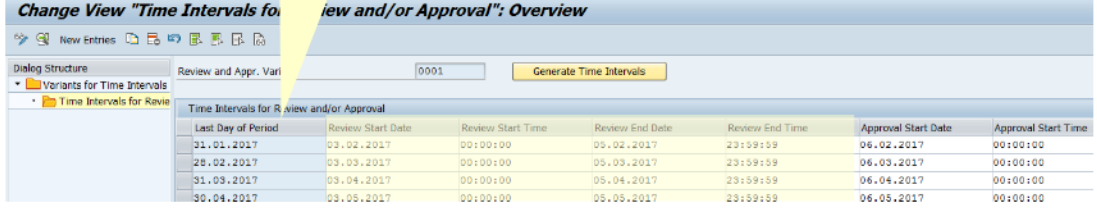
Review and Approval:
Time Intervals for Performing Review and Approval

- It is possible to restrict the time period in which the review and/or approval can be performed.
- You can define corresponding time interval variants and
  - either enter them in the IMG activity *Define Accrual Item Types -> Item Type Settings for Ledgergroup and Representative Ledger or*
  - Mark the variant as default.
- The usage of time interval variants is optional.
- The time interval variants for review/approval are created and maintained in the IMG activity *Define Time Interval Variants.*
  - In the section *Time Intervals for Review and/or Approval* you can define the start and end dates and times when the review and approval are allowed. This activity is a **current setting**: You can perform it in the productive system.
  - You define the start and end dates&times for each fiscal period separately.
  - Since the Accrual Engine supports not only fiscal periods but also additional frequencies, the fiscal period is identified by the **Last day of the fiscal period**.



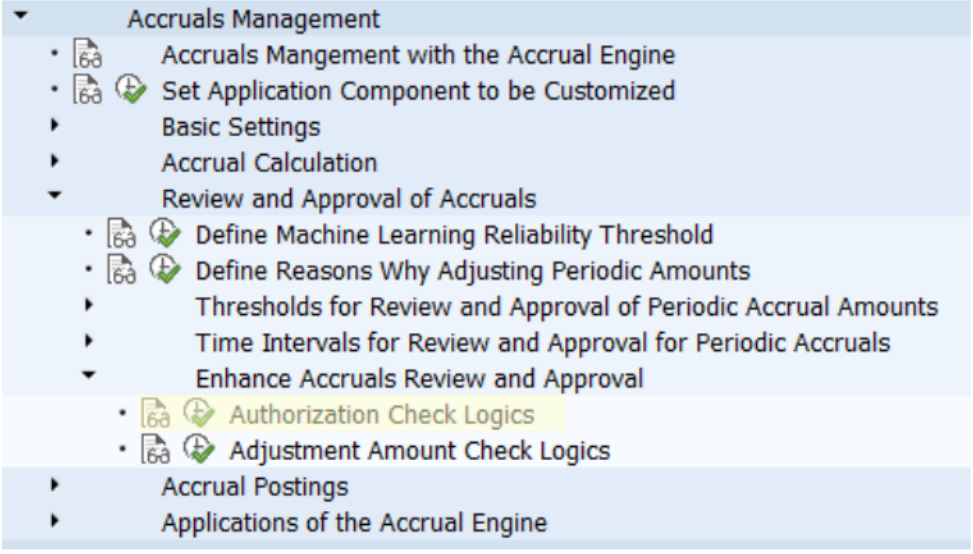


The fiscal period is represented by its last day.



Customer-Defined Checks: BAdI BADI_FACRA_ADJMT_TOL_CHECK

- The BAdI BADI_FACRA_ADJMT_TOL_CHECK, method ADJUSTMENT_TOLERANCE_CHECK is called by the review transaction when a user adjusts the planned costs or the proposed accrual amount.
- You can use this BAdI method to implement your own check logic.
- By default the system checks that the revised planned costs are not higher than the net value of the PO item.
  - This check is implemented as fallback. It can be replaced by your customer-defined BAdI implementation.



Quantity-Based
Accrual Calculation and Review

Quantity-Based Accrual Calculation: Available as of Release 1809 SP4 and 1909 SP1

- Quantity-Based Accrual Calculation is available from release S/4HANA
  - 1809 support package 3
  - 1909 support package 1
    onwards.

- If you are using an earlier support package you need to apply note **2838538 - Accrual Engine: Quantity Based Calculation**

Quantity-Based Accrual Calculation: Motivation

- By default the periodic accrual amounts are calculated amount-based.
  - Amount-based means that the quantities in planned costs and in actual costs are ignored:
  - In amount-based approach the accruals are calculated by simply subtracting actual costs from planned costs.

- The amount-based approach ignores **differences in price and quantity**.
  - If the actual costs are posted with
    - a different price or
    - a different price and also with a different quantity,

    compared to the planned costs, then calculating the accruals based on amounts is actually not correct. It would be more accurate to calculate the accruals considering the planned and actual **quantities**.
  - Example: When posting the supplier invoice a different price is used compared to the purchase order.

- A quantity-based approach is **more usable for reviewers**.
  - If a review of the proposed accrual amounts is performed at the end of the fiscal period, it might be cumbersome for the reviewer to judge whether the proposed amount is correct.
  - If the reviewer is not an accountant, but for example a project manager, it is more natural to perform the review of quantities instead of amounts.
  - Example: Purchasing of consulting. It is easier for the project manager to judge the number of man days compared to consulting costs.

Quantity-Based Accrual Calculation: Algorithm

- Quantity-Based Accrual Calculation means that the accrual amounts are calculated according to the formula

  Accrual Amount = (Cumulated Planned Quantity - Cumulated Actual Quantity) x Net Price.

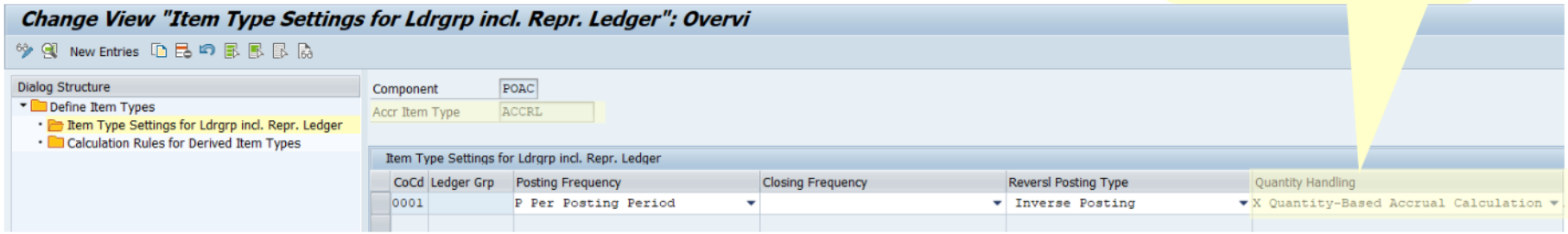
- This formula means that
  - first the accrual quantity is calculated as planned quantity minus actual quantity and
  - afterwards the accrual quantity is multiplied with the net price to get the accrual amount.

- The *Net Price* in this formula is taken from the purchase order item.

Quantity-Based Accrual Calculation: Customizing

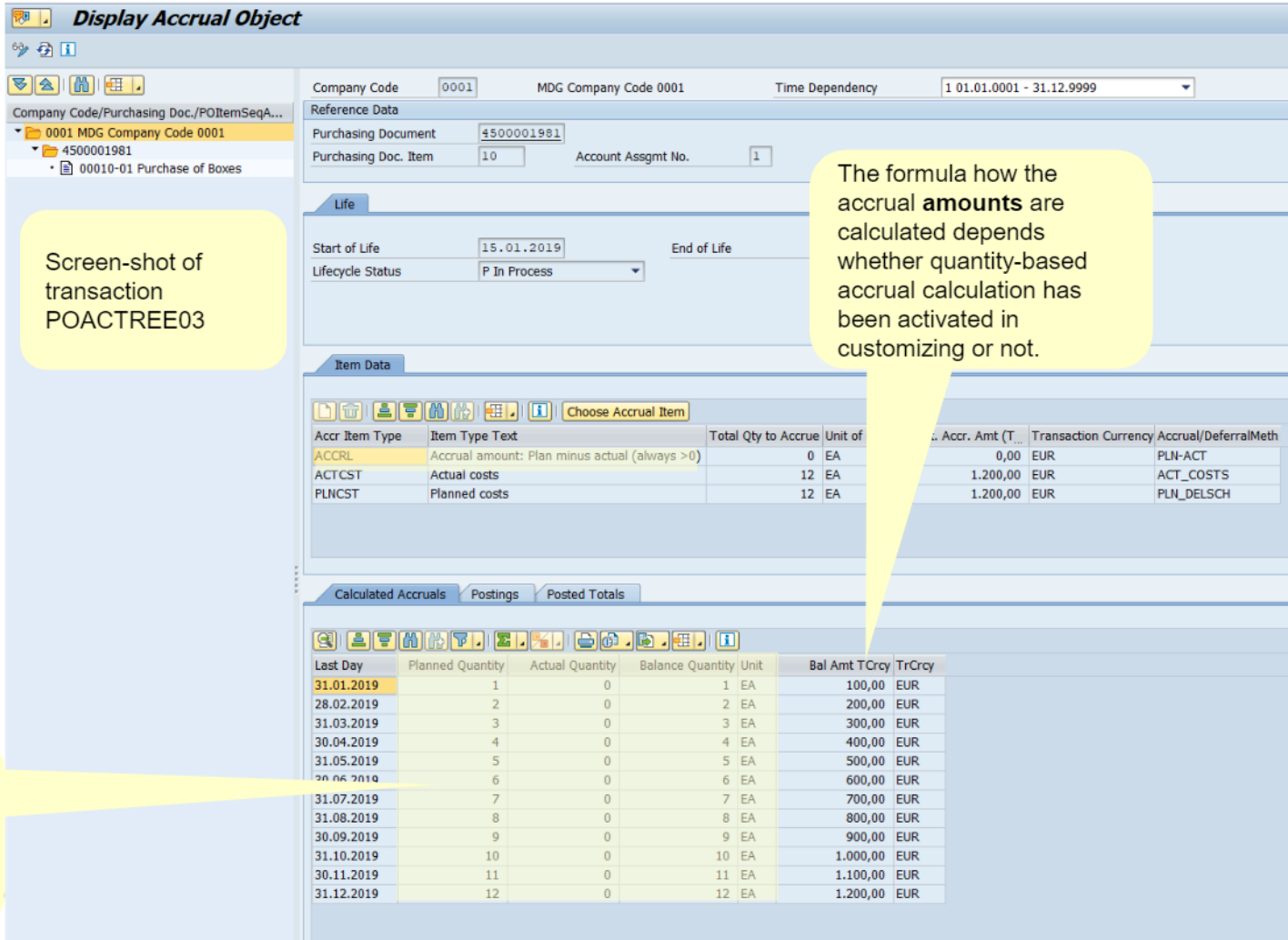
- In order to activate the quantity-based calculation for accrual amounts, the indicator ***Quantity-Based Accrual Calculation*** must be set in the IMG activity *Accruals Management -> Basic Settings -> Accrual Item Types -> Define Accrual Item Types* in section *Item Type Settings for Ldrgrp incl. Repr. Ledger*. See transaction ACEIMG.
  - Technically this is customizing viewcluster VC_TACE_ITEMTY.
- If the *Plan Minus Actual* approach is used to calculate the accruals, the indicator ***Quantity-Based Accrual Calculation*** must be set only for the accrual item type that calculates the accrual amounts.
  - In the default customizing settings this is the accrual item type **ACCRL**.
  - Do not set the indicator in the other two accrual item types for planned costs and actual costs:
- The indicator only needs to be set for the accruals item type (ACCRL) in order to achieve that the system uses the formula Accrual Amount = (Planned Quantity - Actual Quantity) x Net Price.
  - In the planned costs and actual costs the Accrual Engine anyway always has the quantities available.
  - By setting the indicator ***Quantity-Based Accrual Calculation*** for ACCRL, the Accrual Engine "just" switches
    - from standard formula *Accrual Amount = Cumulated Planned Costs - Cumulated Actual Costs*
    - to the quantity-based formula *Accrual Amount = (Cumulated Planned Quantity - Cumulated Actual Quantity) x Net Price*.

This indicator must be set for accrual item type ACCRL.



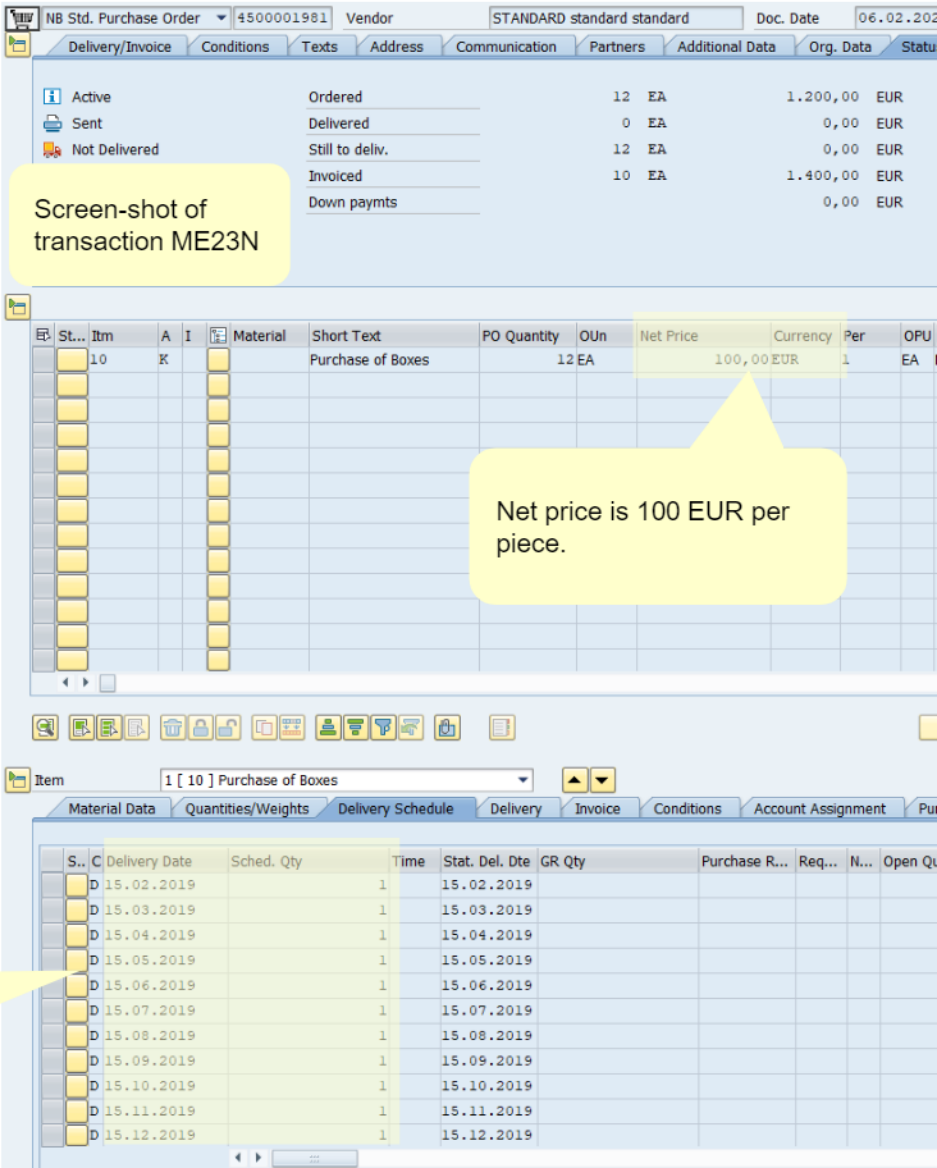
Amount-Based Accrual Calculation: Display of Quantities is Possible

- Displaying quantities in the Accrual Engine screens is possible even if the accrual calculation is done amount-based.
- In the amount-based approach –which is the default- the quantities are ignored though when it comes to calculating the accrual amounts.
- In transaction PACOTREE03, activating quantity-based accrual calculation affects “only” the algorithm how the columns for the accrual amounts are calculated.



Quantity-Based Accrual Calculation: Example – Purchase Order

- The effects of quantity-based accrual calculation are explained by giving an example.
- The example starts with the creation of a purchase order that has a delivery schedule with partial deliveries.
- No goods receipt is expected:
  The costs will be posted by the supplier invoice.



12 pieces are ordered:

1 piece is planned to be delivered in each month.

Quantity-Based Accrual Calculation: Example – Supplier Invoice is posted

- After the purchase order was created, in period 12/2019, that is, in the period where the last delivery is planned, a supplier invoice is posted.
- The supplier invoice posts a quantity of 10 pieces and the net amount of the invoice is 1.400 EUR.
- According to the delivery schedule of the purchase order, at end of period 12 a cumulated quantity of 12 pieces should have been delivered: The planned quantity is 12 pieces and the planned costs are 12 pieces x 100 EUR = 1.200 EUR.
  - Note that the planned costs are 1.200 EUR in both approaches: in amount-based and in quantity-based approach.
- In the amount-based approach, in period 12/2019, after the posting of the supplier invoice, the accrual amount is zero, because the actual costs of 1.400 EUR are higher than the planned costs of 1.200 EUR.
- But according to the quantity-based approach, the accrual amount is not zero but 200 EUR, because the delta quantity is 12 pieces minus 10 pieces = 2 pieces. And 2 x 100 EUR = 200 EUR.

Screen-shot of transaction ME23N: supplier invoice was posted with 10 EA and 1.400 EUR.

Item 1 [10] Purchase of Boxes

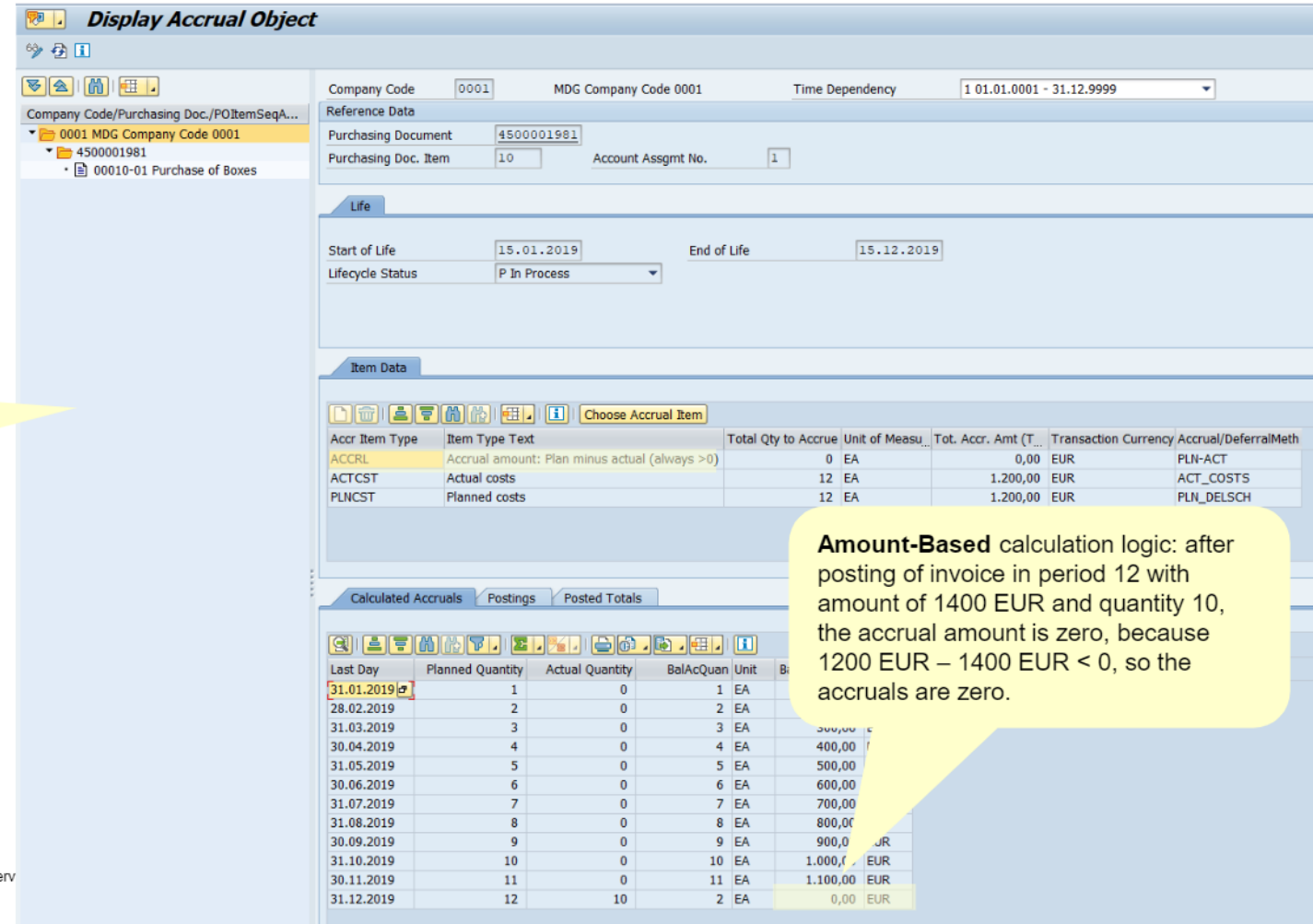
Material Data | Quantities/Weights | Delivery Schedule | De… | …oice | Conditions | Account Assignment | Purchase Order History | Texts | De

Sh. Text	MvT	Material Docume…	Item	Posting Date	Σ	Quantity	OUn	Σ	Amount	Currency	Σ	Qty in OPUn	Order Price Unit	DelCostQty (OPUn)	Reference
RE-L		5105601127	1	20.12.2019		10	EA		1.400,00	EUR		10	EA	0	
Tr./Ev. Invoice receipt					▪	**10**	**EA**	▪	**1.400,00**	**EUR**	▪	**10**	**EA**		

Example: Accruals According to Amount-Based Calculation

- If the **amount**-based accrual calculation is used, the accrual amount is calculated as zero in period 12/2019 after the supplier invoice was posted, because 1.200 EUR – 1.400 EUR is < zero.

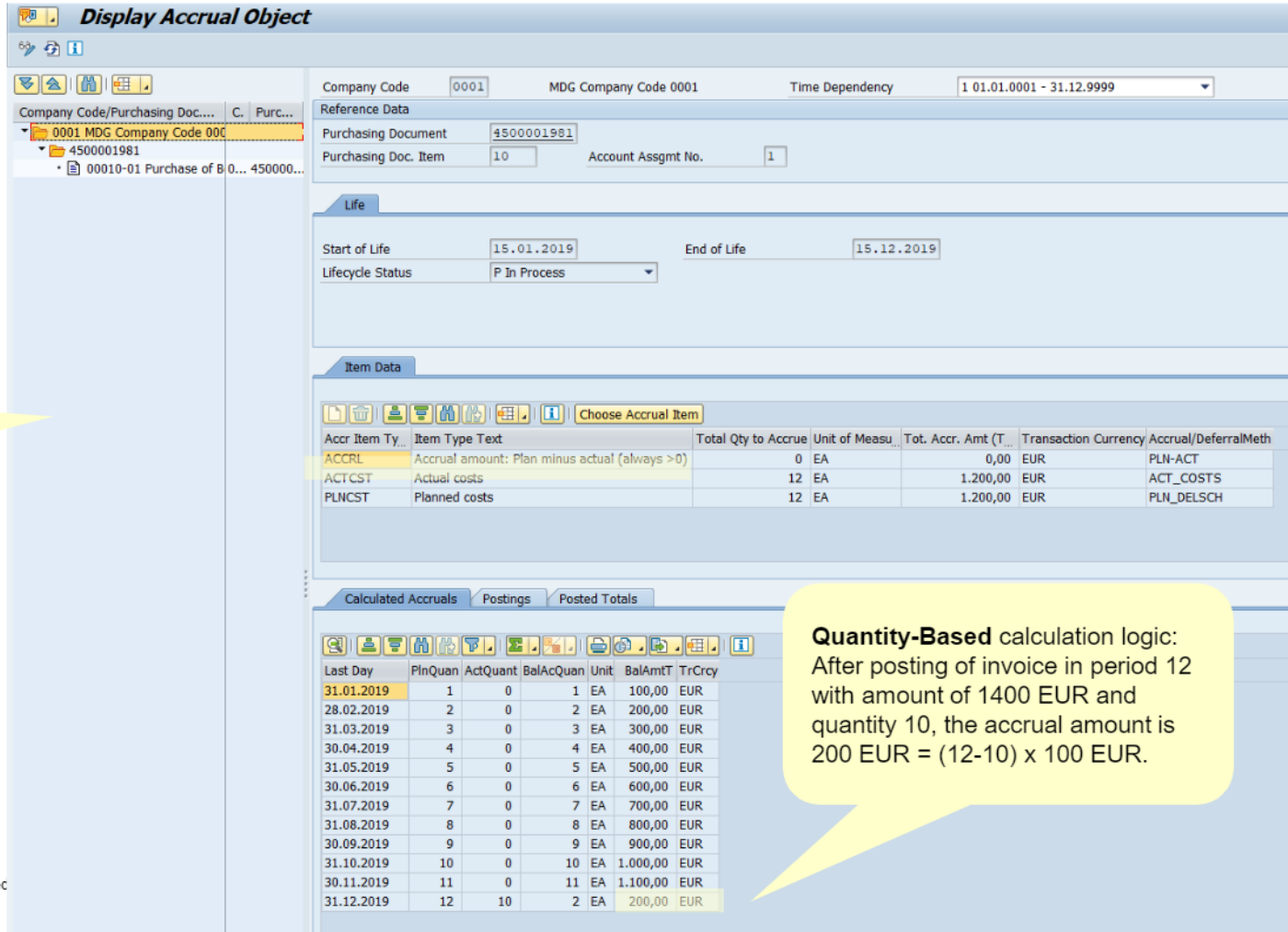
Screen-shot of transaction POACTREE03



Example: Accruals According to Quantity-Based Calculation

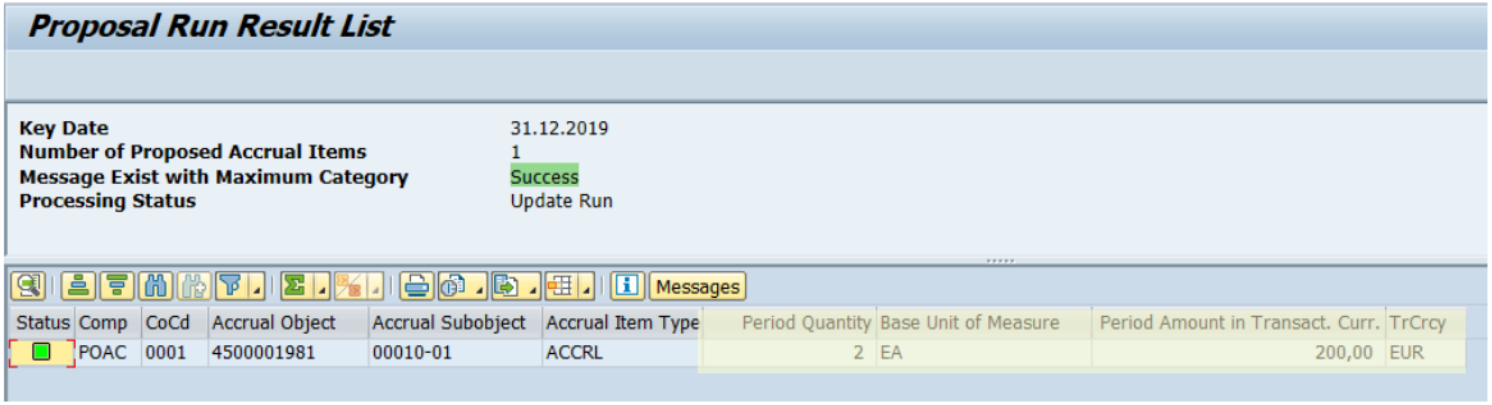
- If the **quantity**-based accrual calculation is used, the accrual amount is calculated as 200 EUR in period 12/2019 after the supplier invoice was posted, because (12 pieces – 10 pieces)x100 EUR/piece = 200 EUR.

Screen-shot of transaction POACTREE03



Quantity-Based Accrual Calculation: Example – Accrual Proposal Run

- Since a review of the periodic accrual amount shall be performed before posting the accruals at the end of the period, the accrual proposal run, transaction ACEPROPOSALRUN, is performed.
- If quantity-based accrual calculation is active this run proposes the accrual quantity as 2 EA and the accrual amount as 200 EUR.



Quantity-Based Accrual Calculation: Example – Review of Accruals

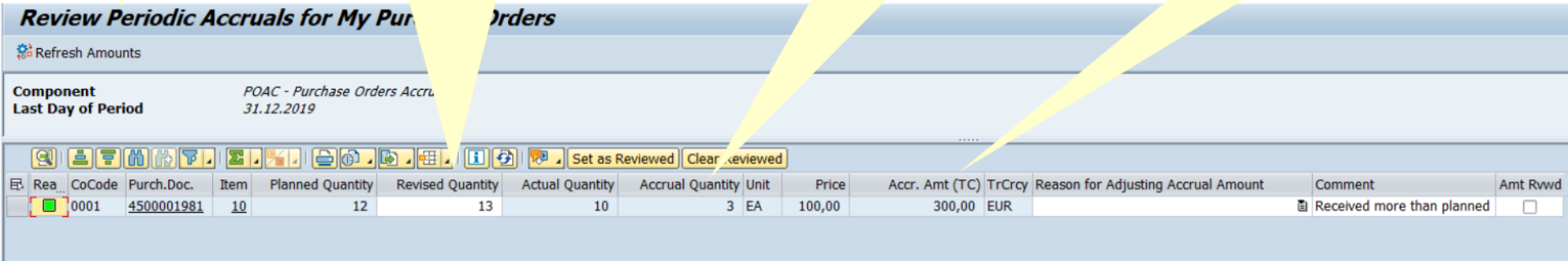
- If quantity-based accrual calculation is active and review is active for the accrual item type that represents the planned costs (PLNCST), then in the review screen, transaction FACRARVWBU or FACRARVWCO the reviewer can adjust the planned quantity instead of the planned costs.
- After the review, the accrual amount resulting from the formula (Revised Quantity – Actual Quantity) x Net Price will be posted by the periodic accrual posting run, transaction ACEPOSTINGRUN.
  - In this example the resulting accrual amount is 300 EUR, because the reviewer has adjusted the planned quantity from 12 EA to 13 EA.

Screen-shot of transaction FACRARVWBU.

User has manually adjusted the planned quantity from 12 EA to 13 EA in field Revised Quantity.

After the manual adjustment the accrual quantity is now 13 EA – 10 EA = 3 EA.

The system calculates automatically the accruals as 300 EUR = 3 x 100 EUR.

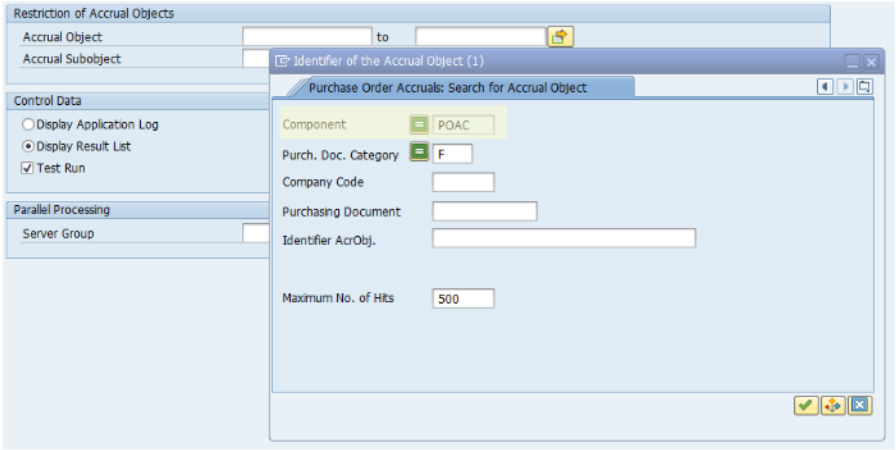


Posting of Periodic Accrual Amounts

Posting of Periodic Accrual Amounts: Transactions

- For posting of the accrual amounts at period end, the transaction **ACEPOSTINGRUN** can be used.
- If you have activated the review and/or approval process for periodic accruals, you can use this transactions after the review and approval process was finished.
- This transaction can be used to post the periodic accrual amounts for all applications that are using the Accrual Engine:
- In the selection screen there is a field „Application Component“:
  - If the accruals for purchase order accruals shall be posted, you enter the value **POAC** in this field.
- The content of fields *Accrual Object* and *Accrual Subobject* depend on the application component:
  - For Purchase Order Accruals, the purchasing document number is the accrual object.
  - The combination of purchase order item and account assignment number is the accrual subobject

There is an **input help (F4)** available for these fields:



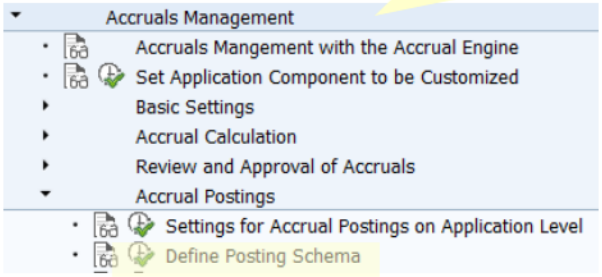
Posting of Accruals: Define Posting Schema

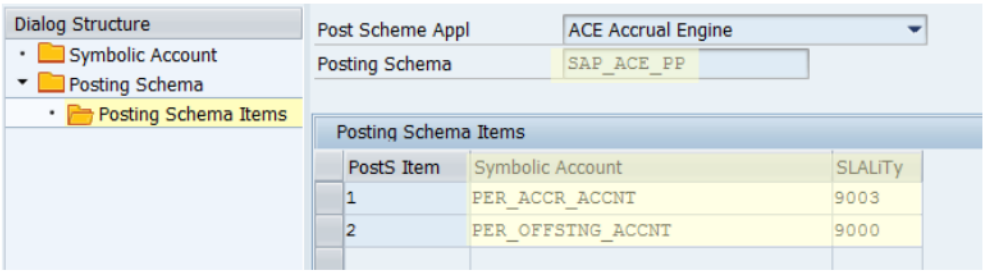
- The posting schema defines
  - How many lines an accrual posting shall contain.
  - Which (symbolic) G/L accounts shall be used in which line item.
  - Which type each line item has:
    For example the posting schema used for periodic postings must contain one line item that has line item type 9003.
    Important: The line item with type **9003** must be posted to a **balance sheet** account (accrual account), because this line must be carried forward into the next fiscal year: The Accrual Engine determines the already accrued amount by selecting all line items of the **current** fiscal year that were posted with line item type 9003!
    The line item with type 9000 can be posted to any account. Usually this is the expense account.
  - The analogous restriction is valid for the posting schemas for utilization and release postings.

- SAP delivers some standard posting schemas like SAP_ACE_PP. But a customer can create his own posting schemas in IMG activity *Define Posting Schema*.

- For purchase order accruals, periodic postings are mandatory.
  That‘s why at least the posting schema **SAP_ACE_PP** is relevant.

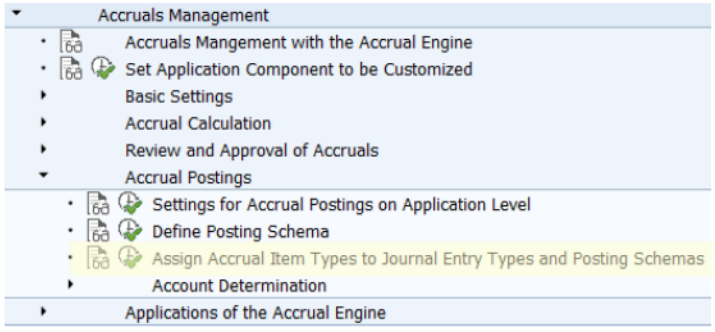
Screen-shot from IMG, transaction ACEIMG

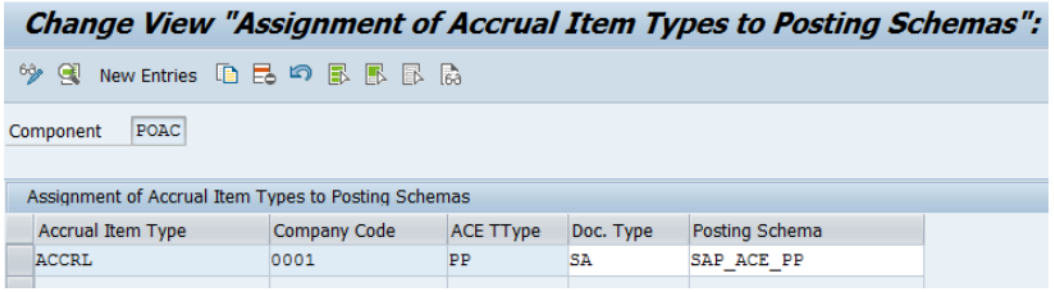




Posting of Accruals: Assign Posting Schema

- Each accrual item type that performs accrual postings must be assigned to posting schema(s).
- This is done in IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas.*
- In order to enable periodic accrual postings, for transaction type PP (periodic posting) a posting schema must be assigned to accrual item type ACCRL.
  - This posting schema must contain a line item with type 9003.
- If additional type of postings like utilization or release postings shall be performed by the Accrual Engine, for the corresponding transaction types (UP, UL, FP, FL) a posting schema need to be assigned to the accrual item type ACCRL.
- In this IMG activity also the document type is assigned that shall be used in the accrual posting.

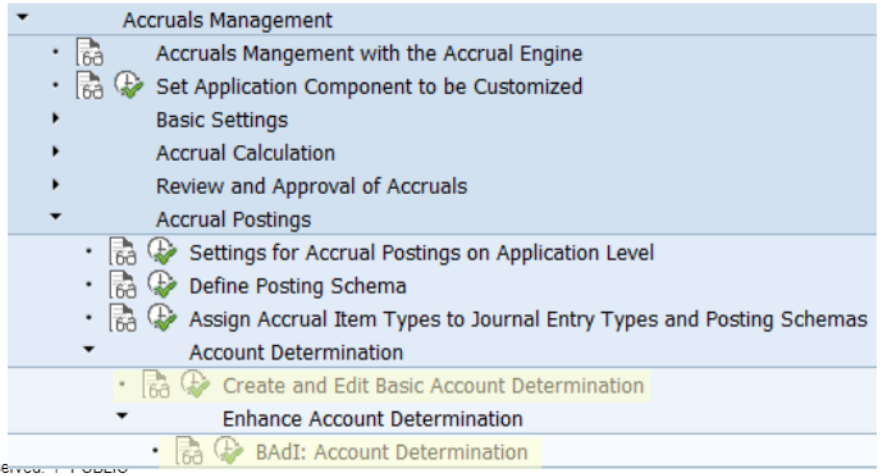




Posting of Accruals: Account Determination (1)

- The posting schema contains the symbolic accounts that shall be used in the accrual posting.
- After determining the posting schema that shall be used, as a second step, the real G/L account needs to be determined from the symbolic account.
- For determining the G/L account the following possibilities are offered by the system:

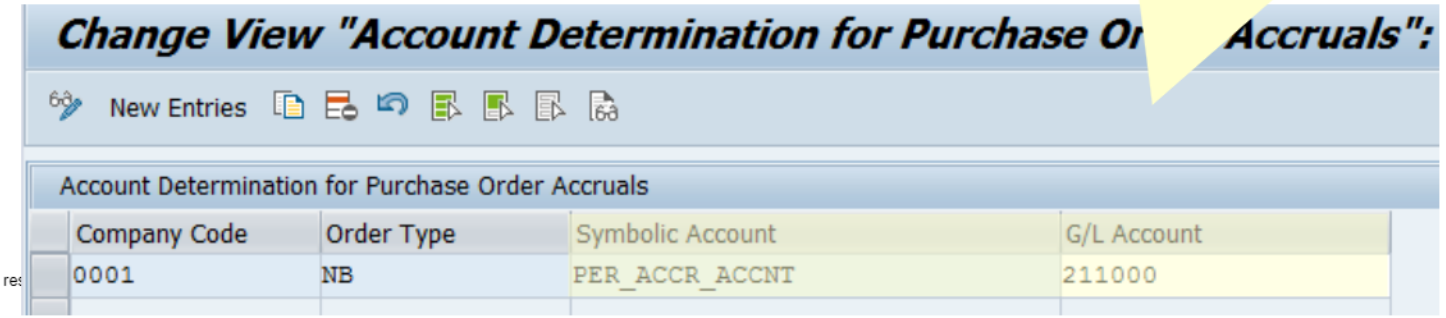
1. Simple account determination using a predefined configuration table. This is the IMG activity *Create and Edit Basic Account Determination*.
2. If the options given in the predefined configuration table are not sufficient, because the accrual account shall be determined on a more fine-granular level, the BAdI ES_ACE_DOCUMENT_ACCDET_CUST can be used.



Posting of Accruals: Account Determination (2)

- For purchase order accruals only the accrual account needs to be determined by the account determination.
  - In the account determination only an entry for the symbolic account PER_ACCR_ACCNT must be maintained/determined.
  - If release postings (transaction type FP or FL) are assigned to a posting schema, then also an entry for FIN_ACCR_ACCNT must be maintained.
- The offsetting account is the expense account. This account is by default taken from the purchase order item.
  - Only if the purchase order item does not contain an expense account, then as a fallback ´, the account determination is evaluated also for the expense account.
  - In this case customer needs to create an entry in the account determination for the symbolic account PER_OFFSTNG_ACCNT and if release postings are used also FIN_OFFSTNG_ACCNT.

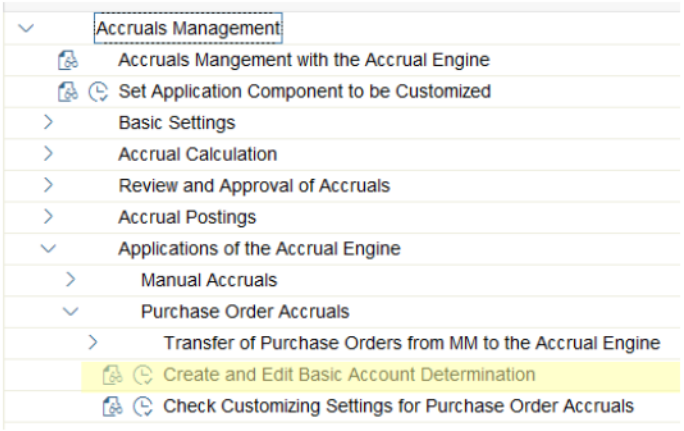
Screen-shot from IMG activity
Create and Edit Basic Account Determination



Account Determination: Basic Account Determination

- The IMG activity Create and Edit Basic Account Determination is based on a fixed table that SAP delivers. The customer can maintain entries in this table.
- In each field it is allowed to enter the value <space>. This value means “valid for all”.
- **Important**: For the symbolic accounts …ACCR_ACCNT a **balance sheet** account must be entered.
  - Reason is that this symbolic account is used in the posting schema of the (new) S/4HANA Accrual Engine where the corresponding line item has a value between 9001-9006 in field Subledger-Specific Line Item Type: The line items with those values 9001-9006 must be **carried forward** by the G/L balance carry forward run, transaction FAGLGVTR:
    The (new) S/4HANA Accrual Engine calculates the already posted accruals by evaluating those line items in table ACDOCA in the **current** year!

Empty value means: This is the default entry, if there is no entry with a value <> space.

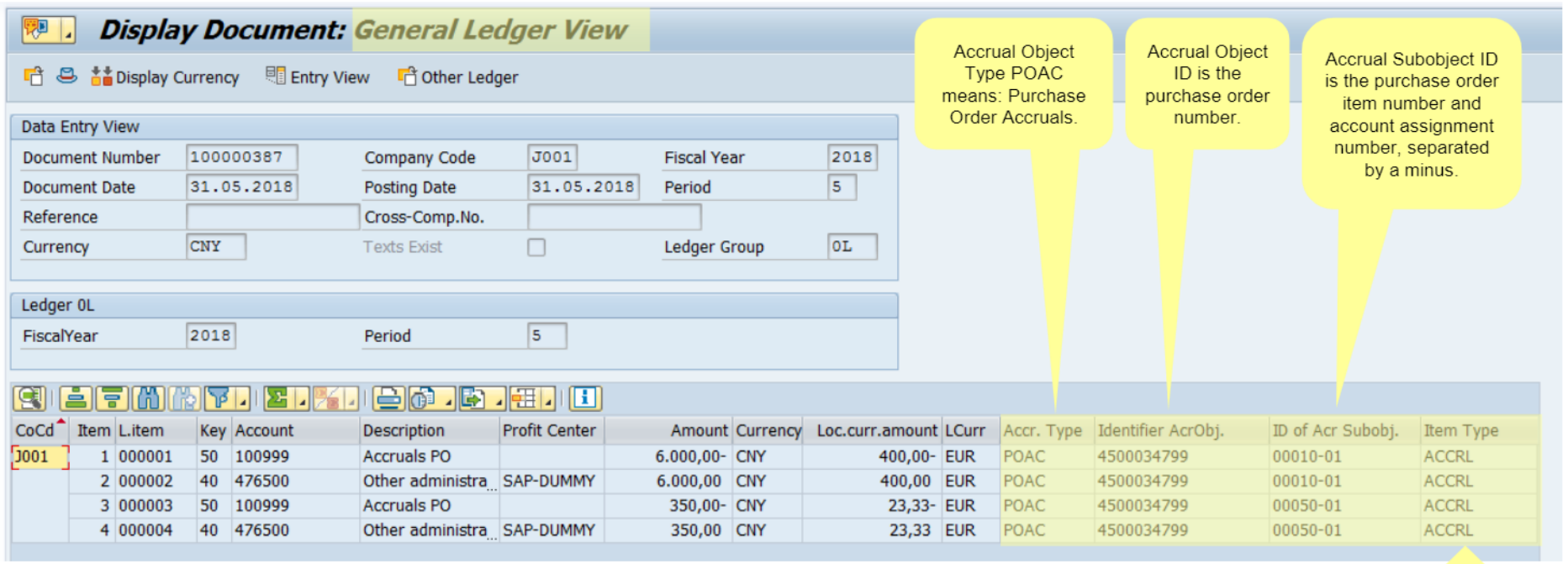


Account Determination for Purchase Order Accruals

Company Code	Order Type	Product Type Group	Accr Item Type	Symbolic Account	G/L Account
0001				PER_ACCR_ACCNT	211000
0001	NB			PER_ACCR_ACCNT	211000
0001	NB	2		PER_ACCR_ACCNT	211011

Display of Accrual Object Reference in Journal Entry

- The journal entries that are posted by the accrual engine contain a reference to the accrual object, subobject and accrual item type.
- In the backend transaction FB03 for displaying a single journal entry, these fields can be displayed in the journal entry display in section *General Ledger View*.
- By default, these fields are hidden, but a user can unhide them using the icon *Change Layout* in the list of journal entry items.



Reversal of Periodic Accrual Postings

Reversal of Accrual Postings: Exceptional Case!

- The Accrual Engine can be customized to perform full or delta postings.
- Full posting means that in the current period the Accrual Engine first creates an inverse posting that “reverses” the accruals that have been posted in the former periods.
- Afterwards it posts the accrual amount that was calculated for the current period.
- As a consequence it is not required to manually perform a reversal of accrual postings:
  - If full postings are customized then the automatically performed inverse posting achieves this
  - If delta postings are customized then the reversal is obviously not desired.
- Full or delta postings can be customized in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas*, view V_TACE_ITEMTYPES.
- The need to perform a manual reversal of accrual postings should be an exceptional case!

Excursus: Full Postings: Details About the Inverse Posting

The reversal posting that is done by the accrual posting run in case of full postings works in the following way:

- It is not a real reversal posting: Instead it is an **inverse** posting:
  - The accrual engine selects the last accrual posting and inverts the amounts, that is, it changes the sign of the posted amounts and creates a new posting with those inverted amounts.
  - As a consequence no reversal reason is required to be entered in these inverse postings.

- To perform the inverse postings, the accrual engine first determines the balance for the accrual object by aggregating the accrual postings to the accrual account of the **current** fiscal year, including the **G/L balance carry forward** (transaction FAGLGVTR).

- Then it selects the accrual postings that were done in former periods incl. postings from former fiscal years:

- If an accrual posting is found that was not yet inverted and if its amount matches the balance of the accrual object, this posting will be inverted in order to bring the accruals to zero in the current period.
  - The accrual engine uses the posted line items incl. their G/L accounts and inverts the sign of the amounts.
  - The account assignment is derived anew nevertheless for technical reasons.

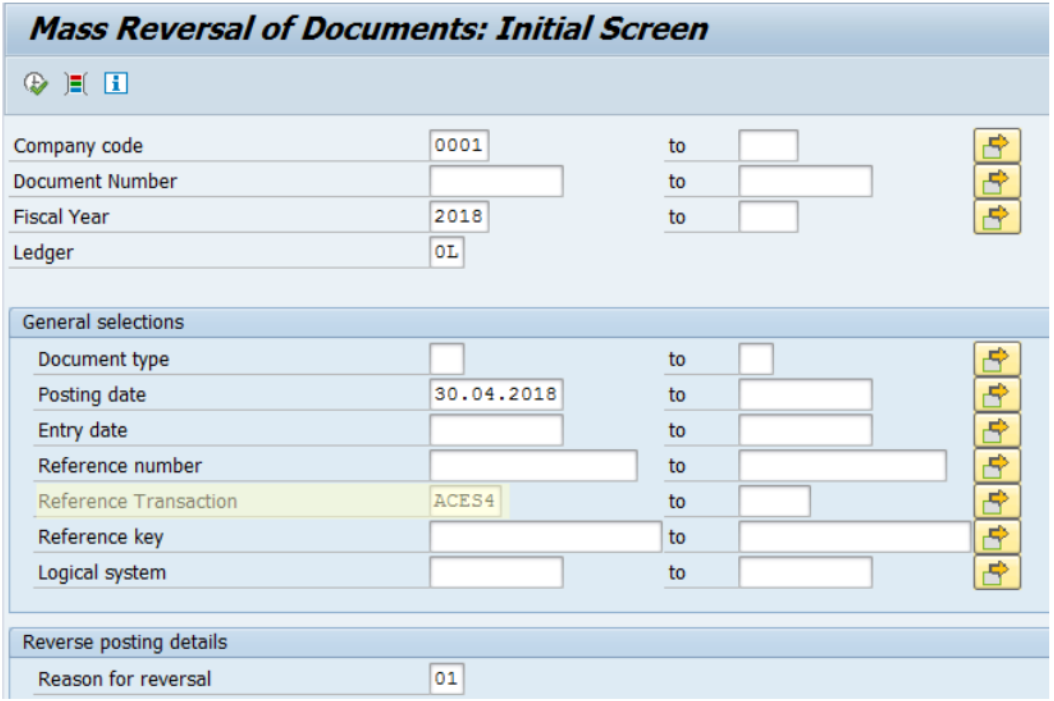
- Otherwise, if no single matching posting is found, the accrual engine builds-up the inverse posting anew:
  G/L accounts, posting schema (->number of line items) etc. are derived like for a usual accrual posting, but with inverted signs.
  - This case occurs after migration: The first regular posting run will only find migrated line items to be inverted. But these migrated line items consist of only one line item for each accrual object; so these are no balancing postings that could be inverted.
  - In this case it can occur that the inverse posting does not fully invert the original posting.

Reversal of Accrual Postings: FB08 and F.80

Postings that were done by the S/4HANA Accrual Engine can be reversed in several ways:

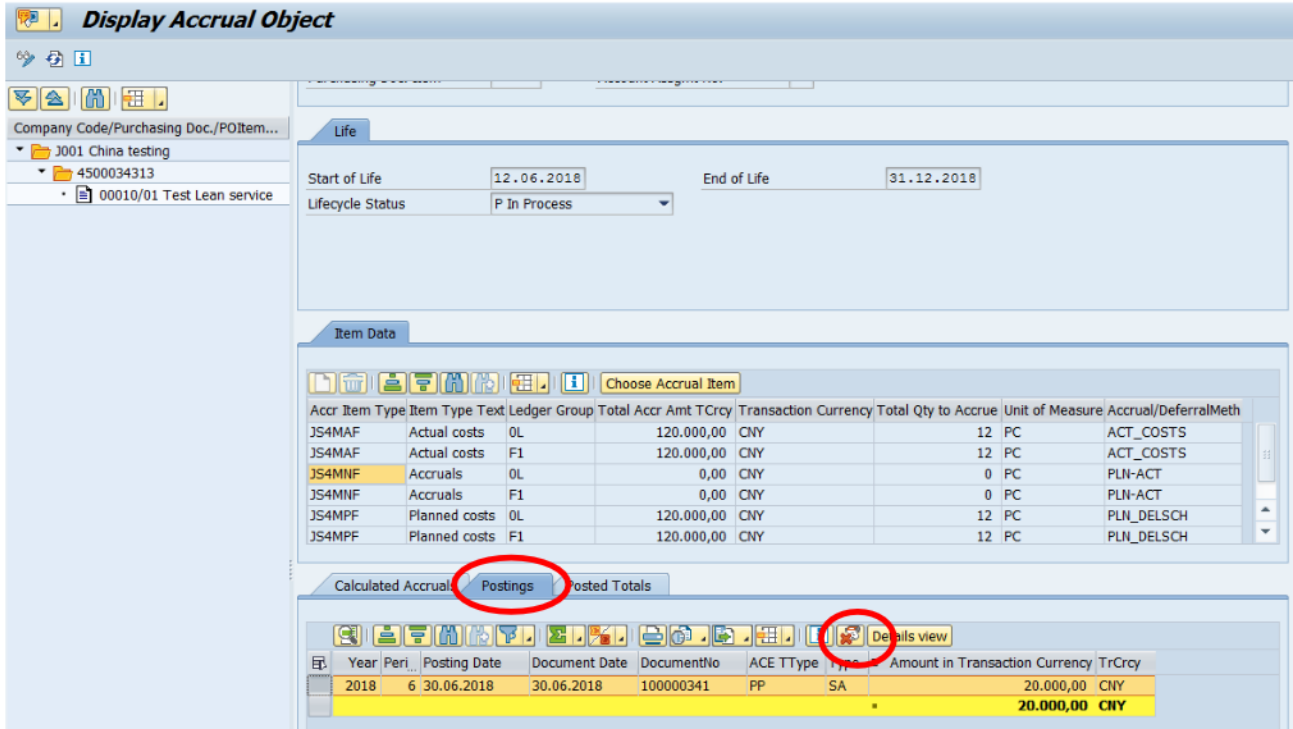
1. If the accrual item type is customized to perform full postings (not delta postings), then the last periodic postings are automatically reversed if the periodic accrual posting run is executed for the next period.

2. All postings that were done by the S/4HANA Accrual Engine can be reversed using the reversal transactions **FB08** (reverse a journal entry) and **F.80** (mass reversal of journal entries):
   - The postings can be identified by Reference Transaction = ACES4.



Reversal of Accrual Postings: Single Accrual Object Postings

- Reversing a whole journal entry using transaction FB08 or F.80 is sometimes not desired, because one journal entry can contain accrual postings from several accrual objects.
- If you want to reverse the accrual posting of only a single accrual object, you can do this using the display transaction for the accrual object, for example transaction POACTREE03 for Purchase Order Accruals:
- In the *Postings* tab there is an icon for performing the reversal: First mark an entry in the list of postings and then click on the *Reverse* icon, see screen-shot. This will trigger the reversal posting.
- Important: The reverse button performs an inverse posting, not a real reversal.
  - This is posting the amounts with inverted sign.
  - No need to enter a reversal reason as consequence.



Utilization of Accruals

Online or Offline

Utilization Postings: Available as of Release 1809 SP3

- Utilization (and release) postings are supported from release S/4HANA 1809 support package 3 onwards.
- If you are using an earlier support package (0-2) you need to apply SAP note 2800607.
- The note 2800607 contains a downport of several new features of the Accrual Engine.
  - That's why this note contains many program corrections.

Utilization Postings

- The Accrual Engine supports the process that the posting of actual costs like the posting of a supplier invoice or a goods receipt reduce the accruals that have been posted before.
- This process is called *Accrual Utilization*.
- Accrual Utilization Postings are line items in journal entries that can be identified as utilization of accruals.
  - The field *Subledger-specific Line Item Type Code*, ACDOCA-SLALITTYPE can for example be evaluated for this purpose.
- *Accrual Utilization* can be customized to take place
  - *Online*, i.e. during the posting of the actual costs.
    In this case the Accrual Engine will add the utilization posting as additional line items in the journal entry of the actual cost posting, for example in the supplier invoice.
  - *Offline*, that is at the end of the period by the periodic accrual posting run.
    In this case the periodic accrual posting run will perform the utilization posting.
    The corresponding indicator in customizing is called *Periodically* instead of *Offline*.
- The usage of an *Accrual Closing Frequency* enables to differentiate between
  - utilizations of accruals from **last** fiscal year and
  - utilization of accruals from **current** fiscal year accruals.

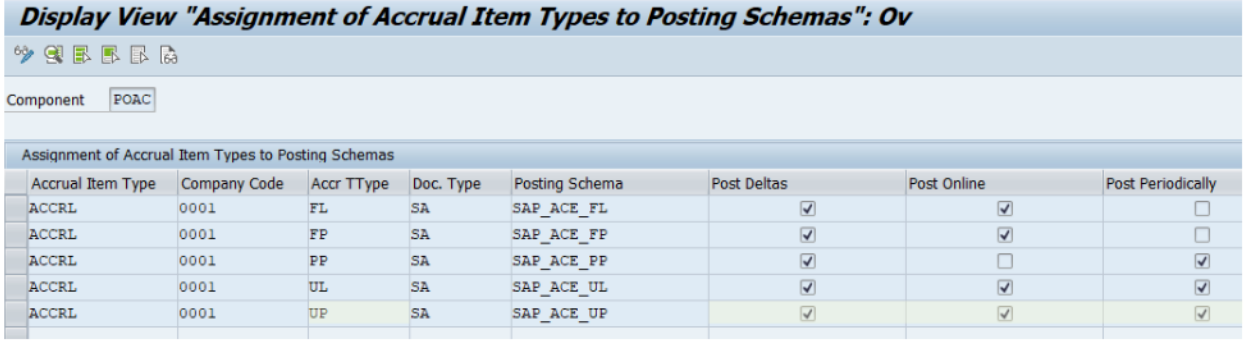
Utilization Postings: Additional Line Items in Invoice And Goods Receipt

- In order to achieve that during invoice or goods receipts the accruals are directly reduced during this posting, the following configuration is required:
  - In IMG *Activity Assign Accrual Item Types to Journal Entry Types and Posting Schemas* the transaction type UP and optionally UL needs to be assigned to a posting schema and
  - the indicator *Post Online* needs to be set in order to achieve that the utilization line items are added in the invoice or goods receipt.

- Additional line item will then be automatically added to the invoice or goods receipts journal entry: They credit the cost account and debit the accrual account.

- Utilization postings are delta postings
  - The indicator Post Deltas needs to be set.
  - Reason: Otherwise the system would need to re-calculate the utilizations of all former periods when a posting of actual costs takes place.

- Note: You can set both indicators, *Post Online* and *Post Periodically*.
  - This does not harm. In this case the periodic accrual run will not post the UP posting twice.


Display View "Assignment of Accrual Item Types to Posting Schemas": Ov

Component POAC

Assignment of Accrual Item Types to Posting Schemas

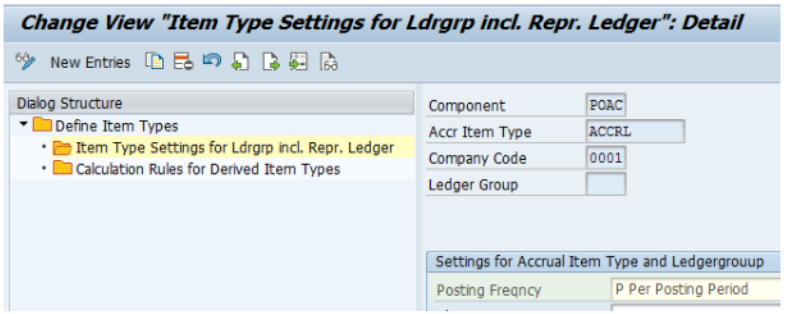
Accrual Item Type	Company Code	Accr TType	Doc. Type	Posting Schema	Post Deltas	Post Online	Post Periodically
ACCRL	0001	FL	SA	SAP_ACE_FL	☑	☑	☐
ACCRL	0001	FP	SA	SAP_ACE_FP	☑	☑	☐
ACCRL	0001	PP	SA	SAP_ACE_PP	☑	☐	☑
ACCRL	0001	UL	SA	SAP_ACE_UL	☑	☑	☑
ACCRL	0001	UP	SA	SAP_ACE_UP	☑	☑	☑

Utilization Postings: Partial Utilization

- If the accrual amount is smaller than the costs that are posted by the invoice or goods receipt then only the corresponding partial amount of the costs will be posted as utilization posting. The rest is posted as costs.
  - Technically speaking: The minimum of existing accruals and costs posted by the invoice or goods receipt is posted as utilization posting.

Posting Frequency and Posting Period

- *Posting Periods* in the General Ledger are defined by the fiscal year variant that of the combination company code and ledger.
- The Accrual Engine is more flexible compared to the General Ledger:
- The Accrual Engine supports also posting frequencies other than periods defined by the fiscal year variant.
- In the IMG activity *Define Accrual Item Types* you can enter a ***Posting Frequency***.
  - By default this frequency is ***By Posting Period*** which means that it is the fiscal period like in General Ledger.
  - This is also the recommendation: Use the fiscal period, i.e. enter as frequency the value *By Posting Period*.
  - But you can enter also a different frequency like *Daily* or *Quarterly* for example.
- That's why the term *Period* in the context of the Accrual Engine means the period defined by the posting frequency of the accrual item type:
- The period in the Accrual Engine is called ***Accrual Posting Period*** in order to emphasize that this period (daily, fiscal period, quarterly,…) can be different from the period of the General Ledger (always = fiscal period).



Utilization Postings: Accruals From Former Posting Periods Are Utilized

- If the plan minus actual approach is used to calculate accruals, then the posting of actual costs (e.g. invoice) can utilize only accruals that have been posted in a **former** *accrual* posting period.
  - The posting of actual costs can**not** utilize accruals that have been posted in the same or in a future accrual posting period.
  - Instead, when the periodic accrual posting run is executed at the end of this or at the end of a future period, this run will reduce the accruals as a regular periodic accrual posting (transaction type PP).
  - This reduction is done according to the formula accruals = planned costs – actual costs:
    The actual costs increase due to the actual (invoice or goods receipt) posting.
    That's why the accrual amount decreases accordingly.

- Relevant dates in the journal entries used to determine which accruals can be utilized:
  - For the posted accruals the *Accrual Value Date* is used.
    By default, the accrual value date is identical to the posting date.
    - Exceptional case: In the selection screen of the periodic accrual posting run, a posting period can be entered that is different from the key date ("Last Date of Period") for which the accrual posting run is executed. In this case, the posting date is derived from the manually entered posting period.
  - For the actual cost postings the *Posting Date* is used.
    The posting date of the actual cost posting determines the period.

Example: Invoiced Costs < Accruals From Former Periods

- Customizing settings of the accrual item types:
  - Posting frequency is *By Posting Period* and
  - *Accrual Closing Frequency* not used (empty).
  - Utilization postings are done online.
- The following accruals have been posted:
  - On 31. December 2018, at end of last fiscal year: 3.000 USD.
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 USD.
  - On 28. February 2019: An additional delta of 5.000 USD.
- Now a supplier invoice is posted with posting date 15. February 2019:
  - The invoice posts costs of 3.700 USD.
  - The invoice can utilize the accruals that were posted until end of January (former period).
    - Which is 4.000 USD = 3.000 USD from Dec. 2018 + 1.000 USD from Jan. 2019.
    - Since the invoice posts only 3.700 USD it will not utilize the full accrual amount of 4.000 USD.
    - Instead the invoice utilizes only the partial amount of 3.700 USD.
  - The Accrual Engine will add 2 line items to the supplier invoice:
    - 2 line items , debit and credit, with transaction type UP (Utilization Posting) with an amount of 3.700 USD.

The invoice, that is, all line items have posting date = 15. February 2018.
Grey: Line items added to the supplier invoice by the Accrual Engine.

Line Item	D/C	G/L Account	Amount	Tcurr	Accrual Value Date
1	C	<Supplier>	-4000	USD	
2	D	<Tax>	300	USD	
3	D	<Expense>	3700	USD	
4	C	<Expense>	-3700	USD	15-Feb-2018
5	D	<Accruals>	3700	USD	15-Feb-2018

Example: Invoiced Costs > Accruals From Former Periods

- Same customizing settings as in former example.
- The following accruals have been posted, same as in former example:
  - On 31. December 2018, at end of last fiscal year: 3.000 USD
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 USD
  - On 28. February 2019: An additional delta of 5.000 USD
- Now a supplier invoice is posted with posting date 15. February 2019 (despite accruals were posted at end of period on 28.02.2019 already):
  - The invoice posts costs of **4**.700 USD
  - The invoice can utilize the accruals that were posted until end of January (=former period).
    - Which is 4.000 USD = 3.000 USD from Dec. 2018 + 1.000 USD from Jan. 2019.
    - In addition, repeating the accrual posting run for 28. February 2019 will reduce the accruals in February from 5.000 USD by 700 USD to 4.300 USD. This reduction will be posted with transaction type PP (Periodic Posting).
      Note: The invoice does not utilize the accruals from February: The Accrual Engine only utilizes accruals that were posted in a former posting period! The accruals of the "current" period are always corrected with the periodic accrual run.
  - The Accrual Engine will add 2 line items to the supplier invoice:
    - 2 line items, debit and credit, with transaction type UP (Utilization Posting) with an amount of 4.000 USD.
  - Overall, the invoice posts costs of 700 USD: 4.000 USD out of the 4.700 USD are covered by accruals that are utilized by the invoice.

The invoice, that is, all line items have posting date = 15. February 2018.
Grey: Line items added to the supplier invoice by the Accrual Engine.

Line Item	D/C	G/L Account	Amount	Tcurr	Accrual Value Date
1	C	<Supplier>	-5000	USD	
2	D	<Tax>	300	USD	
3	D	<Expense>	4700	USD	
4	C	<Expense>	-4000	USD	15-Feb-2018
5	D	<Accruals>	4000	USD	15-Feb-2018

Accrual Utilization: Additional Currencies

- Assume the following case:
  - The posting of actual costs (e.g. invoice or goods receipt) is posted in a foreign currency.
  - The Accrual Engine is configured to calculate accruals only in transaction currency.
    - This is the default and currently only supported setting in IMG activity *Define Accrual Item Types*.

- **Important:** The goal is to achieve that the utilization posting uses the same exchange rate as the posting of the actual costs.
  - Reason: The assumption is that the posting of the accruals was done when the costs occurred: The posting of the accruals defines the *Date of Transaction* according to IAS21 which fixes the exchange rate. The later posting of actual costs shall not change this exchange rate.

- This means: If sufficient accruals exist that can be utilized the posting of actual costs shall have **zero effect in all currencies on the cost account**.
  - Otherwise, if the amount in the actual cost posting in transaction currency is higher than the available accruals, then the costs are only partially “neutralized” by the utilization posting.
    - The logic how the utilization amounts are calculated in additional G/L currencies differs slightly between online and offline (->periodic posting run) utilization.
      - In the Online case, the utilization line items are added to the actual cost posting before the currency conversion is performed in General Ledger. This way it is guaranteed that both, the actual cost line item and the utilization line item will use the same exchange rate.
      - In the offline case the utilization posting is performed at the end of the period by the accrual posting run as a separate journal entry, because the actual cost posting was done already before within the period, with a different exchange rate. The Accrual Engine calculates the utilization amounts in additional currencies <> transaction currency proportionally by taking the transactional currency as basis and posts the utilization as a separate journal entry.
      - In both cases, online and offline, the result should be identical or at least very similar. Maybe some cent difference because of rounding differences.

Example: Online Utilization with Additional Currencies Case: Invoiced Costs < Accruals From Former Periods

- The following accruals have been posted, in transaction currency EUR.
  Company code currency is USD.
  - On 31. December 2018, at end of last fiscal year: 3.000 EUR
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 EUR
  - On 28. February 2019: An additional delta of 5.000 EUR

- Now a supplier invoice is posted with posting date 15. February 2019:
  - The invoice posts costs of 3.700 EUR with exchange rate EUR/USD = 1,2.
  - There are sufficient accruals that can be utilized: 4.000 EUR = 3.000 EUR + 1.000 EUR.

- Line items are added by the Accrual Engine as utilization of accruals, because **online** utilization is customized.
  The utilization line items use the same exchange rate as the invoice:
  - Reason: The accruals have already posted the costs in the period when the costs occurred. The invoice (posted later) shall not change the already recognized costs.
  - The balance on the expense account is zero in all currencies!

- The balance on the accrual account is not zero, because the accruals have been posted with different exchange rates.
  - Since the accrual account is a monetary item, a **foreign currency valuation** needs to be performed for the accrual account. This will "correct" the amounts in company code currency on this account.

Important: The balance on the expense account is zero in all currencies!

Line Item	D/C	G/L Account	Amount in EUR	Amount in USD	Accrual Value Date
1	C	<Supplier>	-4000	-4800	
2	D	<Tax>	300	360	
3	D	<Expense>	3700	4440	
4	C	<Expense>	-3700	-4440	15-Feb-2018
5	D	<Accruals>	3700	4440	15-Feb-2018

Example: Online Utilization with Additional Currencies Case: Invoiced Costs > Accruals From Former Periods

- The following accruals have been posted, in transaction currency EUR. Company code currency is USD.
  - On 31. December 2018, at end of last fiscal year: 3.000 EUR
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 EUR
  - On 28. February 2019: An additional delta of 5.000 EUR

- Now a supplier invoice is posted with posting date 15. February 2019:
  - The invoice posts costs of **4**.700 EUR with exchange rate EUR/USD = 1,2: This is 5.640 USD.
  - There are not sufficient accruals that can be utilized: Only 4.000 EUR = 3.000 EUR + 1.000 EUR can be utilized.

- The amount that can be utilized is determined in transaction currency because only amounts in transaction currency are calculated by the Accrual Engine: 4.000 EUR.

- The amounts in the additional currencies for the utilization line items are calculated by the General Ledger currency conversion using the same exchange rate like in the other line items.

- In this example: Utilization Amount in USD = 4.800 USD = 4.000 EUR * 1,2.

Only 4000 EUR of the 4700 EUR costs are covered by existing accruals.

Line Item	D/C	G/L Account	Amount in EUR	Amount in USD	Accrual Value Date
1	C	<Supplier>	-5000	-6000	
2	D	<Tax>	300	360	
3	D	<Expense>	4700	5640	
4	C	<Expense>	-4000	-4800	15-Feb-2018
5	D	<Accruals>	4000	4800	15-Feb-2018

Example: Offline Utilization with Additional Currencies Case: Invoiced Costs > Accruals From Former Periods

- The following accruals have been posted, in transaction currency EUR.
  Company code currency is USD.
  - On 31. December 2018, at end of last fiscal year: 3.000 EUR
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 EUR
  - On 28. February 2019: An additional delta of 5.000 EUR

- Now a supplier invoice is posted with posting date 15. February 2019:
  - The invoice posts costs of **4**.700 EUR with exchange rate EUR/USD = 1.2: This is 5.640 USD.
  - There are not sufficient accruals that can be utilized: Only 4.000 EUR = 3.000 EUR + 1.000 EUR can be utilized.

- The amount that can be utilized is determined in transaction currency because only amounts in transaction currency are calculated by the Accrual Engine: 4.000 EUR.

- The amounts in the additional currencies are calculated proportionally according to the formula

- $$\text{Utilization Amount in Add. Crcy} = \text{Invoiced Costs in Add. Crcy} * \frac{\text{Utilization Amount in Trans. Crcy}}{\text{Invoiced Costs in Trans. Crcy}}$$

- In this example: Utilization Amount in USD = 4.800 USD = 5.640 USD * (4.000 EUR / 4.700 EUR).

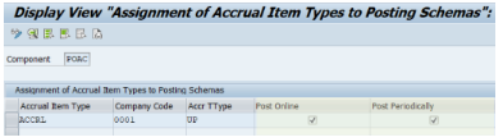
Line Item	D/C	G/L Account	Amount in EUR	Amount in USD
1	C	<Supplier>	-5000	-6000
2	D	<Tax>	300	360
3	D	<Expense>	4700	5640

Posting of actual costs during the period, for example a supplier invoice.

Line Item	D/C	G/L Account	Amount in EUR	Amount in USD
1	C	<Expense>	-4000	-4800
2	D	<Accruals>	4000	4800

Periodic accrual posting run posts the utilization as separate journal entry: The fraction 4000 / 4700 = 85.1% of the invoiced costs is covered by existing accruals. The amount in USD is calculated as 85,1% of 5640 USD.

Additional Currencies: Online AND Offline



- Accrual Utilization postings can be customized to be performed
  - not only *online* during the posting of the actual costs (like invoices or goods receipts)
  - But also *periodically* ("offline") by the periodic accrual posting run, usually at the end of the period.

- At the end of the period, the exchange rate is usually different compared to the date when the online utilization posting took place, for example during the posting of the invoice or goods receipt.

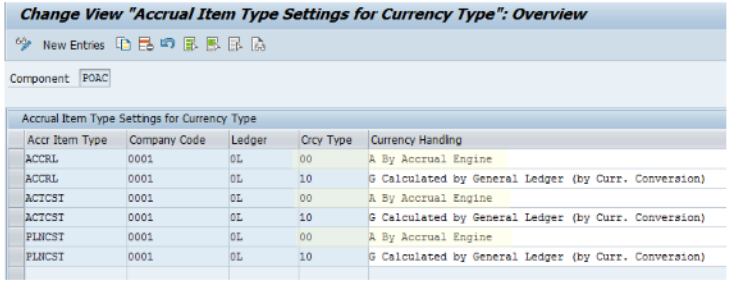
- But the amounts that were posted by the online utilization posting by adding line items to the journal entry of the actual cost posting are correct and **shall not be changed by the periodic accrual run**.

- In fact, this requirement is fulfilled **if** the Accrual Engine is customized to
  1. calculate accruals only in transaction currency.
     - In IMG activity *Assign Currency Types to Accrual Item Types* only for the transaction currency the *Currency Handling* may be configured as *By Accrual Engine*.
  2. And post **delta** amounts, not full amounts.
     - In IMG *Assign Accrual Item Types to Journal Entry Types and Posting Schemas* for accrual item type ACCRL the flag *Post Deltas* must be set.

- Reason: The online utilization posting also calculated the utilization amount only in transaction currency; so a re-calculation at period end will yield the same result in this currency:

- The delta is zero – and as a consequence the periodic accrual run will not post any delta!
  - A full posting would reverse the online utilization posting and post the (full) amount again; the General Ledger would calculate the additional currencies in this case – which would be wrong.

- Due to these restrictions in utilization postings must be customized as *delta* postings.



Accrual Utilizations: First Come First Served (FCFS)

- When accruals are utilized by posting of actual costs (e.g. by a supplier invoice), the Accrual Engine applies a **First Come First Served (FCFS)** logic.

- If there are several actual cost postings in the same posting period the Accrual Engine sorts these actual costs postings by their timestamp.
  - The actual cost posting that is posted first in the sense that it was posted at an earlier point in time (CPU date and time), will utilize accruals first.
  - The later actual cost postings will utilize accruals only, if some accruals are left.

First Come First Served (FCFS): Example 1: Two Invoices in Same Period

- Customizing settings of the accrual item types:
  - Posting frequency is *By Posting Period* and
  - *Accrual Closing Frequency* not used (empty).
  - Utilization postings are done online.

- The following accruals have been posted by the accrual posting run:
  - On 31. December 2018, at end of last fiscal year: 3.000 USD.
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 USD.

- Now a supplier invoice 1 posts costs of 3.700 USD with posting date 15. February 2019:
  - The invoice utilizes 3.700 USD of the 4.000 USD accruals.

- **Afterwards** another supplier invoice 2 posts costs of 2.000 USD with earlier posting date 10. February 2019:
  - The invoice can utilize only the remaining 300 USD (= 4.000 - 3.700 USD) accruals
  - Because this second invoice was posted with a later CPU date and time compared to the first invoice.
  - It does not matter that the posting date of invoice 2 is before the posting date of invoice 1 – as long as the posting dates are in the same period.

First Come First Served (FCFS): Example 2: Two Invoices in Same Period + Reversal

- Same customizing settings as in former example.
- The following accruals have been posted by the accrual posting run, same as in former example:
  - On 31. December 2018, at end of last fiscal year: 3.000 USD.
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 USD.
- Two invoices are posted like in former example:
  - Supplier invoice 1 posts costs of 3.700 USD with posting date 15. February 2019:
    - The invoice utilizes 3.700 USD of the 4.000 USD accruals.
  - **Afterwards** another supplier invoice 2 posts costs of 2.000 USD with **earlier** posting date 10. February 2019:
    - The invoice can utilize only the remaining 300 USD (= 4.000 - 3.700 USD) accruals because this second invoice was posted with a later CPU date and time compared to the first invoice.
- Now the supplier invoice 1 is reversed!
  - Due to the reversal of invoice 1, the later invoice 2 should have utilized not only 300 USD, but 2.000 USD instead.
  - The correction of the utilization amount of invoice 2 is done by the next accrual posting run for February 2019!
  - Even if utilization postings are customized as online, the correction posting is not done during the reversal of invoice 1 because the line items of invoice 1 would then be hard to understand.

First Come First Served (FCFS): Example 3:
Three Invoices in Different Periods + Reversal in Former Period

- Same customizing settings as in former example.

- The following postings are done in this sequence:

1. With posting date = 31. December 2018, at end of last fiscal year:
   The accrual posting run posts 3.000 USD accruals.
2. With posting date = 15. January 2019 supplier invoice 1 posts costs of 3.700 USD:
   - The invoice can utilize the full amount of 3.000 USD accruals.
3. With posting date = 20. January 2019 supplier invoice 2 posts costs of 1.300 USD:
   - The invoice cannot utilize any accruals, since invoice 1 has utilized all accruals.
4. With posting date = 31. January 2019:
   The accrual posting run posts an additional delta of 1.000 USD as accruals.
   - For example because the planned costs increased.
5. With posting date = 15. February 2019 supplier invoice 3 posts costs of 2.100 USD
   - The invoice can utilize only the 1.000 USD from January, because from former periods no accruals are left:
   - The accruals from former periods were utilized by invoice 1 fully.
6. On CPU date 20. Feb. the supplier invoice 1 is reversed with reversal posting date 15.January 2019!
   - The reversal of the invoice reverses also its utilization posting of 3.000 USD.
   - Due to the reversal of invoice 1, the later invoice 2 should have utilized 1.300 USD instead of 0.
     - Because the full accruals of 3.000 USD from December 2018 are now available again.
     - This correction of the utilization amount of invoice 2 is done by repeating the accrual posting run for January 2019.
   - Due to the reversal of invoice 1, also the later invoice 3 should have utilized 2.100 USD instead of 1.000 USD.
     - Because due to the reversal, there are 1.700 USD (=3.000 – 1.300) USD accruals left from Dec 2018 that can be utilized in February 2019.
     - And from January 2019 there are 1.000 USD available as additional accruals that can be utilized.
     - So invoice 3 can utilize fully the 1.700 USD from Dec 2018 and the partial amount of 400 USD of the 1.000 USD from January 2019.
     - This correction of the utilization amount of invoice 3 is done by the executing the accrual posting run for February 2019.

Example 3: How The Accruals Are Calculated

- More details for example 3:
  - The purchase order item has a lifetime of 09/2018 – 01/2019. Total net value of the PO item is 15.000 USD.
    - The planned costs are calculated as a linear distribution: 3.000 USD in each period: 3000 USD = 15.000 USD / 5 periods.
    - At end of 12/2018: planned costs are 12.000 USD = 3.000 USD * 4 periods - and actual costs of 9.000 USD were posted.
    - So the accruals on 31.December 2019 are posted as 3.000 USD = 12.000 USD – 9.000 USD.

Before reversal of invoice 1, amounts are in USD:

Date	Planned Costs (Balance)	Actual Costs (Balance)	Accrual Amount (Balance)	Utilized Accruals (Delta)
31.Dec. 2018	12.000	9.000	3.000 = 12.000 – 9.000	
31.Jan. 2019	15.000	14.000 = 9.000 + 3.700 + 1.300	1.000 = 15.000 – 14.000	3.000
28.Feb. 2019	15.000	16.100 = 14.000 + 2.100	0	1.000

Important:

- After the periodic accrual posting run was executed on 31.Jan 2019, the accrual account will have a **balance of 1.000 USD** which consists of the
  - 3.000 USD accruals posted as **credit** in Dec. 2018.
  - 3.000 USD utilization posted as **debit** in Jan. 2019.
  - 1.000 USD new accruals posted as credit in Jan. 2019.
    - If delta postings are customized for transaction type PP, the periodic accrual posting run posts 1.000 USD as periodic accruals, despite in Jan. 2019 the delta compared to the former period Dec. 2018 is actually 1.000 – 3.000 USD = - 2.000 USD.
    - But the utilization posting of 3.000 USD has reduced the accruals to zero: The true balance before the posting run in Jan 2019 is not 3.000 USD but 3.000 USD – 3.000 USD = 0. So the posting run calculates the delta to be posted finally as 1.000 USD – 0 = 1.000 USD.

- In Feb. 2019 the accrual balance drops to zero due to the invoice 3 which utilizes 1.000 USD.

Example 3: Calculated Accruals After Reversal

After reversal of invoice 1:

Date	Planned Costs (Balance)	Actual Costs (Balance)	Accrual (Balance)	Utilized Accruals (Delta)
31.Dec. 2018	12.000	9.000	3.000 = 12.000 – 9.000	
31.Jan. 2019	15.000	10.300 = 9.000 + 1.300	4.700 = 15.000 – 10.300	1.300
28.Feb. 2019	15.000	12.400 = 10.300 + 2.100	2.600	2.100

The reversal of invoice 1 with 3.700 USD in Jan 2019 leads to a change of the utilized amounts:

- If the periodic accrual posting run is repeated for Jan. 2019, the following amounts are posted:
  - A utilization posting (UP) for invoice 2 of 1.300 USD.
  - An accrual posting (PP) of 2.000 USD.
    - Delta with respect to former period of 4.700 – (3.000 – 1.300) USD = 3.000 USD.
      And in first execution of the accrual posting run for Jan 2019 already 1.000 USD have been posted as accruals, so the final delta to be posted is 3.000 – 1.000 = 2.000 USD.
    - Another explanation of the 2.000 USD is: Before the reversal of invoice 1, the balance of the accrual account was 1.000 USD. The reversal has reversed also the utilization posting of 3.000 USD. So the accrual balance is now 4.000 USD. But a new utilization of 1.300 USD is now posted which reduces the accrual balance to 2.700 USD. But the balance should be 4.700 USD according to the plan minus actual formula. So the delta of 2.000 USD needs to be posted.
- If the periodic accrual posting run is repeated for Feb. 2019, the following amount is posted:
  - A delta utilization posting (UP) of 1.100 USD.
    - The utilization amount for invoice 2 is changed from 1.000 to 2.100 USD.
  - No periodic accrual posting (PP).
    - The accrual balance should be 2.600 USD. Since is was 4.700 USD in January and 2.100 USD of it were utilized in February, the balance in February is already 2.600 USD = 4.700 USD – 2.100 USD.

Recommendation: Use Delta Postings

- Use delta postings instead of full postings
  - In IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas* set the indicator *Post Deltas* for all transaction types

- Reasons:
  - The amounts in the utilization (UP, UL), manual release (RP, RL) and automatic release postings (FP, FL) are easier to understand.
  - Also for the periodic accrual postings (PP) delta postings are reasonable because
    - The utilization postings are reducing the existing accruals anyway, so no need to “reversing” them in next period.
    - Anyway a foreign currency valuation should be performed for the accrual account. This will bring the accrual balance in other currencies to newest exchange rate anyway.

Meaning and Usage of
Accrual Value Date

Accrual Value Date

- The *Accrual Value Date* is a field in the journal entry line item.
  - Technically this is field ACRVALDAT in table ACDOCA.
- The *Accrual Value Date* is filled only in journal entry line items that are created by the Accrual Engine.
  - It is filled in all accrual postings that are performed by the Accrual Engine, for example in periodic accrual postings, utilization and/or release postings.
  - It is empty and not used in all other postings, for example in line items that post actual costs in goods receipts or supplier invoices.

Accrual Value Date

- The Accrual Engine evaluates the accrual value date in order to determine which accrual, utilization or release amounts the Accrual Engine has already posted in which period.
  - In other words: For postings done by the Accrual Engine, the accrual value date determines to which period they are assigned.

- **By default the Accrual Engine uses the posting date as accrual value date.**
  Exceptions:
  - In some posting screens of the Accrual Engine it is possible to enter a posting date (or posting period and fiscal year) that is different from the accrual value date.
  - In *Late Utilization (UL)* and *Late Release (RL, FL)* postings the accrual value date is different from the posting date.
    - Such postings can only occur if an *Accrual Closing Frequency* is used. See separate chapter.
    - In a nutshell: Assume an invoice is posted in year 2019 but utilizes accruals from year 2018: When adding the utilization line items to the invoice the info must be stored in these line items that they utilize accruals from the other year 2018. This info is stored in the new field Accrual Value Date: This field is filled with the date 31.12.2018 in this case:
      Posting date and document date are header fields – and are filled by the invoice itself, likely with a date in 2019, that's why these fields cannot be used by the Accrual Engine; instead a new field *Accrual Value Date* had to be introduced in the journal entry line item.

Optional Customizing
Accrual Closing Frequency

Distinguish Between Accruals from Last and from Current Fiscal Year

- The Accrual Engine supports the distinction between last and current fiscal year in a generic way for utilization and release postings.
- For example when accruals are utilized by a posting of actual costs, like a supplier invoice, it can be required to distinguish whether the accruals that are being utilized were created in former or in current fiscal year.
  - Created in former fiscal year means: The accruals were posted by the Accrual Engine with an *Accrual Value Date* that is in the former fiscal year.
  - Note: When posting accruals, the accrual value date is usually identical to the posting date.
- Background:
  - The accruals that were posted at the end of last fiscal year have reduced the profit of the company.
  - As a consequence usually less taxes have been paid by the company.
  - In order to prove to an auditor whether the accruals from last year were really needed, it is required to show in reporting
    - which portion of the accruals from last fiscal year was utilized in the next fiscal year and
    - which portion of the accruals from last fiscal year had to be released due to non-use in the next fiscal year.

Different Transaction Types: Utilization And Release of Accruals from Last Fiscal Year

- The Accrual Engine can be configured to post utilizations of accruals from
  - last fiscal year and
  - current fiscal year

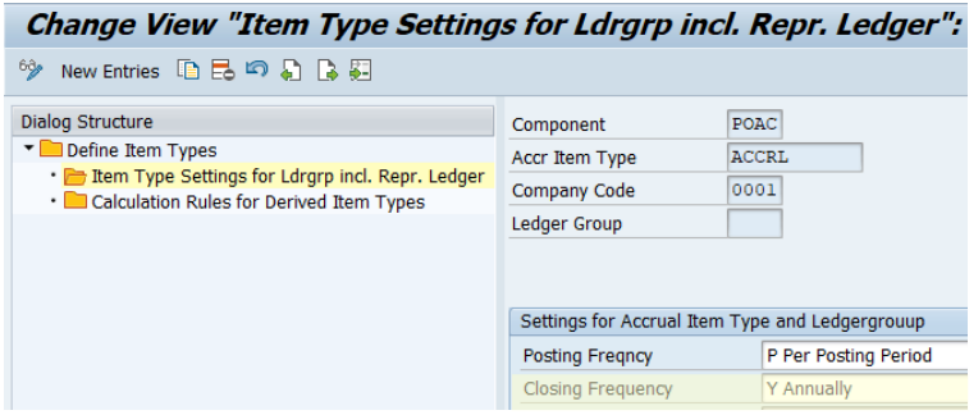
  using different transaction types (UP and UL) in order to enable a distinction of the corresponding journal entry line items in reporting.

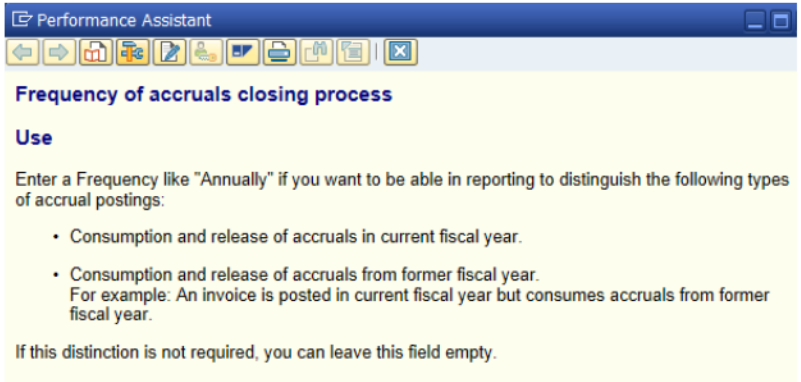
- This distinction is not only possible for utilization of accruals but also for manual release of accruals, transaction types RP and RL as well as for automatic release of accruals, transaction types FP and FL:
  - Release of accruals from last fiscal year can be posted with a different transaction type compared to release of accruals from current fiscal year.

- Technically, the different transaction types mean different posting schemas (SAP_ACE_**UP**, SAP_ACE_**UL** and SAP_ACE_**FP**, SAP_ACE_**FL**).
  - The different posting schemas lead to
    - different values of field “Subledger-Specific **Line Item Type**” in the line item of the journal entries. This is field SLALITTYPE in database table ACDOCA.
    - When posted not online but with the periodic accrual posting run: Different **journal entry types** (field BLART) in the header of the corresponding journal entries can be used. The journal entry type is defined in the IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas.*
  - These two fields can be evaluated in reporting.

Accruals Closing Frequency

- The Accrual Engine supports **not only** the distinction between former and current **fiscal year** for accrual utilization and release postings.
- Frequencies other than fiscal year are also supported, for example quarter or even fiscal period.
- This frequency is called ***Accruals Closing Frequency***.
- As a consequence, the accruals closing frequency defines *Accrual Closing Periods*:
  - If you enter *Annually* as accruals closing frequency, each fiscal year is an accrual closing period.
  - If you enter *Quarterly* as accruals closing frequency, each quarter is an accrual closing period.
- The accruals closing frequency is entered in the IMG activity *Define Accrual Item Types*, see screen-shot.





Late Utilization and Late Release Postings

- Since the *accrual closing frequency* supports not only the fiscal year, the transaction types have "generic" names:

- The transaction types that represent a utilization or release of accruals from a former accrual closing period have the word ***Late*** it their names.
  - They do not have the term *Former Fiscal Year* or similar in their names, because the accruals closing frequency can not only be *Annually* but also for example *Quarterly*.

- Accruals utilization postings are using the transaction types
  - **UP *Utilization Posting***
    If the posting utilizes accruals from the *current* fiscal year.
  - **UL *Late Utilization Posting***
    If the posting utilizes accruals from a *former* fiscal year.

- Accruals release postings are using the transaction types
  - **FP Automatic *Release Posting*** (also called *Closing Posting* or *Final Posting*)
    If the posting releases accruals from the *current* fiscal year.
  - **FL *Late Automatic Release Posting***
    If the posting releases accruals from a *former* fiscal year.
  - **RP Manual *Release Posting***
    If the posting releases accruals from the *current* fiscal year.
  - **RL *Late Manual Release Posting***
    If the posting releases accruals from a former fiscal year.

Posting Date And Accrual Value Date

- The accrual value date is filled only in in journal entry line items that are created by the Accrual Engine.
- By default the accrual value date is identical to the posting date.
- Exceptional cases are **Late** Utilization (UL) and Late Release (RL, FL) postings:
  - In order to save the information in the journal entry line item from which accrual closing period accruals are utilized or released, the Accrual Engine fills the accrual value date with the **last day** of the accrual closing period from which accruals are utilized or released.

Late Accrual Utilizations: Example 1
Invoiced Costs < Accruals From Former Periods

- Customizing settings for accrual item type ACCRL:
  - Posting frequency “By Posting Period”, accrual closing frequency “Annually”, online utilization.
  - These customizing settings mean that the Accrual Engine performs accrual postings at the end of each fiscal period and the utilization postings are posted with different transaction types depending on whether accruals from former fiscal year or from current fiscal year are utilized.
- The following accruals have been posted:
  - On 31. December 2018, at end of last fiscal year: 3.000 USD
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 USD
  - On 28. February 2019: An additional delta of 5.000 USD
- Now a supplier invoice is posted with posting date 15. February 2019:
  - The invoice posts costs of 3.700 USD
  - This invoice posting will
    - fully utilize the 3.000 USD accruals from last year and
    - utilize the partial amount of 700 USD accruals from the current year.
  - The Accrual Engine will add 4 line items to the supplier invoice:
    - 2 line items, debit and credit, with transaction type UL (Late Utilization Posting) with an amount of 3.000 USD
      Note: UL postings have as accrual value date the last day of the accruals closing period from which they utilize accruals.
    - 2 line items, debit and credit, with transaction type UP (Utilization Posting) with an amount of 700 USD.

The invoice, that is, all line items have posting date = 15. February 2018.
Grey: Line items added to the supplier invoice by the Accrual Engine.

Line Item	D/C	G/L Account	Amount	Tcurr	Accrual Value Date
1	C	<Supplier>	-4000	USD	
2	D	<Tax>	300	USD	
3	D	<Expense>	3700	USD	
4	C	<Expense>	-3000	USD	31-Dec-2018
5	D	<Accruals>	3000	USD	31-Dec-2018
6	C	<Expense>	-700	USD	15-Feb-2018
7	D	<Accruals>	700	USD	15-Feb-2018

Late Accrual Utilizations: Example 2
Invoiced Costs > Accruals From Former Periods

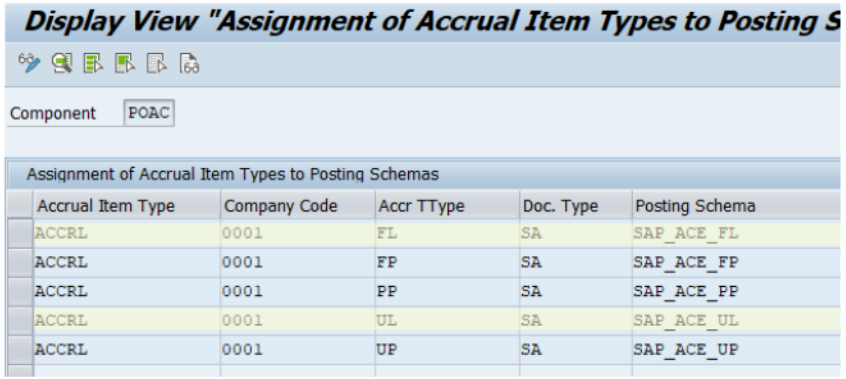
- Same customizing settings as in example 1.
- The following accruals have been posted, same as in example 1:
  - On 31. December 2018, at end of last fiscal year: 3.000 USD
  - On 31. January 2019, current fiscal year: An additional delta of 1.000 USD
  - On 28. February 2019: An additional delta of 5.000 USD
- Now a supplier invoice is posted with posting date = 15. February 2019:
  - The invoice posts costs of **4**.700 USD
  - This invoice posting will
    - fully utilize the 3.000 USD accruals from last year and
    - also fully utilize the 1.000 USD accruals from January of current year.
    - In addition, repeating the accrual posting run for 28. February 2019 will reduce the accruals in February from 5.000 USD by 700 USD to 4.300 USD. This reduction will be posted with transaction type PP (Periodic Posting).
      Note: The invoice does not utilize the accruals from February: The Accrual Engine only utilizes accruals that were posted in a former posting period! The accruals of the "current" period are always corrected with the periodic accrual run.
  - The Accrual Engine will add 4 line items to the supplier invoice:
    - 2 line items, debit and credit, with transaction type UL (Late Utilization Posting) with an amount of 3.000 USD and
    - 2 line items, debit and credit, with transaction type UP (Utilization Posting) with an amount of 1.000 USD.
  - Overall, the invoice posts costs of 700 USD: 4.000 USD out of the 4.700 USD are covered by accruals that are utilized by the invoice.

The invoice, that is, all line items have posting date = 15. February 2018.
Grey: Line items added to the supplier invoice by the Accrual Engine.

Line Item	D/C	G/L Account	Amount	Tcurr	Accrual Value Date
1	C	<Supplier>	-5000	USD	
2	D	<Tax>	300	USD	
3	D	<Expense>	4700	USD	
4	C	<Expense>	-3000	USD	31-Dec-2018
5	D	<Accruals>	3000	USD	31-Dec-2018
6	C	<Expense>	-1000	USD	15-Feb-2018
7	D	<Accruals>	1000	USD	15-Feb-2018

Accruals Closing Frequency is Optional

- If you do **not** need to distinguish whether utilization or release postings are for accruals from last or from current year, you can leave the accrual closing frequency **empty** in IMG activity *Define Accrual Item Types*.
- If you are **not** using an accruals closing frequency, you also do **not** need to assign the transaction types UL, RL and FL to posting schemas in the other IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas*.
- But if you are using an accruals closing frequency, you must assign the transaction types UL, RL and FL to posting schemas in the other IMG activity *Assign Accrual Item Types to Journal Entry Types and Posting Schemas*.



Accruals Closing Frequency in Accrual Item Types

- For purchase order accruals three accrual item types are relevant:
  - PLNCST for the planned costs
  - ACTCST for the actual costs (invoices or goods receipts)
  - ACCRL for the accruals, calculated as planned costs minus actual costs.
- But you can enter an accrual closing frequency only in the accrual item type for the accruals (ACCRL).
  - It is not supported and not allowed to enter an accrual closing frequency in the other two accrual item types for actual and planned costs (PLNCST and ACTCST).

Manual and Automatic
Release of Accruals

Lifecycle of an Accrual Object

A typical sequence of lifecycle events of a purchase order item is shown in the following example:

1. The purchase order (item) is created with a delivery schedule that has delivery several dates within the current fiscal year. Non-valuated goods receipts: The supplier invoices post the costs.
   - An accrual object is automatically created behind the scenes.

2. Accruals are posted at the end of each fiscal period.

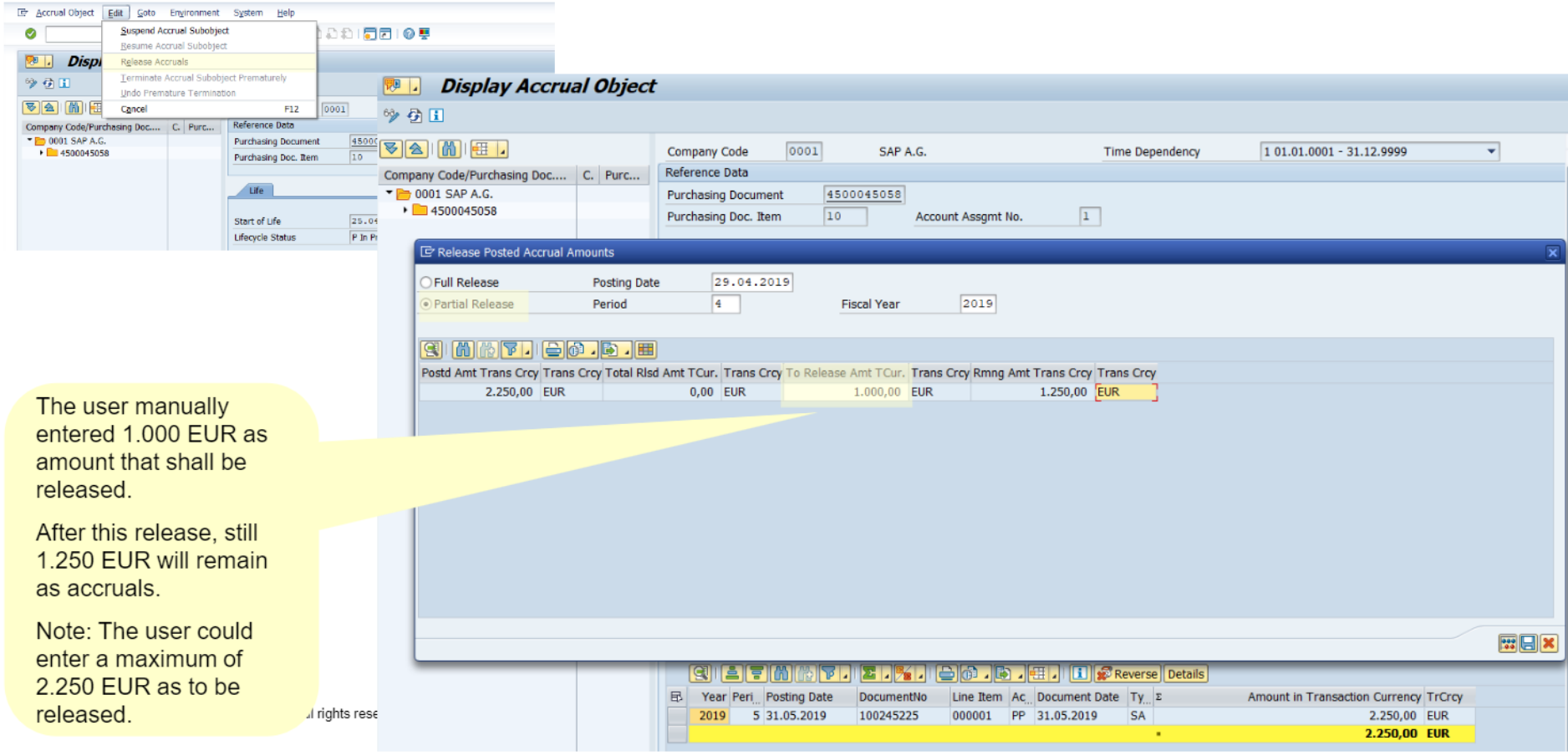
3. At the end of the current year, some supplier invoices were not yet posted despite the lifetime of the purchase order ended: Some accruals remain.

4. In January of next year, a Controller **manually** releases a partial amount of the existing accruals.
   - Reason: The Controller has decided that the remaining accruals are too high:
     He expects that the outstanding invoices will post less costs than originally planned.
   - Note: Since there are no additional planned goods receipts in the next year, no additional accruals are posted.

5. In February the final supplier invoice is posted.
   - A purchaser sets the indicator *Final Invoice* in the purchase order item.
   - As a consequence the Accrual Engine changes the status of the accrual object to F and **automatically** releases the remaining accruals.

Manual Release of Accruals

- Manually releasing accruals is possible in transaction POACTREE03:
- In this transaction the function *Edit -> Release Accruals* can be performed:
  - A popup appears that allows to either fully or partially release accruals that had been posted before.
  - In the partial release case, the user can manually enter the amount that shall be released.



The user manually entered 1.000 EUR as amount that shall be released.

After this release, still 1.250 EUR will remain as accruals.

Note: The user could enter a maximum of 2.250 EUR as to be released.

Manual Release of Accruals: With Accrual Closing Frequency

- Manually releasing accruals can lead not only to *Release* postings (transaction type RP), but also to *Late Release* postings (transaction type RL).
- Prerequisite for late release postings is of course that an accrual closing frequency is entered in the customizing of the accrual item type.
- Late release postings will occur if
  a. The accruals were posted in a former accrual closing period, usually in a former fiscal year and
  b. The posting date for the release posting that the user enters in the release popup is in a later accrual closing period, for example in current fiscal year.
- If accruals that were posted in several accrual closing periods, they will be displayed in the release popup as separate rows.
  – Start and end date of the accrual closing period (e.g. fiscal year) will be visible as columns.
  – This way a user can decide from which accrual closing frequency he wants to release which accrual amount.

Interplay of Utilization and Release Postings

- If a posting of actual costs occurs, this posting will utilize accruals that have been posted in former periods.
  - Afterwards only the remaining accruals can be released.
  - This is the “normal” sequence of postings.

- But the opposite sequence can also occur:
  - A user has released accruals – and afterwards a utilization posting occurs.
  - In this case, **the utilization posting can lead to a reversal of the release posting**.

- Example
  - Accruals of 1.000 EUR have been posted in 01/2019
  - In the next period 02/2019 a user manually releases 400 EUR. So only 600 EUR are left afterwards.
  - In the period 03/2019 actual costs of 800 EUR are posted by a supplier invoice.
    This leads to a utilization posting of 800 EUR – and 200 EUR of the release posting are inverted:
    A release of -200 EUR (= minus 200) will be posted automatically.
  - Note: If utilization posting is customized as online, the utilization posting of 800 EUR will be added as line items to the invoice. But the inverse release posting of the -200 EUR is not done online because it has no direct connection to the invoice from a business point of view:
  - The inverse release posting of -200 EUR is a correction posting: The system assumes that the user has by mistake released 200 EUR too much – despite these accruals turned out to be needed:
  - The inverse release posting of -200 EUR will be done by the next periodic accrual posting run.
  - During the time between the invoice (incl. utilization) posting and the next periodic accrual posting run, there is an over-utilization of the accruals visible in reporting.

Additional Account Assignments in Utilization and Release Postings

Utilization Postings: Additional Account Assignments

- Accruals are usually posted as **debit** to a cost account.
  - Cost accounts in general require an additional account assignment like cost center, internal order etc.
- Utilization postings are usually posted as **credit** to a cost account.
  - **By default the Accrual Engine posts the utilization posting with the same additional account assignment (cost center, internal order etc.) that is entered in the accrual object.**
  - In general this means that the utilization posting is done with the same additional account assignment like the posting of the accruals.
- This logic is important if the actual cost posting, for example the supplier invoice, is posted to a different additional account assignment than the accruals!
- Example:
  - In period 01/2019 accruals of 1.000 EUR were posted to cost center 1, because this cost center is entered in the purchase order item.
  - The purchase order item will have no goods receipts, that is, the costs are posted by the supplier invoices - not by goods receipts:
  - In the next period 02/2019 a supplier invoice of 800 EUR is posted to cost center 2 because a user changed the cost center in the purchase order item before the invoice was posted.
  - The invoice posting leads to a utilization posting of 800 EUR:
    This utilization posting posts a credit of 800 EUR to cost center 1.
  - After this, cost center 1 has a balance of 200 EUR (debit) and cost center 2 has a balance of 800 EUR (debit).
  - In other words: **The invoice incl. utilization posting transfers 800 EUR from cost center 1 to cost center 2.**
  - Interpretation: This transfer of 800 EUR means that finally the cost center 2 received the goods or service of 800 EUR – and has now the corresponding costs: It was a mistake to post the corresponding accruals to cost center 1.

Late Utilization Postings: Additional Account Assignments

- *Late Utilization Postings* can occur only if an accrual closing frequency was entered in the customizing of the accrual item type.

- The main use-case for usage of an accrual closing frequency is the frequency *Annually* in order to distinguish utilization and release postings between current and former fiscal year.
  - In this use-case *Annually,* a late utilization posting means that the accruals had been posted in the last fiscal year.
  - The G/L balance carry forward run has cleaned-up the balance of all profit accounts during the fiscal year change:
  - All costs that had been posted to cost center 1 in the old year are gone in the new year:
    - Cost center 1 has amount zero as beginning balance in the new year on all cost accounts.
    - Only the balance on the accrual account is carried forward because it is a balance sheet account.

- If the actual costs in the new year (e.g. invoice) are posted to the different cost center 2 and if the utilization posting would post the credit on the cost account to the original cost center 1, this would increase the budget of this cost center 1 in the new year, since the debit posting from the old year is missing in the new year on cost center 1.

- That's why in **Late** Utilization (UL) postings the Accrual Engine by default posts the credit not on the original cost center 1 but on cost center 2.

- This is different in "normal" utilization postings (UP) and release postings as described in the corresponding slide.

Release and Late Release Postings: Additional Account Assignments

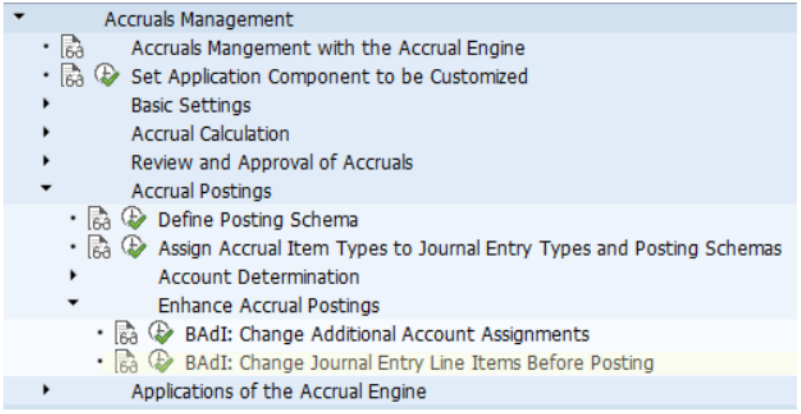
- Like utilization and late utilization postings, also release postings usually are post as credit to a cost account.

- For posting release of accruals similar logic applies like for utilization postings.
  - The only difference is that in release postings there is no actual posting (like supplier invoice) from which the additional account assignment can be taken.

- In both type of postings, “normal” release postings with transaction types RP (or FP) and late release postings, transaction types RL (or FL), the additional account assignment is derived from the accrual object using the posting date of the release posting.
  - Late release postings occur if an accrual closing frequency (e.g. Annually) is used and accruals are being released which were posted in a former accrual closing period (e.g. fiscal year).
  - Like in the logic for late utilization postings, this way it is avoided that a budget on the “old” cost center 1 is created in the new fiscal year by the credit posting that is performed by the release of the accruals.
  - Issue: With the late release posting a credit on cost center 1 is posted which increases the budget in the new year. If such an increase of the budget of the cost center not desired, you can implement a BAdI to derive a different cost center, for example a dummy cost center, see next slide.

Additional Account Assignments: BAdI

- The default behavior, which additional account assignment is used in utilization, late utilization and other postings like release of accruals can be changed by the customer by implementing the BAdI BADI_ACE_DOCUMENT_SCHEMA_CUST.
- In this BAdI the table CT_SCHEMA_CALCULATED contains the line items that will be posted.
- In these line items the field S_ASSGMT contains the additional account assignment that is used in the current posting.
  - In the utilization posting of the example, this field would contain cost center 1.
- As information, the other field S_ASSGMT_POSTED_ACT contains the additional account assignment that was used in the posting of actual costs.
  - This field is not used in the posting; it is only for information, so that the BAdI can decide which account assignment shall be finally used in this posting.
  - In the utilization posting of the example, this field would contain cost center 2.
- The BAdI implementation can change the content of S_ASSGMT
  - For example by copying the account assignment from field S_ASSGMT_POSTED_ACT into field S_ASSGMT.
  - The posting will then be done to this changed account assignment.
- For more information see documentation of the corresponding IMG activity (transaction ACEIMG).

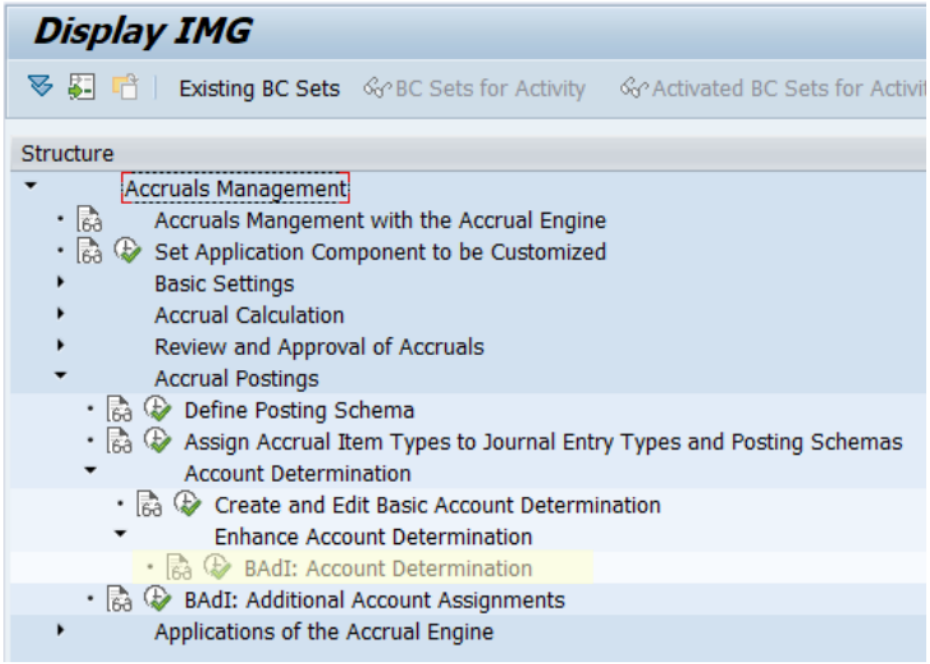


Post Accruals to Separate Cost Account

Account Determination

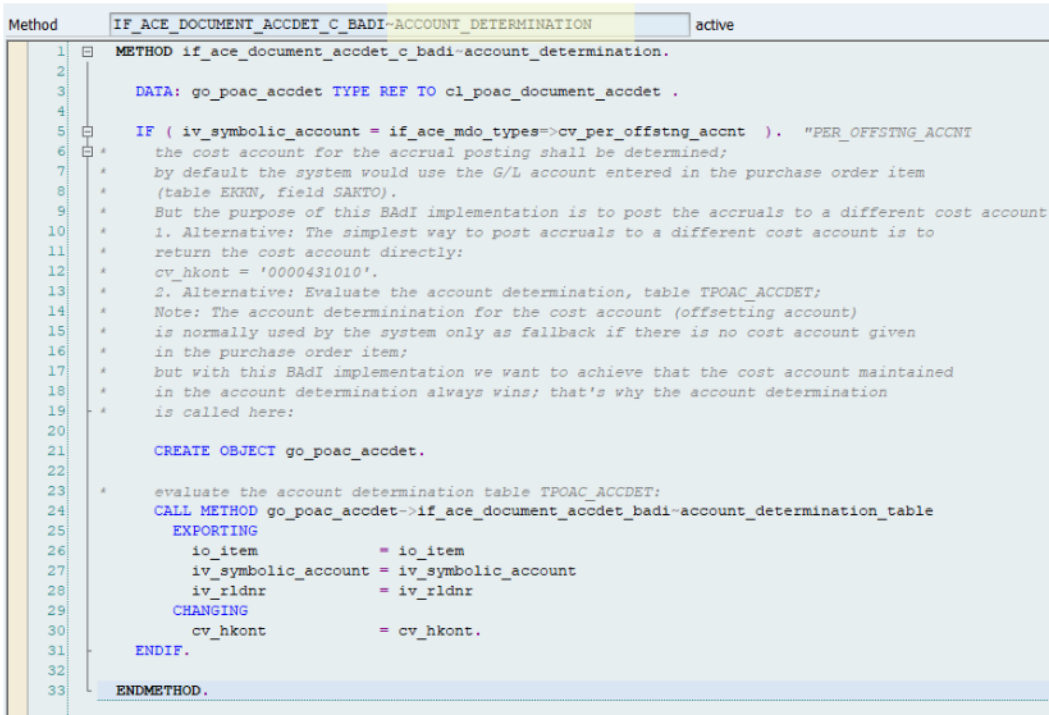
How to Post Accruals to a Separate Cost Account

- By default the accrual posting run posts the costs to the G/L account that is entered in the purchase order item.
  - Technically this G/L account is stored in table EKKN, field SAKTO.
- If you want to achieve that the accrual postings are performed not this this G/L account, but to a separate account, you need to implement the BAdI BADI_ACE_DOCUMENT_ACCDET_CUST:
  - You need to implement the ABAP method ACCOUNT_DETERMINATION.



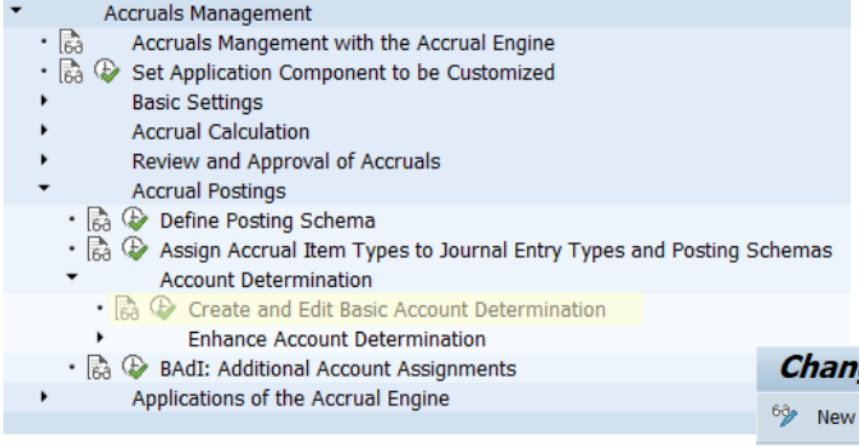
Example: BAdI Implementation

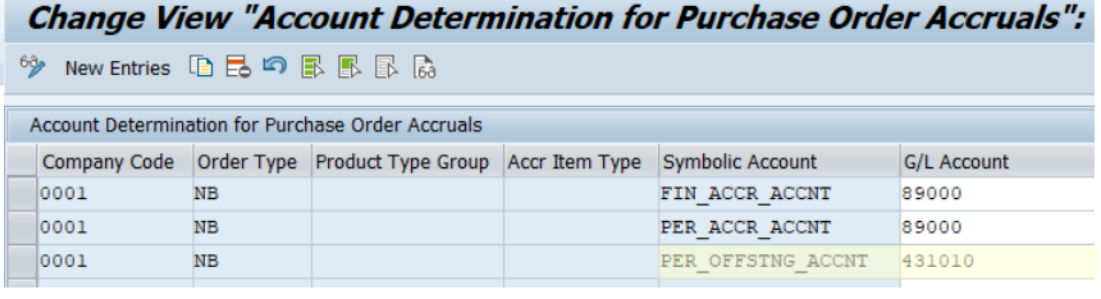
- In the screen-shot below you find an example how the source code of your BAdI implementation can look like.
- This BAdI implementation evaluates the account determination for purchase order accruals, table TPOAC_ACCDET.
  - The account determination for the cost account (offsetting account) is normally evaluated by the system only as fallback if there is no cost account given in the purchase order item;
  - but with the logic shown in the screen-shot, the cost account maintained in the account determination always wins.



Example: BAdI Implementation: Maintain Account Determination

- The sample implementation for BAdI BADI_ACE_DOCUMENT_ACCDET_CUST shown in the previous slides, changes the system behavior so that the basic account determination is evaluated not only for the accrual account (FIN_ACCR_ACCNT) but also for the offsetting account (PER_OFFSTNG_ACCNT) even if the purchase order item contains a G/L account.
- The advantage of this logic is that users can maintain the account determination and it is transparent where the offsetting account (=usually cost account) comes from.





Use-Cases: When to Post Accruals to a Separate Cost Account

- Commitment Items
  - If you are activated *Commitment Management* in the master data of the controlling area, the posting of accruals can be problematic:
  - The accrual postings are **not** reducing existing commitment items that were generated by the creation of the purchase order.
  - In order to show the accruals in reporting separately from the actual costs that are posted by goods receipts or supplier invoices, it can be reasonable to post the accruals to a separate cost account.
- Budget Check
  - If you are using the budget control on cost centers consider the following points if the accruals are posted to the original cost account given in the purchase order item (i.e. without BAdI implementation):
    - The posting of accruals can fail if the creation of the purchase order has already fully consumed the available budget.
    - The posting of accruals consumes additional budget. Even sufficient budget is left so that the posting of the accruals is possible, subsequent postings of actual costs, for example valuated goods receipts can fail because the accrual posting has consumed the remaining budget!
  - To avoid such issues with the budget check, it is recommended that you post the accruals to a cost account that is not subject to budget control.
    - In other words, create an implementation of BAdI BADI_ACE_DOCUMENT_ACCDET_CUST to post to a separate cost account.

Actions

Pause and Suspend

Pause, Suspend and Resume Action: Improved Usability

- With the following support packages and SAP note 2816562, the usability and features of the actions *Pause*, *Suspend and Resume* have been improved:
  - Release S/4HANA 1809 SP3
  - Release S/4HANA 1909 SP1

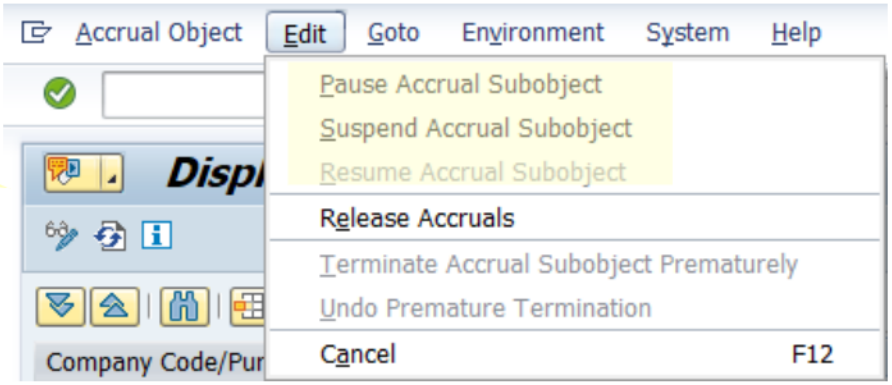
- What has changed in these support packages (note 2816562):
  - The action *Pause* and its status *Paused* is new.
  - The action *Suspend* was changed:
    - The Suspend action performs now a release posting.
      Before this support package it did not perform the release posting. So this is an incompatible change. If the release posting is not desired, the *Pause* action can be used instead of *Suspend*.
    - The Suspend action requires now to enter a Suspension Date.
  - The Suspension (and Pause) Date is displayed in the transaction that displays the accrual object, for example transaction POACTREE03.

Pause, Suspend and Resume Action

- In the transaction *Display Accrual Object* the functions
  - Pause Accrual Subobject
  - Suspend Accrual Subobject and
  - Resume Accrual Subobject

  are available.

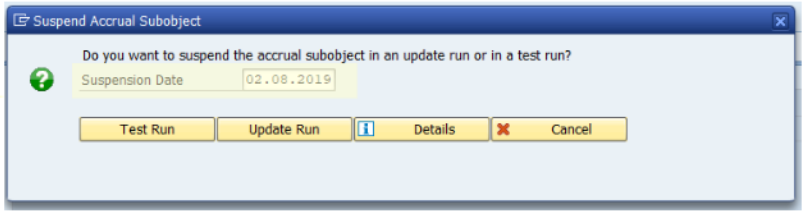
Screen-shot from transaction POACTREE03.



Pause, Suspend and Resume Action: Purpose

- The purpose of *Pause* and *Suspend* action is to prevent that in future additional accruals are posted.
  - The action changes the status of the accrual subobject to *Paused* or *Suspended* respectively.
  - Both actions require a **date** from which the status *Paused* or *Suspended* is valid.

For example in the *Suspend* action popup the user needs to enter a Suspension Date. This is the date from which the new status *Suspended* is valid.



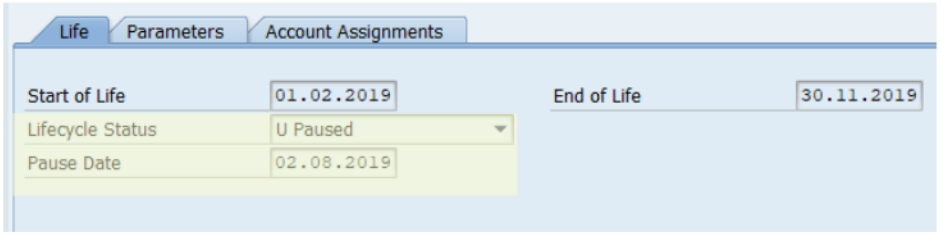
  - Both actions have similar effect:
  - The difference between the two actions *Pause* and *Suspend* is that
    - Suspend triggers a **release posting**: After this action was performed, the accrual balance of this accrual subobject is zero.
    - Pause does **not** trigger a release posting: The accrual balance stays.
  - The status Paused and Suspended will prevent that the accrual balance increases, but a reduction will still take place: utilization and release of accruals is still possible.

- Purchase order items where the accrual (sub)object is in *Paused* or *Suspended* status will by default not appear in the apps for reviewing and approving accruals at the end of each period.

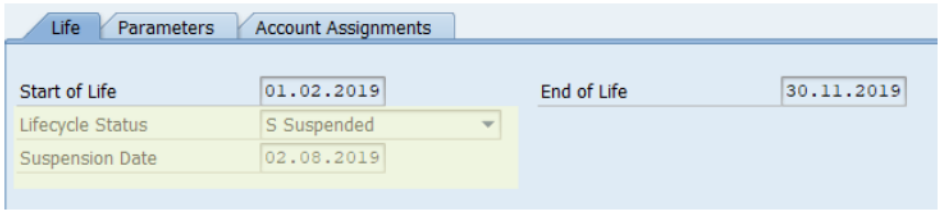
- *Paused* and *Suspended* are intended to be used as temporary status.
  - The user plans to **resume** the accrual subobject again at some later point in time.

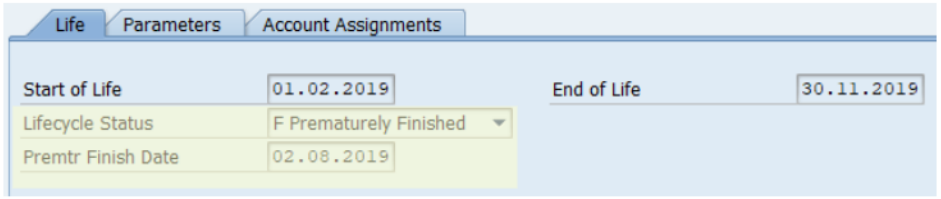
Pause, Suspend and Resume Action: Display of Date And Status

Screen-shot from transaction POACTREE03: After for example the *Pause* action was executed, the new status *Paused* and the corresponding *Pause Date* are saved in the accrual object.



Similar for status *Suspended* and *Prematurely Finished*.





Pause and Suspend: Difference to Terminate Prematurely

- Status *Paused* and *Suspended* can be set by a user manually.
  - They are intended to be used as **temporary** status values.
  - Use-case: The user plans to resume the posting of accruals again at some later point in time.

- Whereas status *Prematurely Finished* is set automatically by the system when the purchase order is closed.
  - For example when the Final Invoice indicator is set in transaction ME23N.
  - *Prematurely Finished* is a final status:
    - From a business point of view this purchase order item (=accrual subobject) is finished.
    - No further accruals shall be posted.
    - The accrual balance is set to zero with a release posting.
      - Same behavior as *Suspend* action.
    - Of course also this status can be revoked if needed.
      - Revoke from status *Prematurely Finished* to *In Process* is possible with action *Undo Premature Termination*.

- Technically, the actions *Suspend* and *Terminate Prematurely* behave almost identical.
  - The difference is the meaning and purpose: *Suspended* is a temporary status whereas *Prematurely Finished* is a final status.

Utilization and Release Postings After Pause, Suspend and Terminate Prematurely

- If an accrual subobject has one of the status values
  - *Paused*
  - *Suspended*
  - *Prematurely Finished*

  then there will be no additional accruals posted after the corresponding date (suspension date, pause date, premature finish date).

- But still utilization and release postings can occur.
  - See next slides.

Status Paused: Utilization and Release Postings

- If the status of the accrual subobject is *Paused*, the remaining accruals were not released:

- There can be still accruals left that can be
  - either utilized by actual cost postings
  - or manually released using the function *Edit -> Release Accruals* in transaction POACTREE03.

Status Suspended and Prematurely Finished: Utilization Postings

- If the status of the accrual subobject is *Suspended or Prematurely Finished*, the balance of the accrual subobject is zero:
  - After the corresponding date (Suspension Date or Premature Finish Date) there are no accruals left.
- The remaining accruals were released when the status was changed.
- Nevertheless, despite the accrual balance is zero, utilization postings can still occur!
  - If actual costs are posted with a posting date after the *Suspension Date* or *Premature Finish Date*, then the corresponding amount of the release posting will be reversed and this amount is posted as utilization instead.
  - In other words: Utilization has higher priority than release of accruals:
  - The system regards the former release posting as mistake – because later it turned out that the accruals would actually be needed to cover the actual costs.

Use-Case for Actions Pause and Terminate Prematurely

Example for pausing an accrual subobject:

- An accrual (sub)object was created for a purchase order.
- Accruals of 1.000 USD have been posted for this purchase order.
- But starting next month, Aug 2019, the purchase order is on hold.
- No further accruals shall be posted.
- The existing accruals shall be kept because likely the purchase order will continued.
- To achieve this, the user executes the ***Pause*** action in transaction POACTREE03 and enters Pause Date = July 31st 2019.
- Later, on August 15th 2019 an invoice of 800 USD for this purchase order is posted.
  - The invoice posts the costs: No goods receipt expected.
  - This invoice posting will lead to a utilization posting of 800 USD.
- On August 20th it turns out that the purchase order needs to be ended on August 31st 2019. The remaining accruals shall be released.
- To achieve this the user sets the **final invoice indicator** in the purchase order item.
  - Behind the scenes this triggers the action *Terminate Accrual Subobject Prematurely* in transaction POACTREE03 and enters *Premature Finish Date* = August 15th 2019 (=date of final invoice).
  - This will lead to a release posting of the remaining 200 USD accruals.

Use-Case for Action Suspend

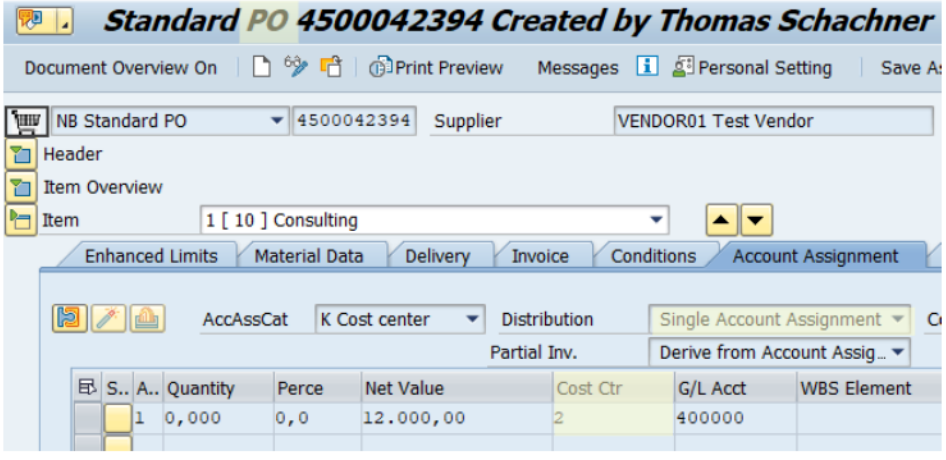
Example for suspending an accrual subobject:

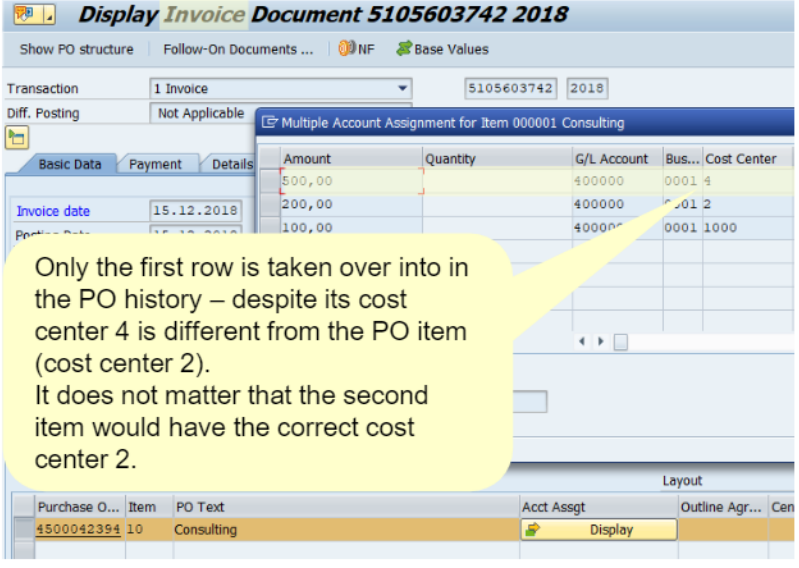
- An accrual (sub)object was created for a purchase order.
- Accruals of 1.000 USD have been posted for this purchase order.
- But starting next month, Aug 2019, the purchase order is on hold.
- No further accruals shall be posted.
- The existing accruals shall be released because likely the purchase order will not be continued.
- To achieve this, the user executes the *Suspend* action in transaction POACTREE03 and enters *Suspension Date* = July 31st 2019.
  - A release posting of 1.000 USD is performed.
- Later, on 15. August 2019 an invoice of 800 USD for this purchase order is posted.
  - This invoice posting will lead to the following postings in the Accrual Engine:
    - Release posting of - 800 USD (i.e. partial reversal of the original release posting)
    - Utilization posting of + 800 USD

Pitfalls

Different Account Assignments Between PO Item and Supplier Invoice

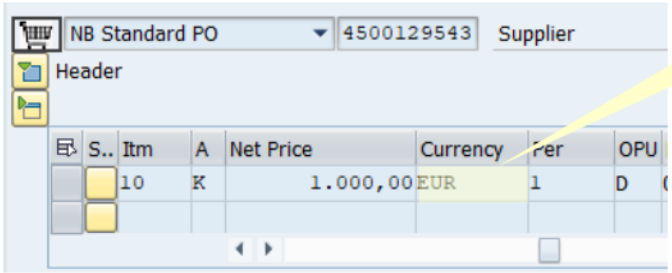
- In the supplier invoice, transaction MIRO, it is possible to enter a different account assignment, for example a different profit account or different cost center, compared to the purchase order item.
  - This is only possible if the PO item expects no goods receipt or non-valuated goods receipts.
- If a user enters several account assignments in the invoice despite only a single account assignment is given in the purchase order item, then only the first one entered in the invoice will be considered in the purchase order history – and as a consequence also for the reduction of accruals!
- Recommendation: When creating a supplier invoice do not enter a different number of account assignments than is given in the purchase order item.





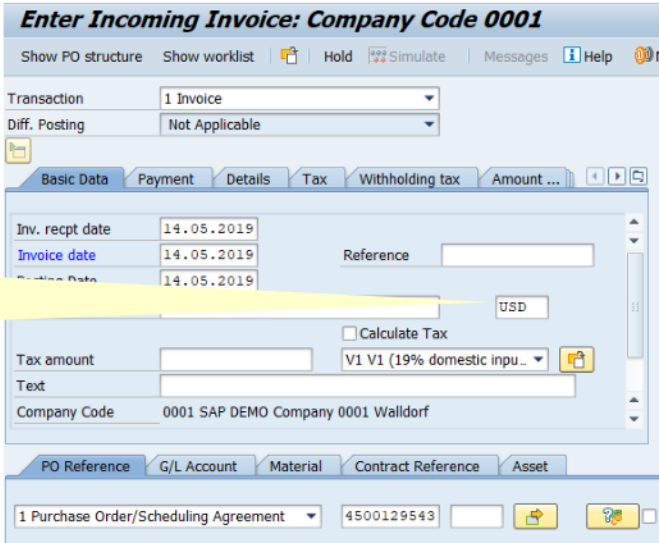
Different Transaction Currencies Between PO Item and Actual Costs (Supplier Invoice).

- In the supplier invoice, transaction MIRO, it is possible to enter a different currency compared to currency of the purchase order item.
- Since the Accrual Engine calculates the accrual amounts incl. the utilization amounts in transaction currency, the Accrual Engine performs a currency conversion in this case.
- Online utilization, that is, adding utilization line items for example to the invoice item is not possible in case of different transaction currencies:
  - Because the transaction currency of a journal entry is a header field: All line items of a journal entry must have same transaction currency.
  - When an invoice is posted with a different transaction currency other than the PO item currency and online utilization is active, then this online utilization posting (adding line items to invoice / goods receipt) will **not** occur: Instead, the periodic posting run, transaction ACEPOSTINGRUN will perform the utilization posting at the end of the period.
- There is a possibility to prevent such postings of actual costs with different transaction currency: To achieve this, change the message type of message ACE_S4 092 from warning to error. This can be done with transaction OBA5.
  - The warning is unfortunately suppressed in transaction MIRO, but if customized as error, it will appear in the UI and prevent the posting.



Purchase order item has currency EUR.

In the supplier invoice the user can enter a different currency USD.



Central Finance

Central Finance: Calculate and Post Accruals for Replicated Purchase Orders

- With release S/4HANA 1909 SP1 or SP0 with notes 2854894 and 2859839 the Central Finance scenario is supported:
- The *Central Finance* (CFIN) scenario means that in the central finance system it is possible to calculate and post accruals for purchase orders that were replicated from a decentral system into the central finance system.

Central Finance: Calculate and Post Accruals for Replicated Purchase Orders

The CFIN scenario consists of the following steps:

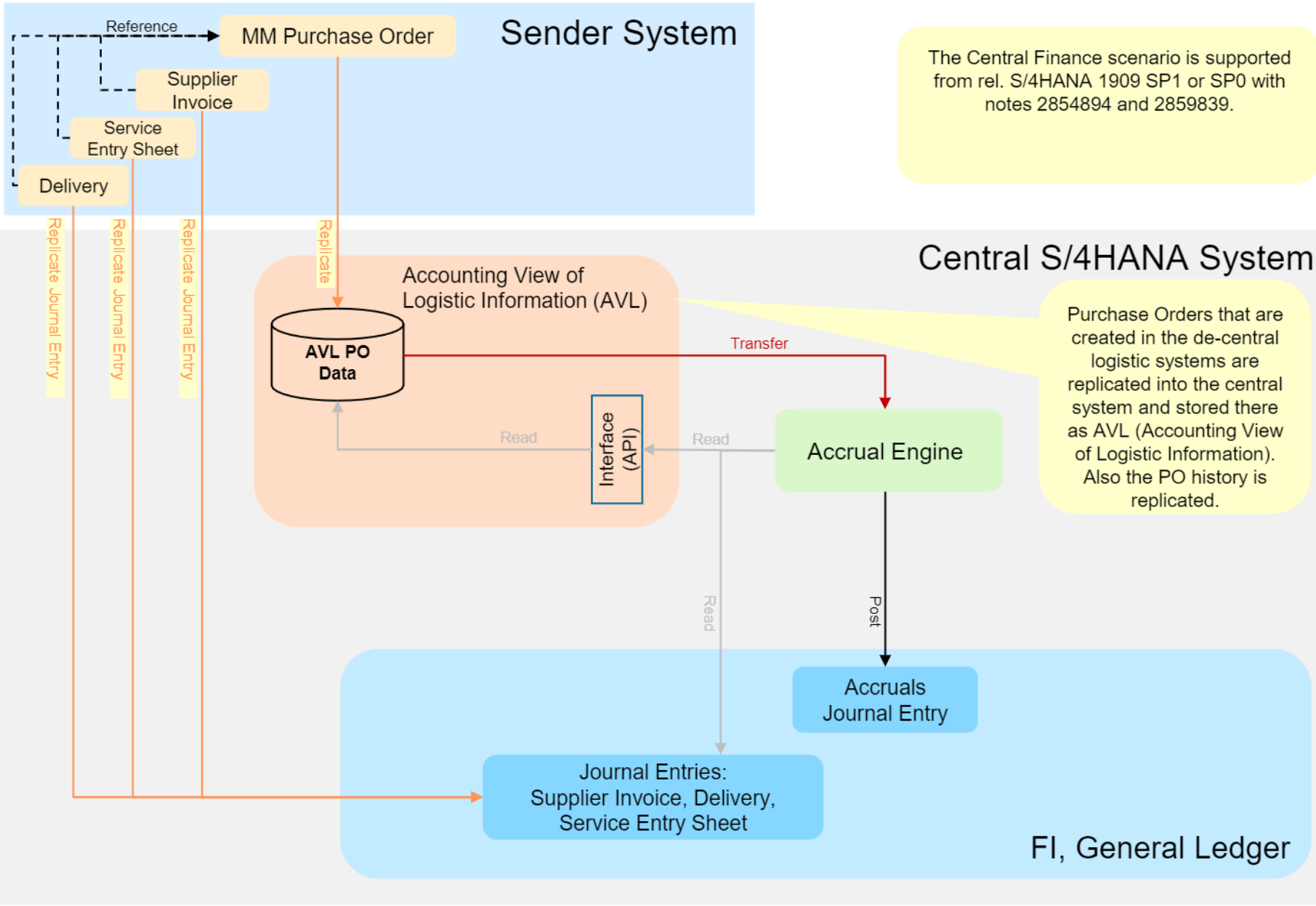
1. Replicate the purchase order from the sender system into the central finance system.
   In the central finance system the replicated purchase order is stored as *Accounting View of Logistic Information* (AVL), that is, it is **not** stored in the tables of the "normal" MM purchase order.

2. Replicate also the postings that occurred for the purchase order:
   - In order to enable the Accrual Engine to calculate the accruals correctly in the central system, the goods receipts, service entry sheets and/or supplier invoices also need to be replicated into the central system.

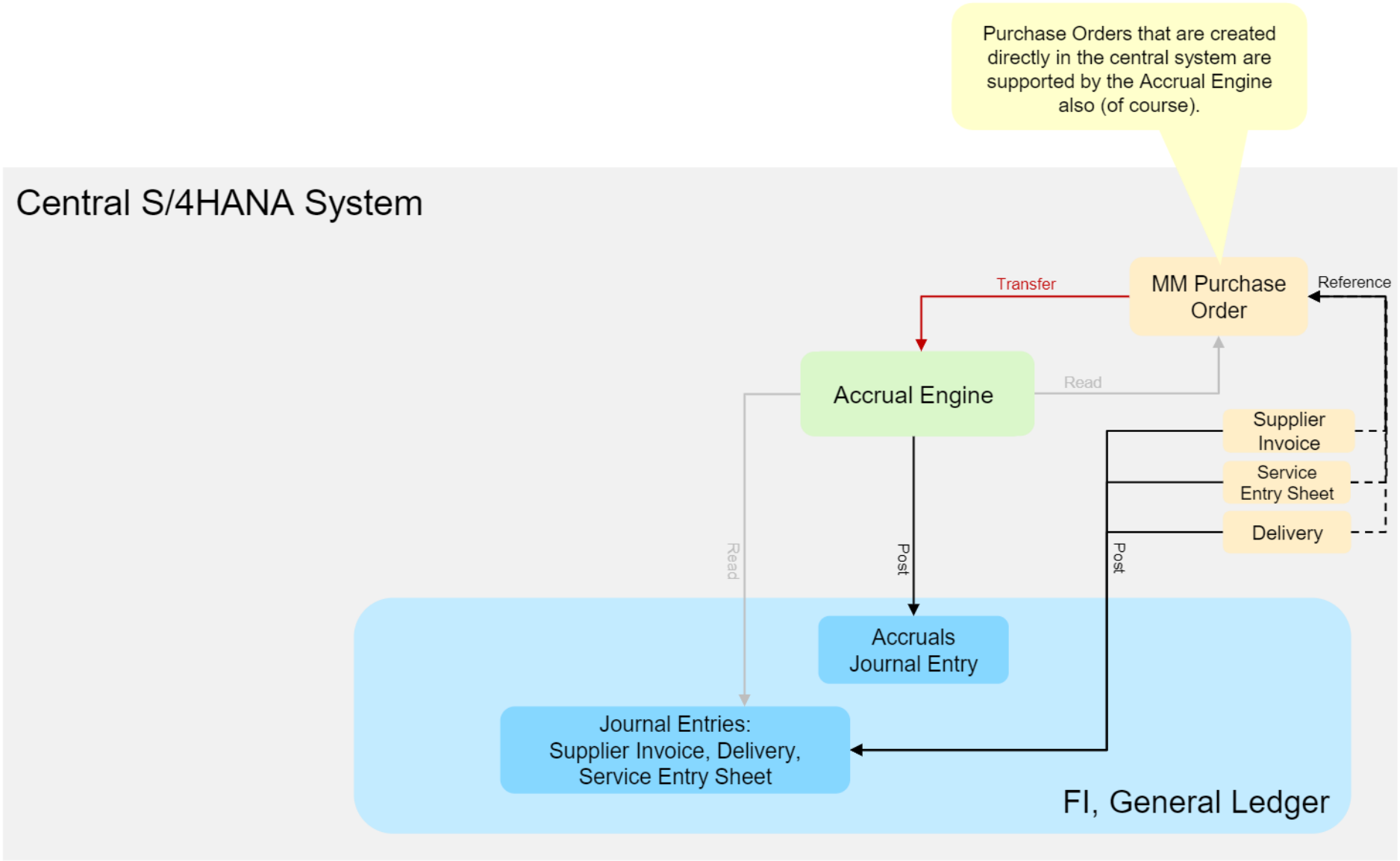
3. Transfer the replicated purchase orders into the Accrual Engine
   - Perform this transfer using transaction POAC_MM2ACE_TRANSFER.
     The transfer does not happen automatically, even if Indicator "Online Integration Active" was set in the customizing activity *Define Accrual Item Types and Methods for MM Purchase Order Items*.
   - In the selection screen of this program, enter the logical system from which the purchase order was replicated.

4. Calculate, propose, review/approve and post accruals like usual, that is, like for "normal" purchase orders that were created locally in the central finance system.

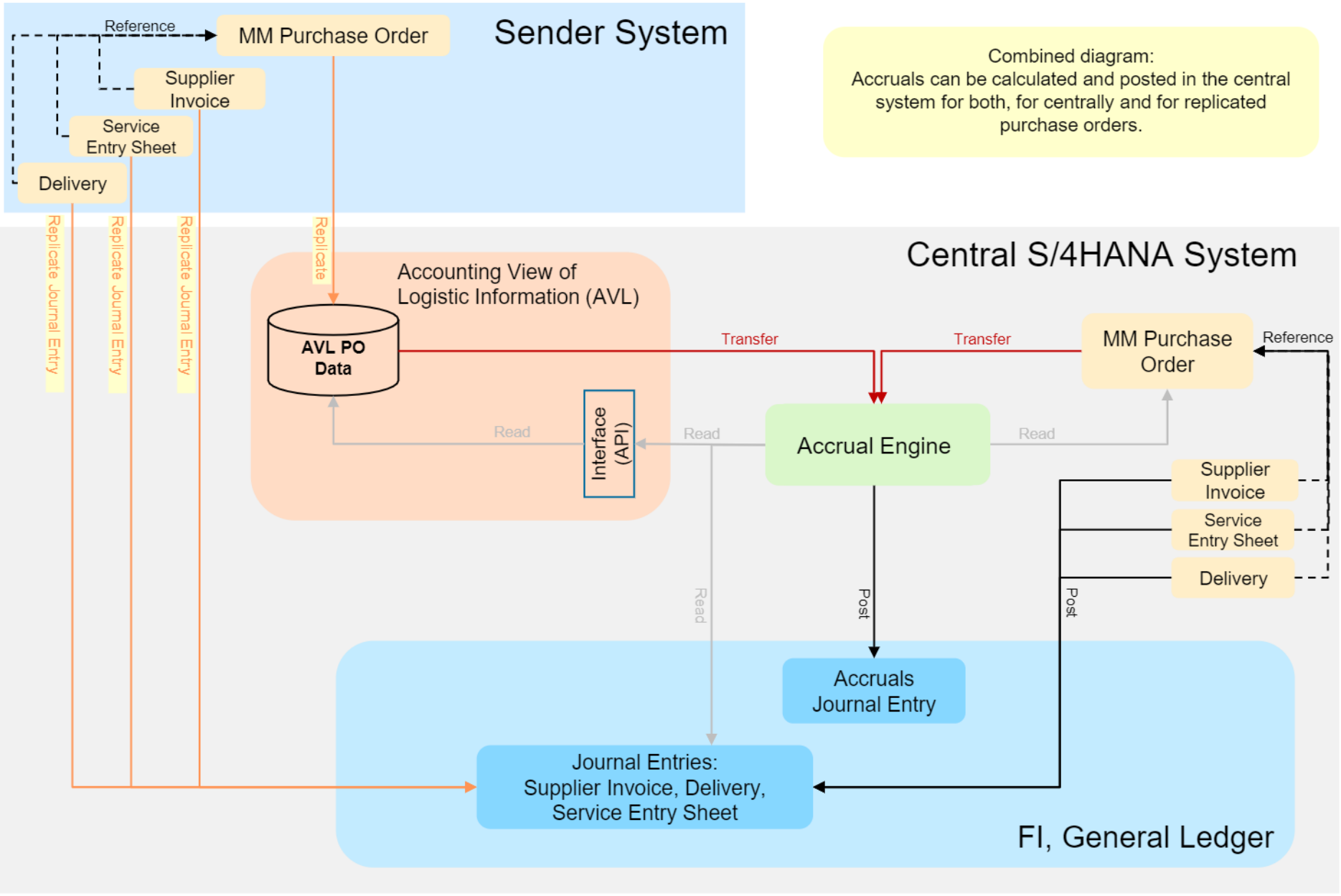
Central Finance Integration: De-Central Purchase Orders



Central Finance Integration: Centrally Created Purchase Orders



Central Finance Integration: Architecture Big Picture

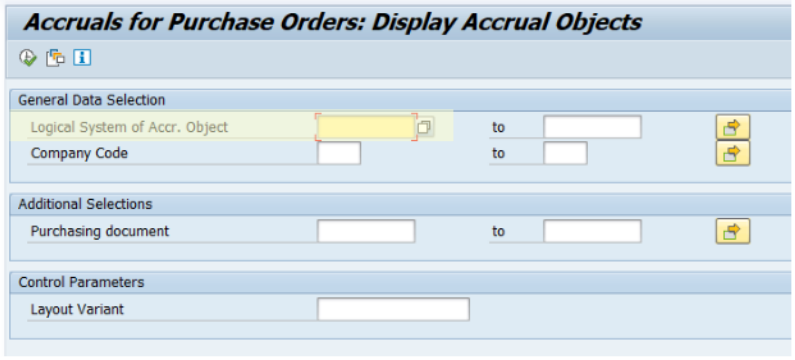


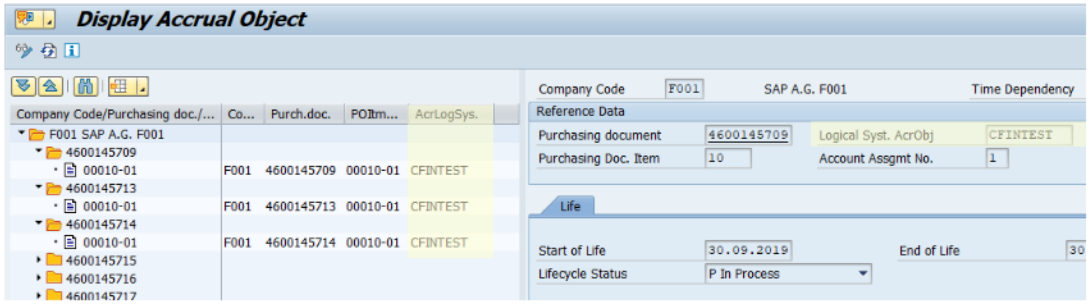
Central Finance: Logical System in Accrual Engine

- In order to support the Central Finance scenario, the field *Logical System* was introduced as additional key field in the Accrual Engine.
  - The logical system identifies the sender system from which the purchase order was replicated.
  - The new key field *Logical System* ensures that the same purchase order numbers can be used in multiple sender systems: In the central finance system these purchase orders can be distinguished because each of such POs has a different logical system.

- The field *Logical System* is only visible in the screens of the Accrual Engine after
  1. at least one purchase order from a decentral system was replicated into the central finance system and
  2. this replicated purchase order was transferred into the accrual engine.

Screen-shots from transaction POACTREE03 as an example for the display of field Logical System.





Fiori Apps

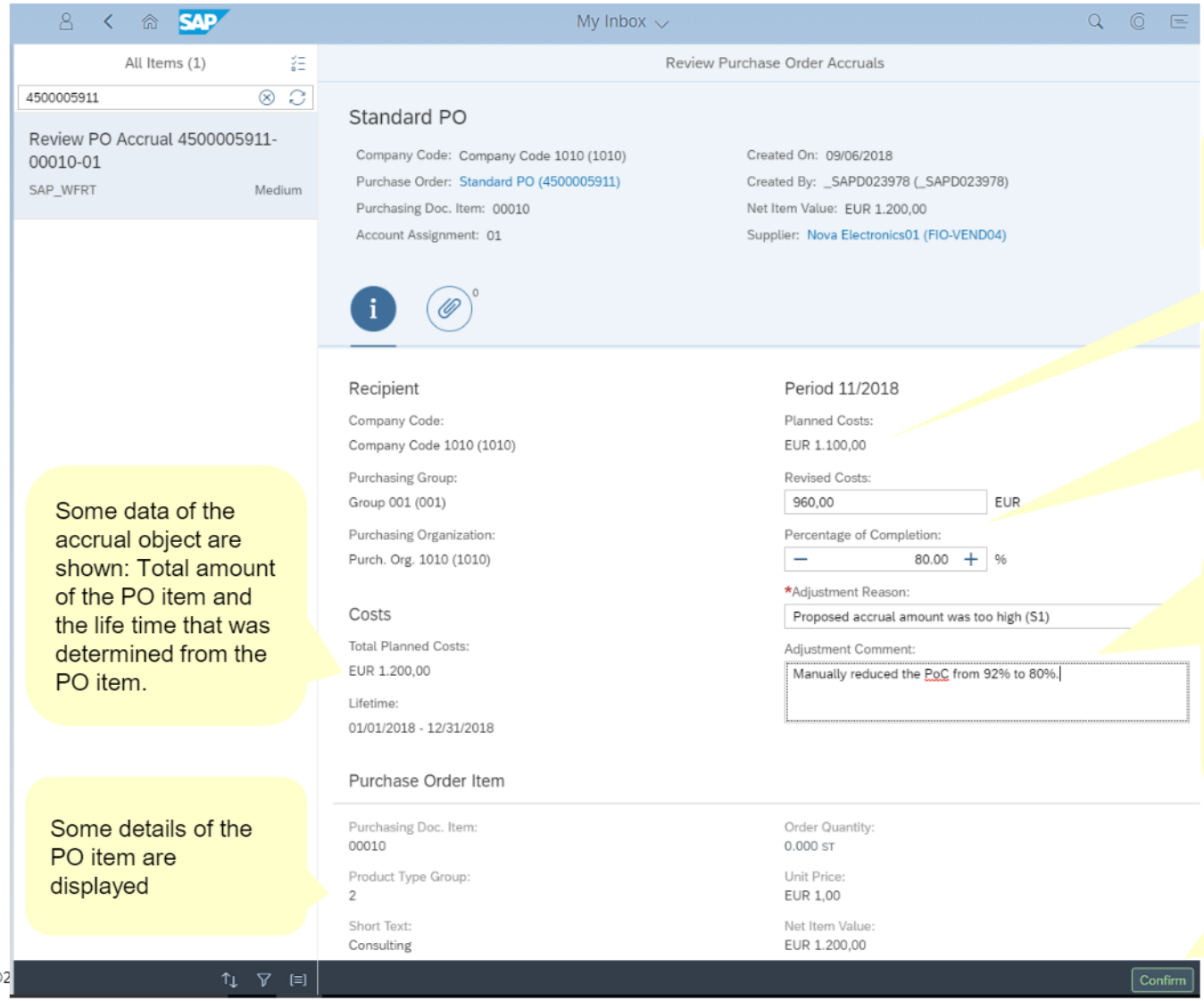
Fiori Apps for Purchase Order Accruals

- With release S/4HANA 1909 several Fiori apps will be available.
  - The Fiori apps cannot be downported to release 1809.
- Some of the apps are specific for Purchase Order Accruals, some others are generic for the Accrual Engine.
- The Fiori apps replace some of the SAP GUI UIs.
  - In some Fiori screens some restrictions exist compared to the SAP GUI transactions.
- Workflow for reviewing of the periodic accrual amounts by PO owner
  - In Fiori there is a workflow available for the review of the periodic accrual amounts that are proposed by the Accrual Engine. This workflow uses the Fiori app *My Inbox*. In SAP GUI this workflow is not available.
- Machine Learning support for review of periodic accrual amounts
  - The Fiori app for reviewing the proposed periodic accrual amount offers support by machine learning:
    - The machine returns the probability (as percentage) that a reviewer will manually adjust the periodic accrual amount.
- Some self-service configuration apps exist in Fiori.
  - These configuration apps offer only limited possibilities compared to the backend configuration possibilities available in transaction ACEIMG.

Fiori Apps Relevant for Purchase Order Accruals

Fiori ID	Description	Comment
F3928	Display Purchase Order Accruals	Replaces SAP GUI transaction POACTREE03
F3778	Schedule Accrual Jobs	App for scheduling jobs related to purchase order accruals, for example jobs for transfer of purchase orders into accrual engine (transaction POAC_MM2ACE_TRANSFER), propose periodic accruals (transaction ACEPROPOSALRUN), post accruals (transaction ACEPOSTINGRUN).
F3552	Review Purchase Order Accruals for Cost Accountant	Worklist for reviewing the periodic accrual amounts. Intended to be used by a Controller. Replaces transaction FACRARVWCO.
F3732	Analyze Accrual Postings	Line item reporting on journal entry line items that were posted by the Accrual Engine.
F3517	My Inbox	Tasks for reviewing the proposed accrual amounts at end of each period appear as workitems in the app *My Inbox*. The recipients of these workitems are the purchase order owners, for example the goods recipients. The workitems are generated by the proposal run.
F3625	Manage Workflows for Purchase Order Accruals Review	App to configure the workflow for reviewing the proposed accrual amounts. The logic how to determine the recipients of the workitems can be influenced with this app.

Review Screen in *My Inbox* (for Purchase Order Owner) Example



For period 11/2018 the system proposes 1.100 EUR as planned costs.

The reviewer can adjust the 1.100 EUR by either manually overwriting the proposed amount - or by adjusting the Percentage of Completion.

Some data of the accrual object are shown: Total amount of the PO item and the life time that was determined from the PO item.

If the reviewer has adjusted the proposed amount, he needs to enter a reason and can optionally add a comment.

Note: The possible values for the reason can be defined in Configuration.

Some details of the PO item are displayed

Finally the reviewer needs to confirm to close the workitem: He can of course also confirm without adjusting the proposed amount.

Review of Accruals using *My Inbox*

- The workitems for reviewing the proposed accrual amount are generated by the periodic accrual proposal run, transaction ACEPROPOSALRUN, usually at the end of the fiscal period.
- The generated workitems appear in the Fiori app *My Inbox* of the user that is determined by the system as recipient, see separate slide for receiver determination. The recipient is usually the “PO Owner”, typically the requisitioner or goods recipient.

E-Mail Notifications

- The workflow can be configured to generate e-mails each time a workitem is created or forwarded to another user.
- The procedure how to perform this configuration is described in this blog.
- The workflow scenario ID is WS78500077.
  So the ID of the e-mail template will be YY1_78500077_CRT_ALL .
- According to the blog, the following Fiori apps are relevant:
  - There is a group of Fiori apps called *Workflow Administrator;* it includes for example
  - Maintain Email Templates
  - Display Email Transmissions
  - Application Logs: Use subcategory WIM_ACTION

Receiver Determination for the Review Workitem

- The workitems that ask the PO owner to perform the review of the accruals (or percentage of completion) for a PO item in a given period are generated by the job template *Accruals for POs - Propose Period Amounts*.

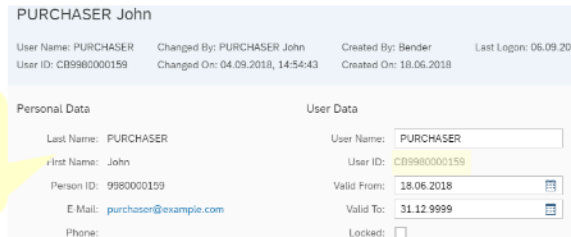
- These workitems will appear in the app *My Inbox*.

- By default, the system determines the receiver of the workitem according to the following logic:
  1. If a User ID is entered in as **Goods Recipient** the PO item, then this user will be the receiver of the workitem: The workitem will appear in the app *My Inbox* of this user.
  2. If no or no valid User ID is entered as goods recipient the PO item, then the system uses the **Requisitioner** of the PO item.
  3. If no or no valid User ID is entered as requisitioner in the PO item, the system uses the **Creator** of the purchase order item.

  If this logic does not fit your requirements, you can use the Fiori app *Manage Workflows for PO Accruals Review* to configure the logic how the receiver of the workitem is determined.

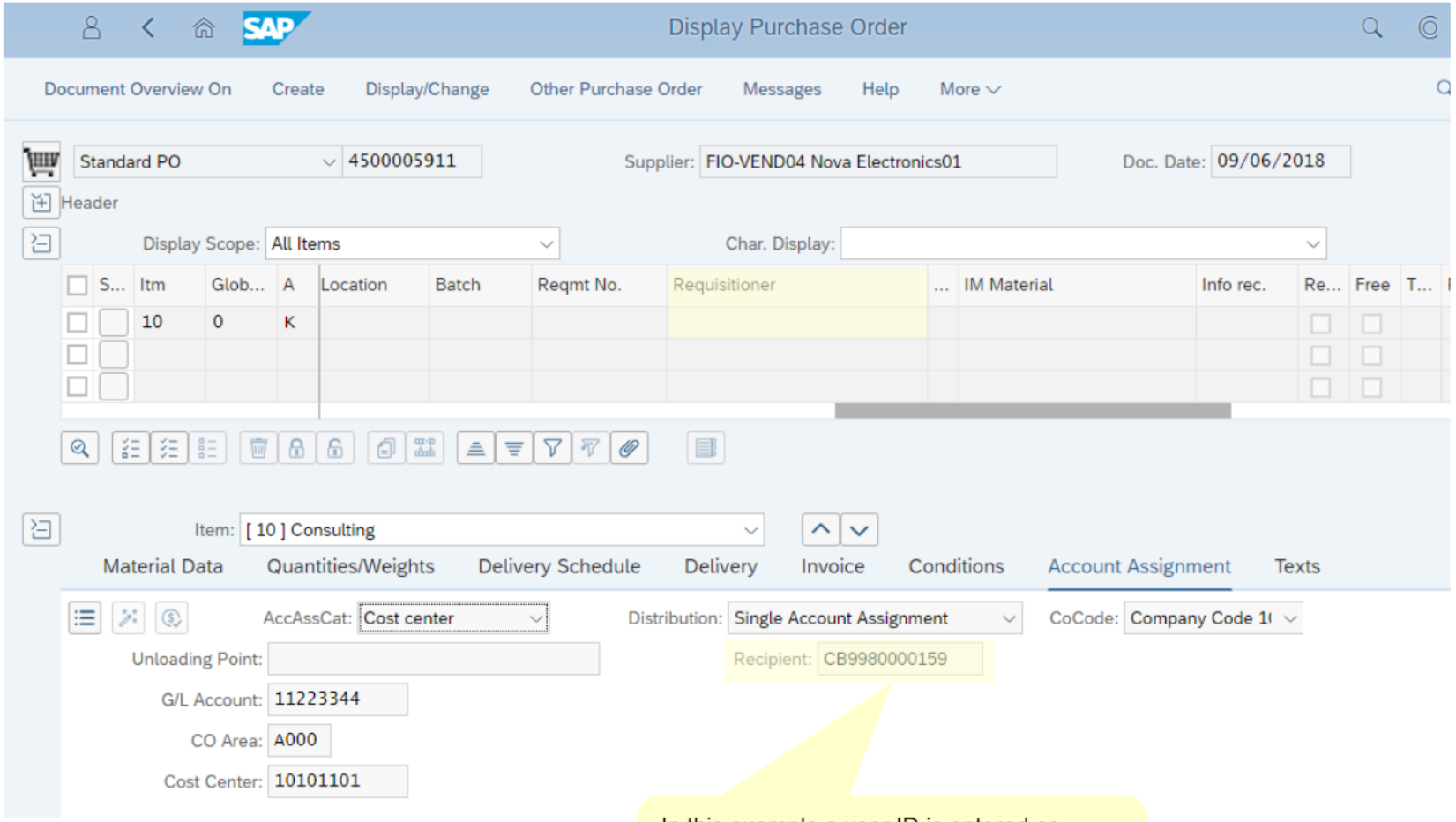
- In rel. CE 1811 this logic cannot be changed by Configuration.
  From rel. CE 1902 the logic can be changed using the Fiori app *Manage Workflows for Purchase Order Accruals Review*.

- Note that a **User ID**, not User Name needs to be entered in the mentioned fields of the PO item
  The technical reason is that the user name is 40 characters which is too long and does not fit into the field *Goods Recipient* for example.

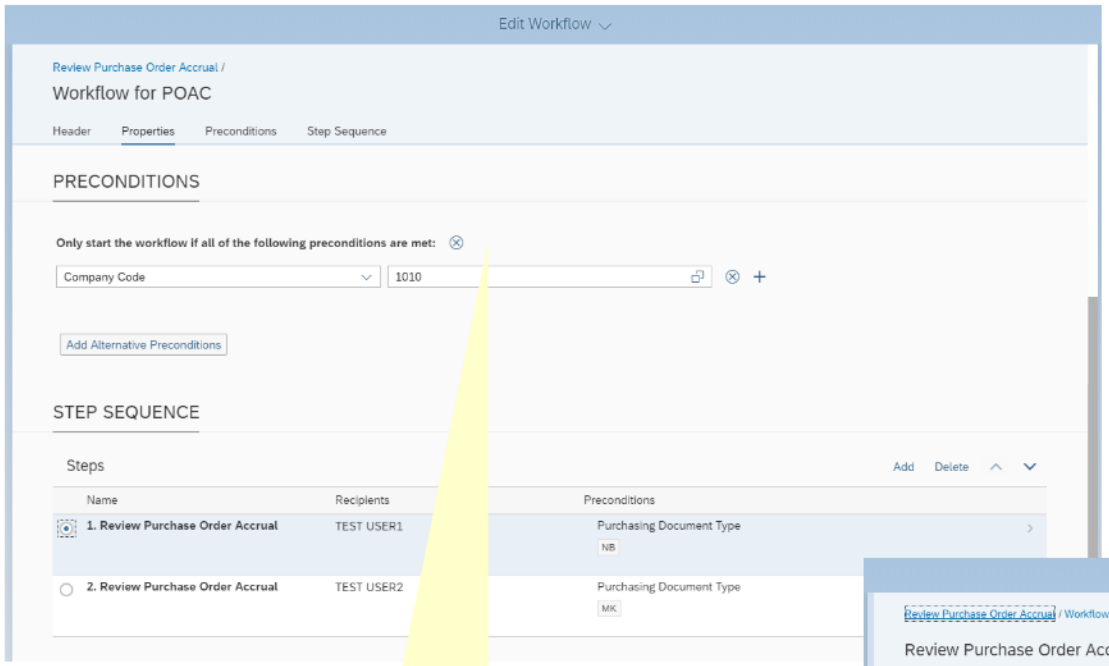


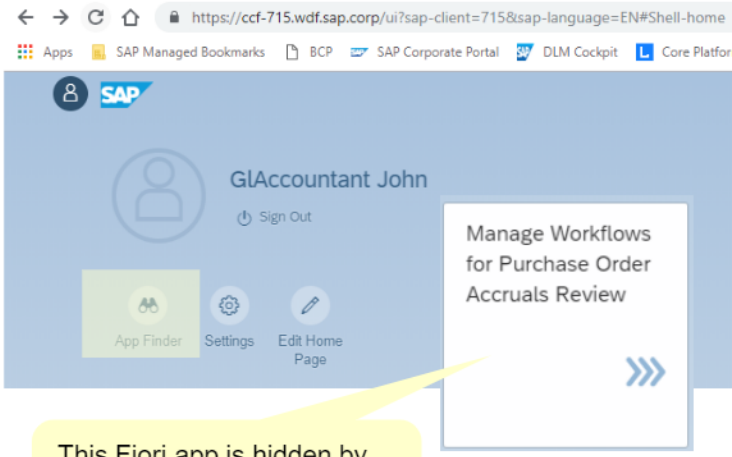
Screen-shot of Fiori app Maintain Business Users

Receiver Determination: Screen-Shot of PO Display Screen



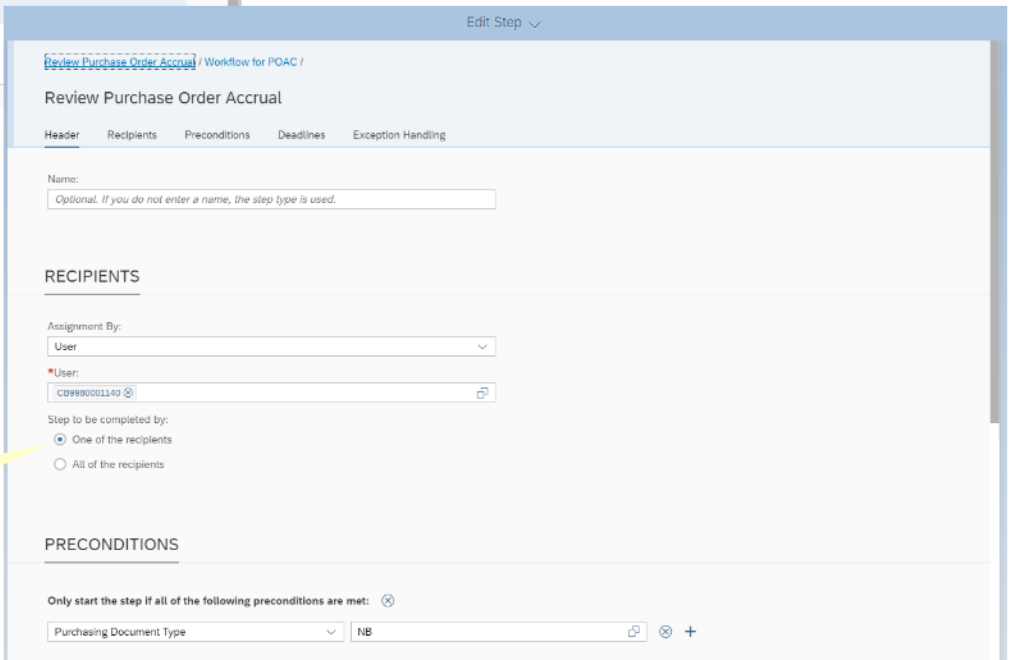
Receiver Determination: Configure Workflow





This Fiori app is hidden by default: But you can find it using the **App Finder**.

Use the Preconditions section to define recipients for a particular Company Code, Cost Center etc



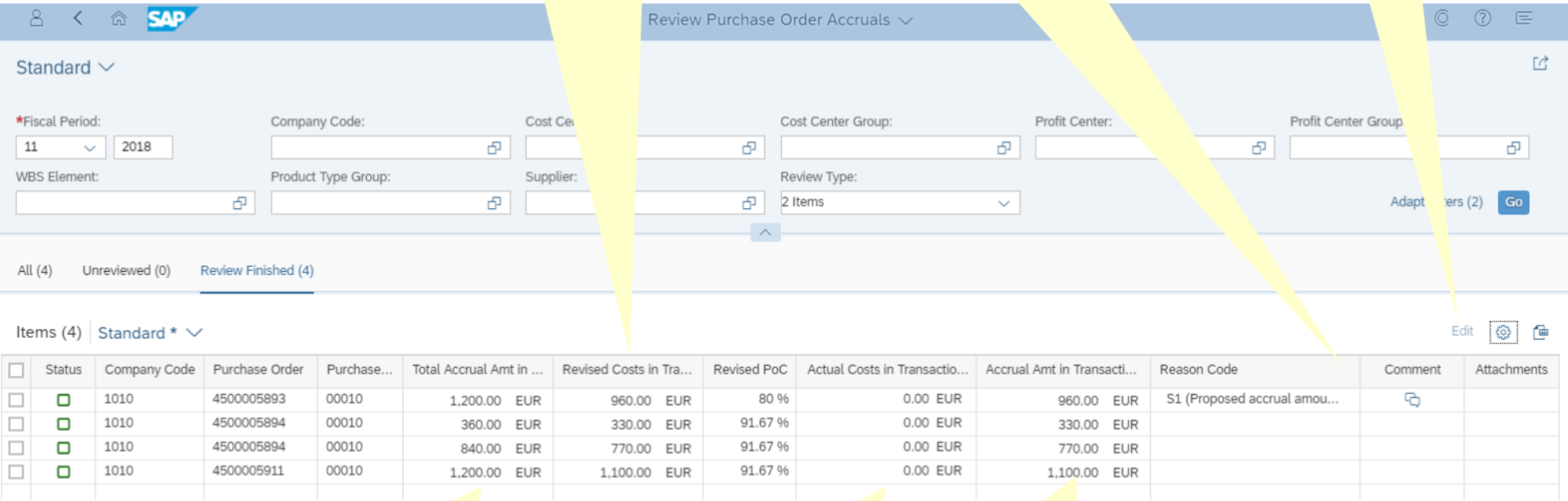
For each workflow step define the user to receive the notification. You can also define further preconditions.

Fiori App
Review Purchase Order Accruals – For Cost Accountant

Revised (planned) **Costs**: The reviewer can adjust the proposed planned costs in this column. By doing so he implicitly adjusts the percentage of completion and the accruals.

If the reviewer adjusts the revised costs, he has to enter a reason code and can enter also a comment and/or add an attachment.

The review can be done here in this app by pressing the **Edit** button



Status	Company Code	Purchase Order	Purchase...	Total Accrual Amt in ...	Revised Costs in Tra...	Revised PoC	Actual Costs in Transactio...	Accrual Amt in Transacti...	Reason Code	Comment	Attachments
	1010	4500005893	00010	1,200.00 EUR	960.00 EUR	80 %	0.00 EUR	960.00 EUR	S1 (Proposed accrual amou...		
	1010	4500005894	00010	360.00 EUR	330.00 EUR	91.67 %	0.00 EUR	330.00 EUR			
	1010	4500005894	00010	840.00 EUR	770.00 EUR	91.67 %	0.00 EUR	770.00 EUR			
	1010	4500005911	00010	1,200.00 EUR	1,100.00 EUR	91.67 %	0.00 EUR	1,100.00 EUR			

Total amount of this PO item / account assignment. If there is only one account assignment in the PO item, then this amount is identical to the net value of hte PO item.

Actual costs. These are the costs that have been posted by **supplier invoices and goods receipts** with a posting date before or equal to the key date (here 30.06.2018).

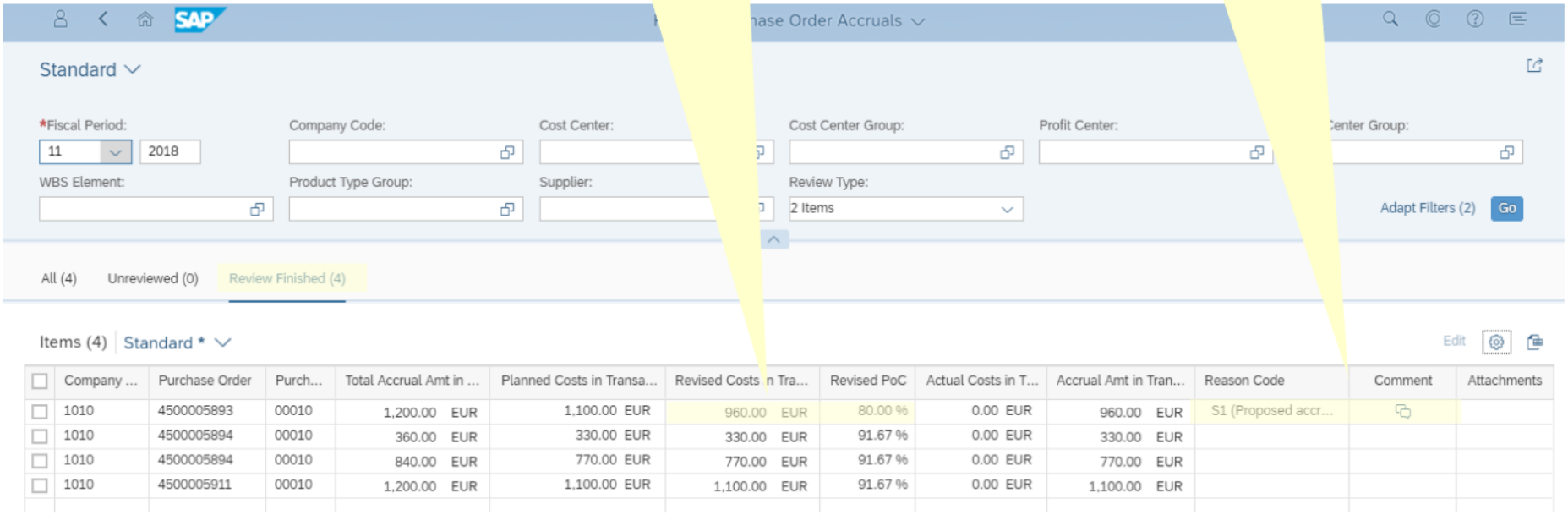
The **accruals** are calculated automatically as revised costs **minus** actual costs. This means that the system assumes that the planned costs reflect reality: The missing costs need to be posted as accruals.

Fiori App
Review Purchase Order Accruals – For Cost Accountant

- A controller can use the Fiori app *Review Purchase Order Accruals – For Cost Accountant* to monitor the review process: In the worklist he can see whether the review was performed by the PO owners, that is, whether they have processed their review workitems.
- The review can also be performed in this app directly by the Controller.

The system had proposed 1100 EUR as planned costs, but the reviewer has reduced them to 960 EUR.

Reason code, comment and attachments that were for example added in the workitem in *My Inbox* by the PO owner are visible in this worklist.



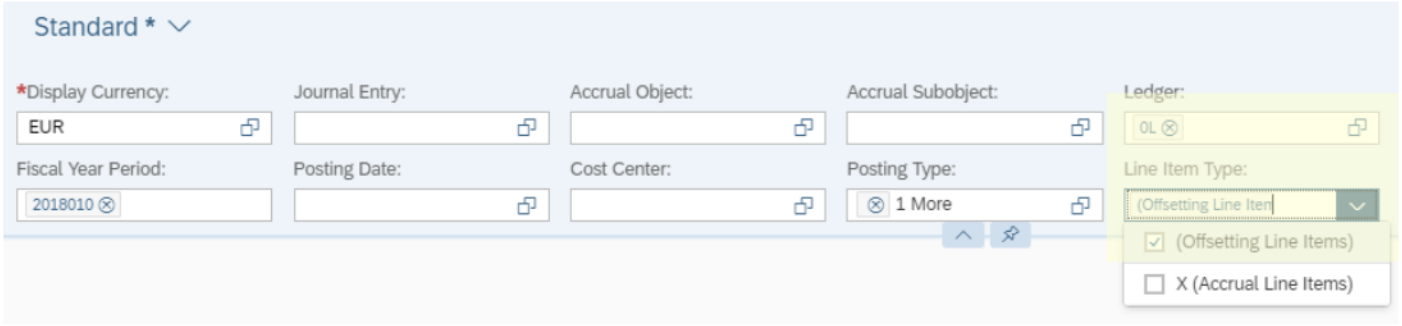
Company ...	Purchase Order	Purch...	Total Accrual Amt in ...	Planned Costs in Transa...	Revised Costs in Tra...	Revised PoC	Actual Costs in T...	Accrual Amt in Tran...	Reason Code	Comment	Attachments
1010	4500005893	00010	1,200.00 EUR	1,100.00 EUR	960.00 EUR	80.00 %	0.00 EUR	960.00 EUR	S1 (Proposed accr...		
1010	4500005894	00010	360.00 EUR	330.00 EUR	330.00 EUR	91.67 %	0.00 EUR	330.00 EUR			
1010	4500005894	00010	840.00 EUR	770.00 EUR	770.00 EUR	91.67 %	0.00 EUR	770.00 EUR			
1010	4500005911	00010	1,200.00 EUR	1,100.00 EUR	1,100.00 EUR	91.67 %	0.00 EUR	1,100.00 EUR			

Reporting for Accrual Postings: Analyze Accrual Postings

- The Fiori app *Analyze Accrual Postings* offers a line item reporting for postings that were performed by the Accrual Engine, i.e.
- by the job template *Accrual Engine for POs – Periodic Posting Run* or
- by transaction ACEPOSTINGRUN.

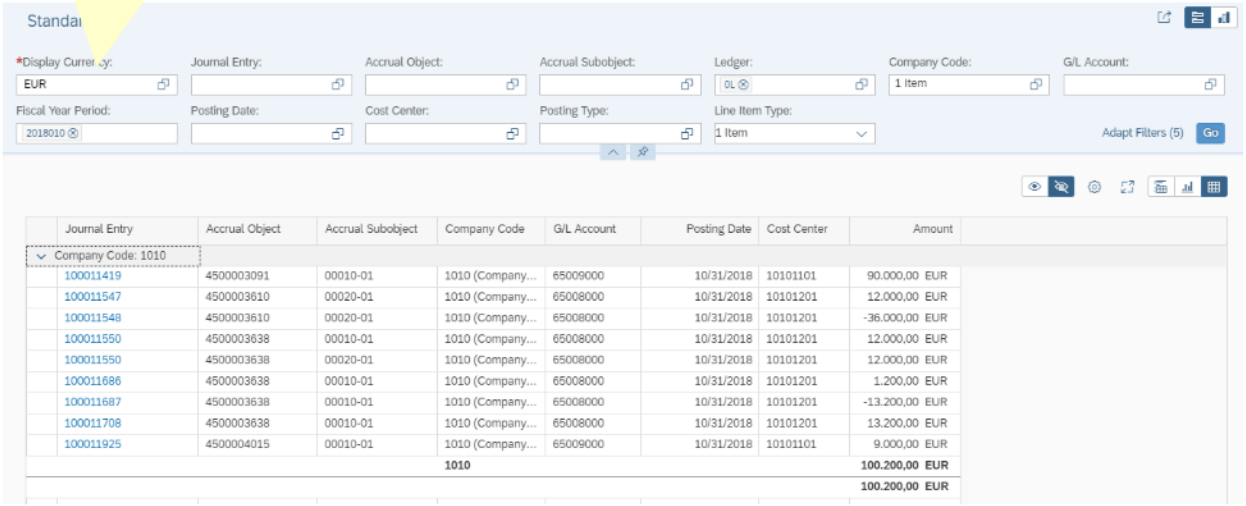
- Important in the filterbar of this report is the field *Line Item Type*:
- Accrual postings consist usually of two line items that together balance to zero amount.
- If the report would show all line items, all totals would be zero and most of the charts would also show zero amounts.
- That's why the report shows only "half" documents: By default the report shows the offsetting entries, that is, it does not show the line item that post to the accrual account. Instead it shows the line items that post the offsetting account – which is usually a P&L account.
- The filter can be changed to show either the line items that post to the accrual account – or all line items.

- **Note**: Changing BTTYPE during journal entry posting from 'ACEA' to any other values via custom logic will result in this journal entry be excluded from this reporting



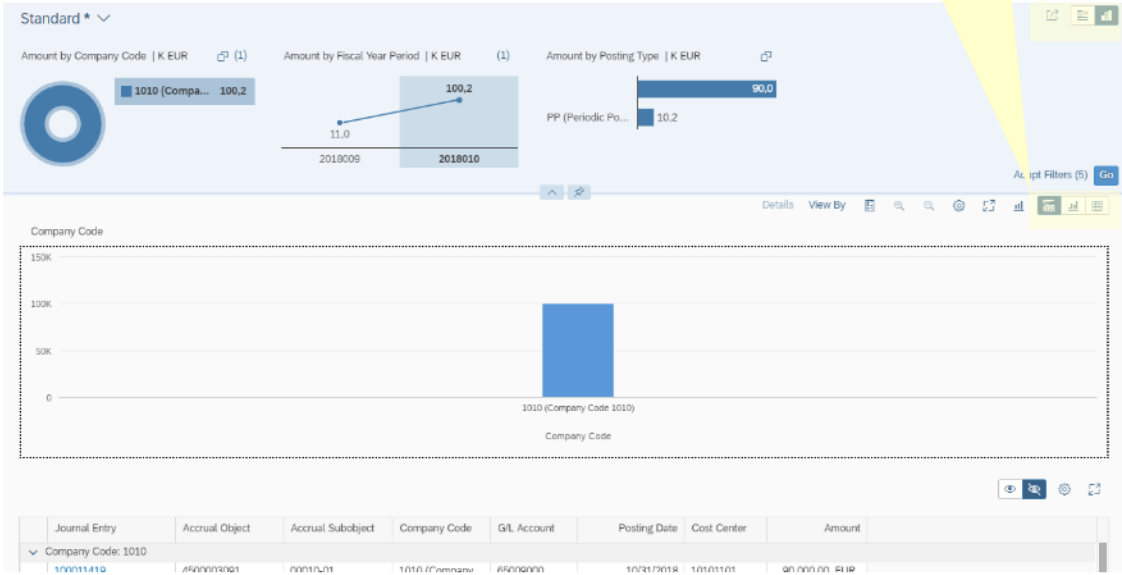
Fiori App *Analyze Accrual Postings*: Features

All amounts are shown in a selected Display Currency.



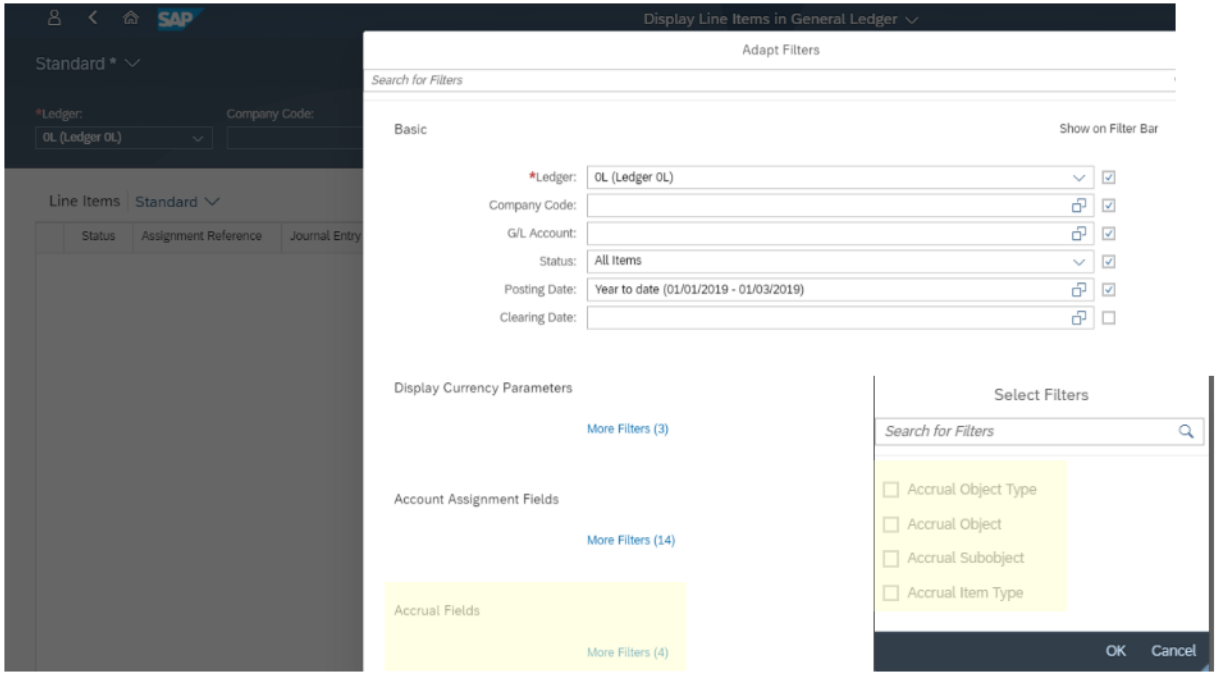
Journal Entry	Accrual Object	Accrual Subobject	Company Code	G/L Account	Posting Date	Cost Center	Amount
Company Code: 1010							
100011419	4500003091	00010-01	1010 (Company...	65009000	10/31/2018	10101101	90.000,00 EUR
100011547	4500003610	00020-01	1010 (Company...	65008000	10/31/2018	10101201	12.000,00 EUR
100011548	4500003610	00020-01	1010 (Company...	65008000	10/31/2018	10101201	-36.000,00 EUR
100011550	4500003638	00010-01	1010 (Company...	65008000	10/31/2018	10101201	12.000,00 EUR
100011550	4500003638	00020-01	1010 (Company...	65008000	10/31/2018	10101201	12.000,00 EUR
100011686	4500003638	00010-01	1010 (Company...	65008000	10/31/2018	10101201	1.200,00 EUR
100011687	4500003638	00010-01	1010 (Company...	65008000	10/31/2018	10101201	-13.200,00 EUR
100011708	4500003638	00010-01	1010 (Company...	65008000	10/31/2018	10101201	13.200,00 EUR
100011925	4500004015	00010-01	1010 (Company...	65009000	10/31/2018	10101101	9.000,00 EUR
			1010				**100.200,00 EUR**
							100.200,00 EUR

Graphical charts can be displayed for filtering data and for visualization of result.



Fiori App *Display Line Items in General Ledger*

- In the Fiori app *Display Line Items in General Ledger* the accrual object fields are available as additional filter.
- The fields can also be shown in the result list: They are available as additional columns in the Settings dialog.



Screen-shot from the Adapt Filters dialog.

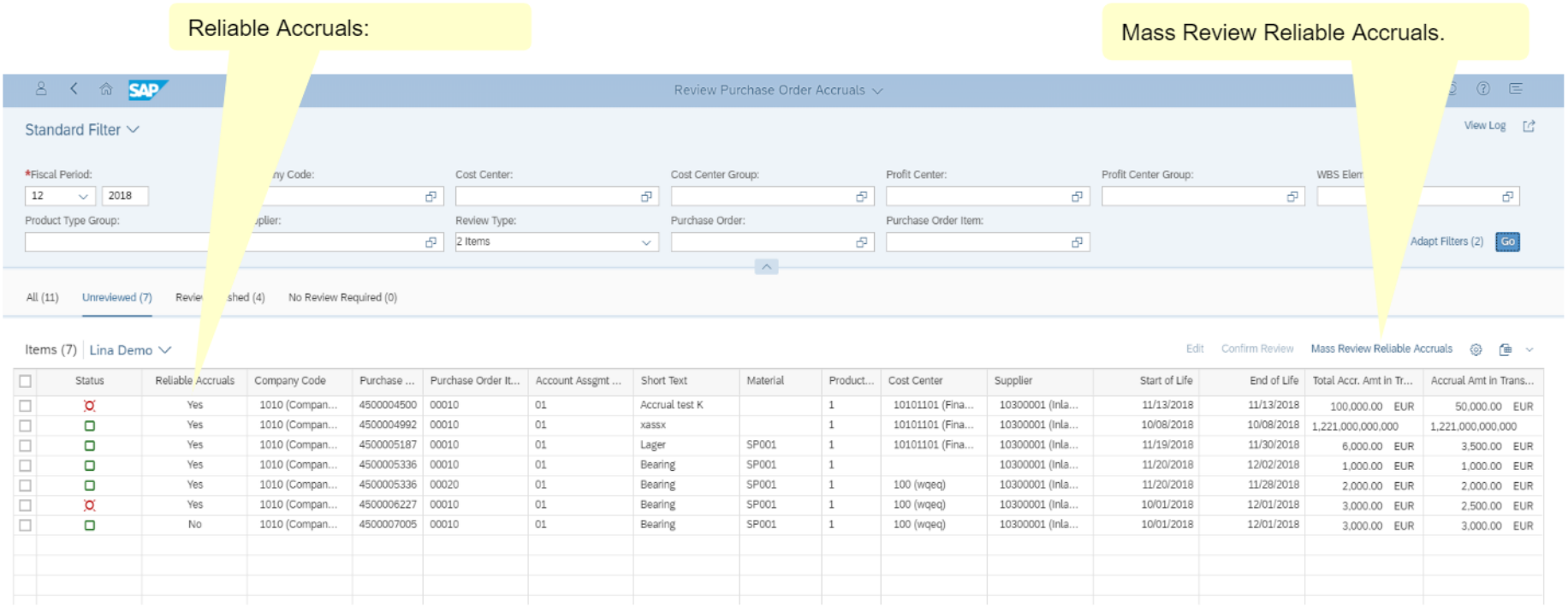
Available only in Fiori:
Machine Learning
For
Review of Periodic Accrual Amounts

Machine Learning: Purpose

- Machine Learning supports the review of periodic accrual amounts at the end of the fiscal periods.
- The machine judges the accrual amounts that are proposed by the proposal run, that is, by the job template *Accrual Engine for POs – Propose Period Amounts.*
  - The job template can be found in Fiori app *Schedule Accrual Jobs*.
- The machine provides for each purchase order item the info whether the proposed accrual amount is reliable, i.e. the info whether the reviewer can accept the proposed accrual amount without need to adjust it.
  Note: The machine does not adjust the accrual amount itself, it just provides a yes/no judgement whether the proposed accrual amount might need to be manually adjusted by a reviewer or not.
- For this purpose in the Fiori app *Review Purchase Order Accruals - For Cost Accountant* the additional column *Confidence Level* is available:
  This column contains a percentage that expresses the machine's judgement how reliable the proposed accruals are. If the value is above 50%, the judgement is regarded as reliable.
- By clicking on the button *Mass Review Reliable Accruals*, the app will mark all items as reviewed for which the result of the machine is reliable , i.e. for which *Reliability Rating* is above 50%.

Machine Learning: Review App

- ML service will give the recommendation whether system proposed
- The machine judges the accrual amounts that are proposed by the proposal run, that is, by the job template *Accrual Engine for POs – Propose Period Amounts*:



Status	Reliable Accruals	Company Code	Purchase ...	Purchase Order It...	Account Assgmt ...	Short Text	Material	Product...	Cost Center	Supplier	Start of Life	End of Life	Total Accr. Amt in Tr...	Accrual Amt in Trans...
	Yes	1010 (Compan...	4500004500	00010	01	Accrual test K		1	10101101 (Fina...	10300001 (Inla...	11/13/2018	11/13/2018	100,000.00 EUR	50,000.00 EUR
	Yes	1010 (Compan...	4500004992	00010	01	xassx		1	10101101 (Fina...	10300001 (Inla...	10/08/2018	10/08/2018	1,221,000,000,000	1,221,000,000,000
	Yes	1010 (Compan...	4500005187	00010	01	Lager	SP001	1	10101101 (Fina...	10300001 (Inla...	11/19/2018	11/30/2018	6,000.00 EUR	3,500.00 EUR
	Yes	1010 (Compan...	4500005336	00010	01	Bearing	SP001	1		10300001 (Inla...	11/20/2018	12/02/2018	1,000.00 EUR	1,000.00 EUR
	Yes	1010 (Compan...	4500005336	00020	01	Bearing	SP001	1	100 (wqeq)	10300001 (Inla...	11/20/2018	11/28/2018	2,000.00 EUR	2,000.00 EUR
	Yes	1010 (Compan...	4500006227	00010	01	Bearing	SP001	1	100 (wqeq)	10300001 (Inla...	10/01/2018	12/01/2018	3,000.00 EUR	2,500.00 EUR
	No	1010 (Compan...	4500007005	00010	01	Bearing	SP001	1	100 (wqeq)	10300001 (Inla...	10/01/2018	12/01/2018	3,000.00 EUR	3,000.00 EUR

Machine Learning: How to Use

- In order to enable the machine to return reasonable results, it must be trained on a regular basis.
- For training the machine the job template ***Train Accruals Prediction Model on Historical Data*** is available in the Fiori app *Schedule Accrual Jobs.*
  Historical data means the review data from previous fiscal periods: The most important info for the machine is: For which purchase order items did the reviewers manually adjust the proposed accrual amounts – and for which purchase order items did the reviewers accept the proposed accrual amount without adjusting it.
- In other words, you can start using the machine learning only after you were using the manual review process for purchase order accruals for several fiscal periods already. Because you need sufficient data to train the machine.
- SAP recommends the following minimum amount of data:
  - Number of purchase order items: 10.000
  - Number of previous fiscal periods: 2 Years
- After the machine was trained, the machine can be “asked” to provide its judgement whether for a given purchase order item the accrual amount likely needs to be adjusted by a reviewer or not. This is done using the job template ***Infer Accruals from Prediction Model***.
- This job template needs to be scheduled after the job template *Accrual Engine for POs – Propose Period Amounts* has been scheduled.

Reporting

Reporting of Accrual Engine Postings

- In release S/4HANA 1909 reporting of accrual engine postings is possible with Fiori apps.
  - Fiori app ***Analyze Accrual Postings***
    This app is similar to the regular G/L line item reporting app, but selects only line items that were posted by the Accrual Engine.
  - Fiori app **Display Line Items in General Ledger**
    The accrual object and other fields related to the Accrual Engine are available as optional fields that a user can unhide.
  - The Fiori apps are described in the separate chapter for Fiori apps.
- Also in some SAP GUI reporting transactions, the accrual object and other fields related to the Accrual Engine are available, see next slides.

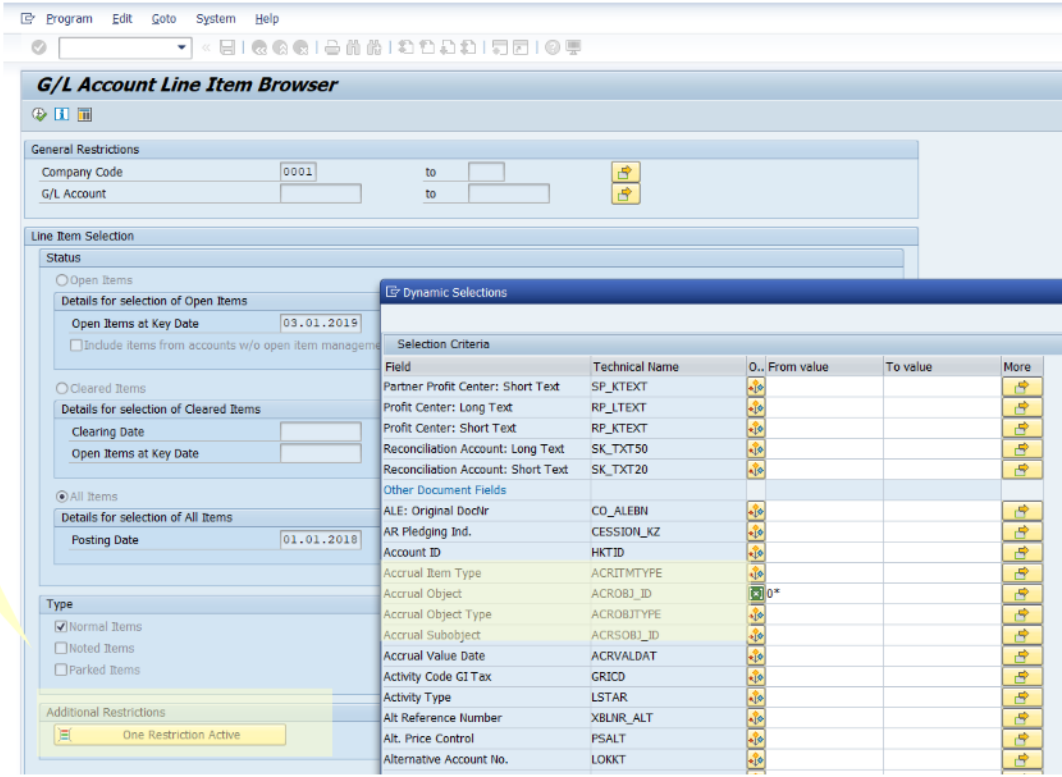
Accrual Object in G/L Line Item Reports: Selection Screen

- In the G/L Line Item Browsers, transactions FAGLL03H and FBL3H the accrual object is available as field
  - In the selections screen and
  - In the result list

- In release 1809, support package 0-2 you need to apply the note 2736673 in order to enable the accrual object fields in these transactions.

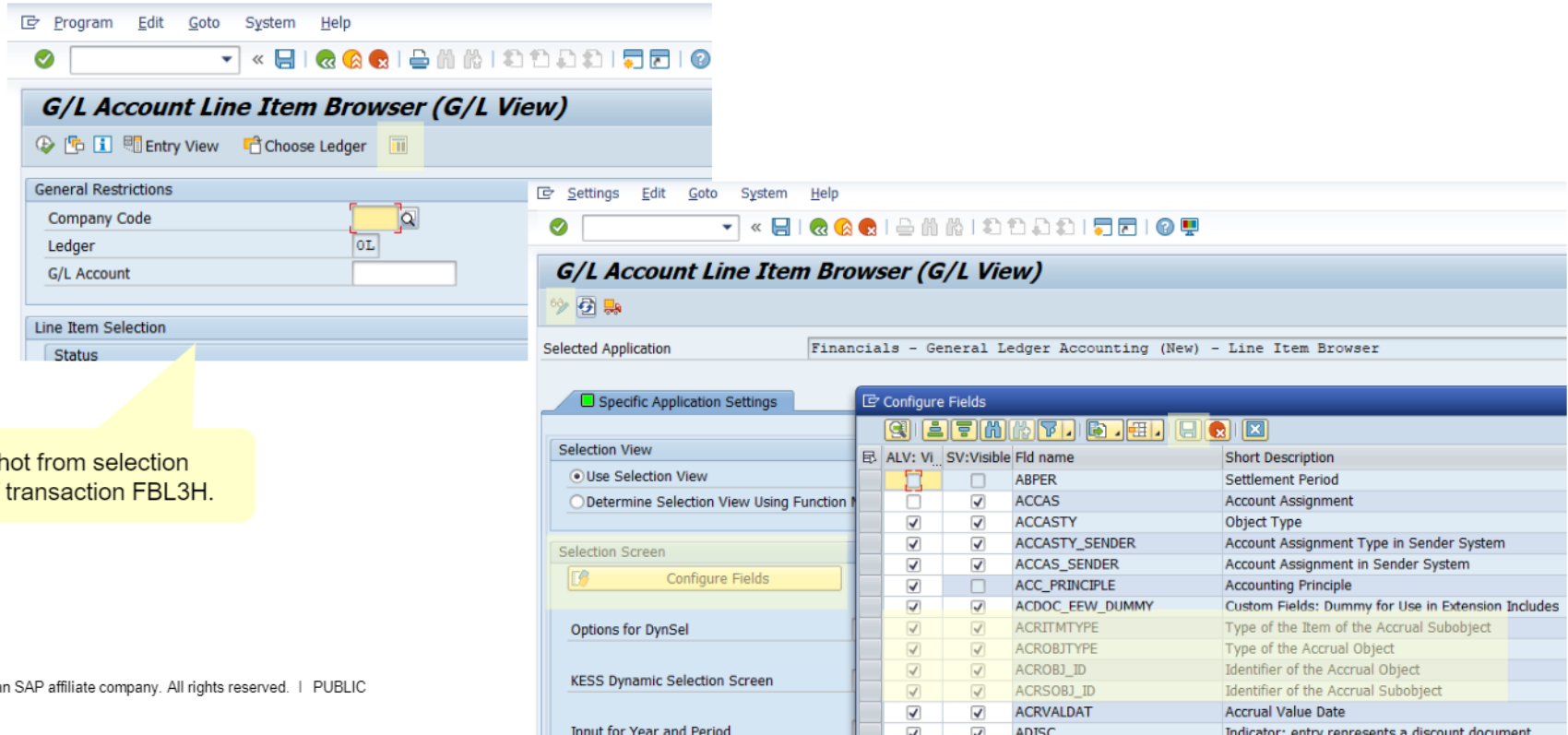
Screen-shot from selection screen of transaction FBL3H:

The accrual object fields are available as Additional Restrictions.



G/L Line Item Reports: Configure Fields

- If the accrual object fields are not visible in the *Additional Restrictions* popup, you need configure the visibility of the fields accordingly:
  1. In the selection screen of transaction FAGLL03H and FBL3H click on the *Settings* icon (Ctrl+F4).
  2. In the next screen click switch to edit mode, then click on the *Configure Fields* button.
  3. In the popup set the checkboxes in both columns for the fields ACR* and click on the *Save* icon in the popup.

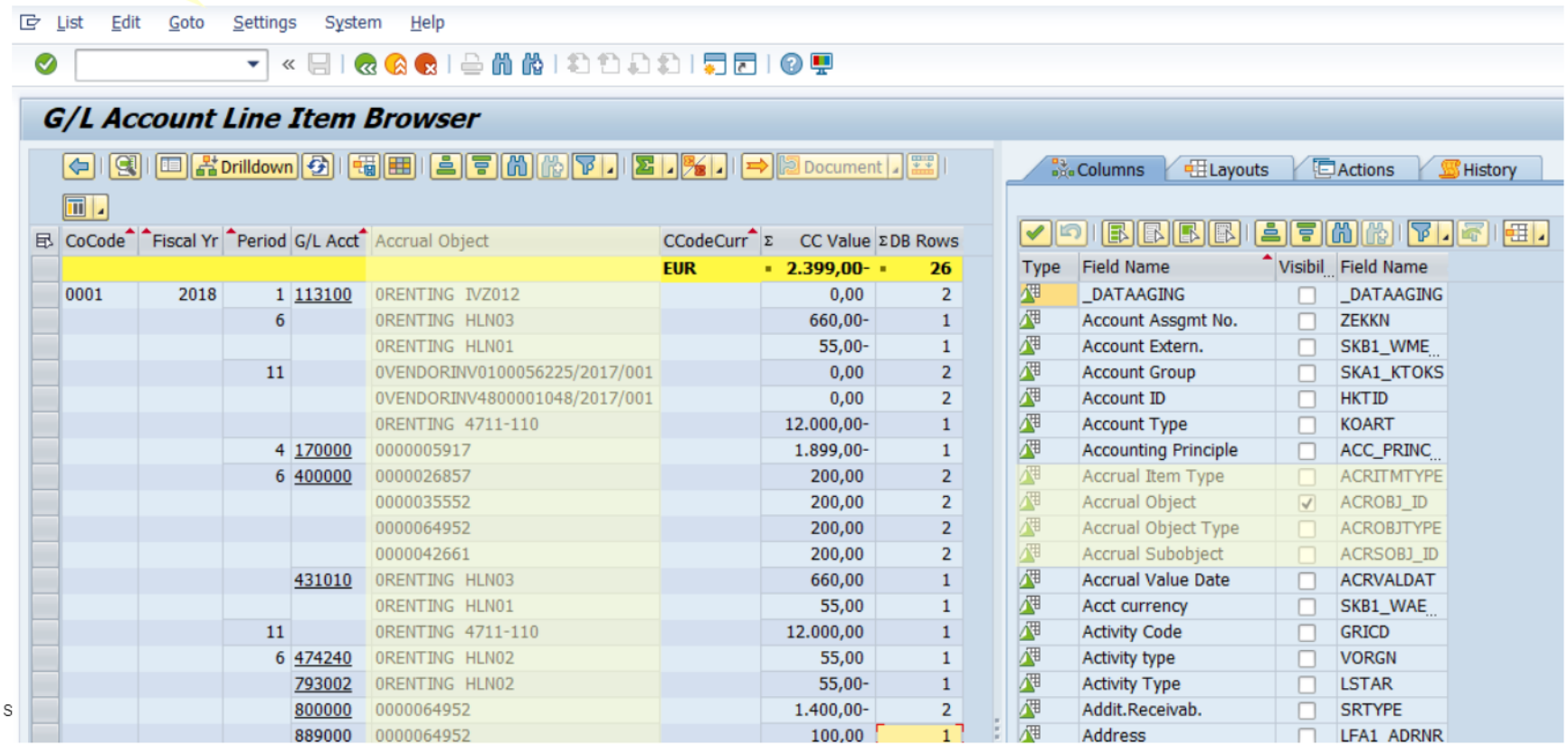


Screen-shot from selection screen of transaction FBL3H.

Accrual Object in G/L Line Item Reports: Result List

- In transactions FAGLL03H and FBL3H the accrual object is available as column in the result list.

Screen-shot from result list of transaction FBL3H.



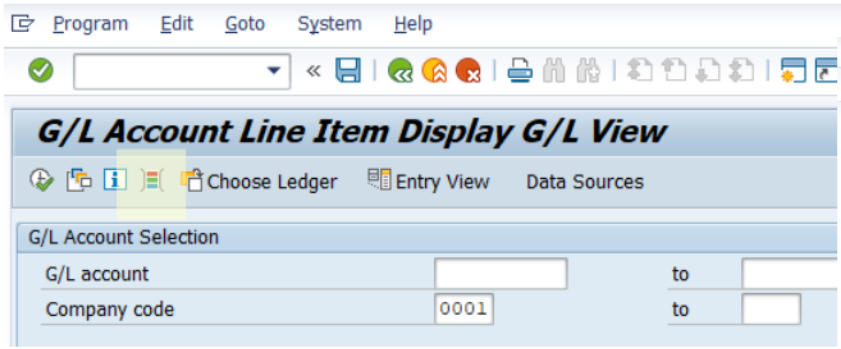
CoCode	Fiscal Yr	Period	G/L Acct	Accrual Object	CCodeCurr	CC Value	DB Rows
					EUR	2.399,00-	26
0001	2018	1	113100	0RENTING IVZ012		0,00	2
		6		0RENTING HLN03		660,00-	1
				0RENTING HLN01		55,00-	1
		11		0VENDORINV0100056225/2017/001		0,00	2
				0VENDORINV4800001048/2017/001		0,00	2
				0RENTING 4711-110		12.000,00-	1
		4	170000	0000005917		1.899,00-	1
		6	400000	0000026857		200,00	2
				0000035552		200,00	2
				0000064952		200,00	2
				0000042661		200,00	2
			431010	0RENTING HLN03		660,00	1
				0RENTING HLN01		55,00	1
		11		0RENTING 4711-110		12.000,00	1
		6	474240	0RENTING HLN02		55,00	1
			793002	0RENTING HLN02		55,00-	1
			800000	0000064952		1.400,00-	2
			889000	0000064952		100,00	1

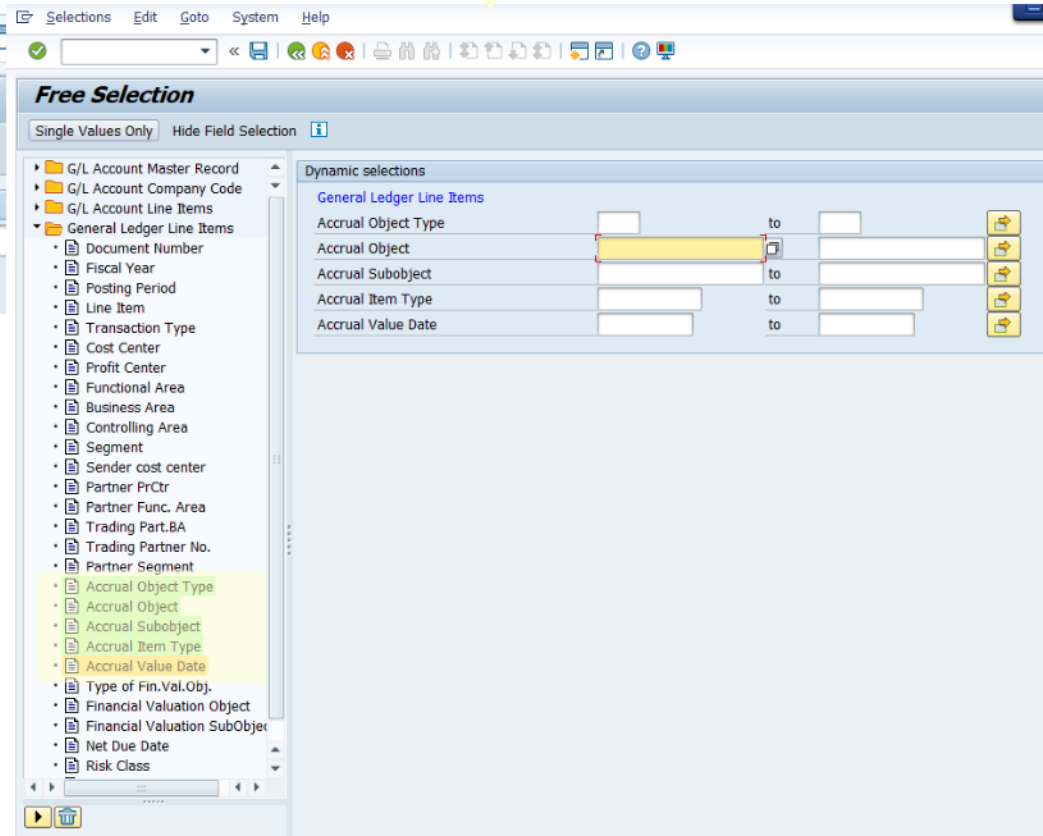
Type	Field Name	Visibil...	Field Name
	_DATAAGING	☐	_DATAAGING
	Account Assgmt No.	☐	ZEKKN
	Account Extern.	☐	SKB1_WME...
	Account Group	☐	SKA1_KTOKS
	Account ID	☐	HKTID
	Account Type	☐	KOART
	Accounting Principle	☐	ACC_PRINC...
	Accrual Item Type	☐	ACRITMTYPE
	Accrual Object	☑	ACROBJ_ID
	Accrual Object Type	☐	ACROBJTYPE
	Accrual Subobject	☐	ACRSOBJ_ID
	Accrual Value Date	☐	ACRVALDAT
	Acct currency	☐	SKB1_WAE...
	Activity Code	☐	GRICD
	Activity type	☐	VORGN
	Activity Type	☐	LSTAR
	Addit.Receivab.	☐	SRTYPE
	Address	☐	LFA1_ADRNR

Accrual Object in G/L Line Item Reports: TA FAGLL03

- In transactions FAGLL03 and FAGLB03 the accrual object is also available as column as free selection and in the result list.

Screen-shot from free-selectionsc screen of transaction FAGLL03.





Archiving
Accrual Objects and Accrual Postings

Archiving: Available as of Release 1809 SP3

- Archiving of accrual objects is supported from release S/4HANA 1809 support package 3 onwards.
- If you are using an earlier support package (0-2) you need to apply SAP note 2800607.
- The note 2800607 contains a downport of several new features of the Accrual Engine.
  - That's why this note contains many program corrections.

Archiving

- Archiving in the Accrual Engine consists of several aspects:
  - Archiving of accrual objects
  - Archiving of journal entry line items that have a reference to an accrual object.

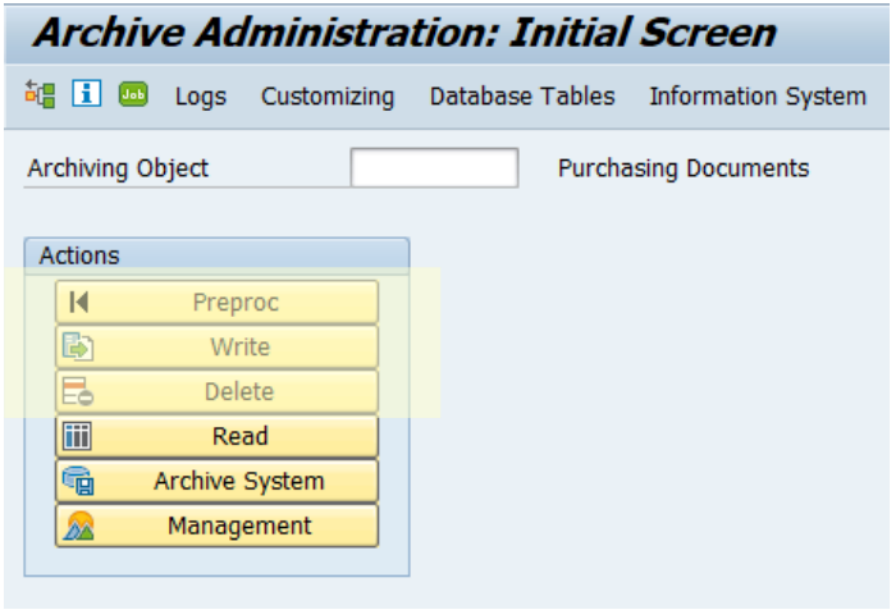
- The current restriction is that journal entry line items that have a reference to an accrual object can only be archived after the accrual object was archived.
  - A corresponding check is implemented in the archiving program for journal entries.

- In application Purchase Order Accruals there is a dependency between the purchase order and the corresponding accrual object in terms of archiving:
  - A purchase order can only be archived if there are no accruals any more for any purchase order item of this purchase order:
    - The balance of the accruals must be zero.
  - An accrual object is automatically marked as *To be Archived* only when the purchase order is marked as *Deleted*.
    - The archiving preparation run for the purchase order marks the purchase order as *Deleted* in order to indicate that it can be archived.

Archiving: Steps

- Like for all other archiving objects also the archiving of accrual objects consists of 3 steps:
  1. **Preprocessing**: Execute the preprocessing program.
  2. **Write data to archive file**: Execute the write program.
  3. **Delete data from database tables**: Execute the deletion program.

- All three steps can be executed using transaction SARA, see screen-shot.



Archiving of Accrual Objects: Preprocessing Run

- Prerequisite for archiving an accrual object is to execute the archiving preprocessing program for the **purchase order**.
  - *Archiving Object* for the purchase order is **MM_EKKO** (see transaction SARA).
  - The preprocessing run for the purchase order archiving (program RM06EV70) can be started within transaction SARA.

- The preprocessing program for the purchase order archiving performs the following steps that are relevant for accruals:
  1. Check that the balance of the accrual object is zero (if an accrual object exists of course).
  2. Mark the purchase order as Deleted.
     - Technically it sets the field LOEKZ = L in table EKKO.
  3. Mark the accrual object as To be Archived.
     - Technically it sets the field XARCHIVED = X in table ACESOBJ.

- After executing the archiving preprocessing program for the purchase order, the
  - writing of data into the archive and the
  - final deletion of the data from the database tables

  can be performed **independently** for the purchase order and the accrual object.

Archiving of Accrual Objects: Write To Archive File

- The program that writes the accrual object data into the archive file can be started using transaction SARA for archiving object **FI_ACEOBJS**.
  - The technical program name is FI_ACEOBJS_WRI.
- This program writes the accrual objects into the archive file.
  - The list of database tables that are written into the archive file can be displayed with transaction AOBJ.
  - These are tables ACESOBJ*.
- In addition to the accrual objects, also the journal entries that were posted by this accrual object are written into the archive file of the accrual object.
  - This is necessary, because the next step, the deletion program will clear the accrual object reference fields in those journal entry line items in table ACDOCA.
  - By writing the journal entry line items into the archive file, it is documented that the journal entries had a reference to the accrual object.

Archiving of Accrual Objects: Delete from Database Tables

- The program that writes the accrual object data into the archive file can be started using transaction SARA for archiving object **FI_ACEOBJS**.
  - The technical program name is FI_ACEOBJS_DEL.
- This program deletes the accrual objects form the database tables.
  - The list of database tables that are written into the archive file can be displayed with transaction AOBJ.
  - These are tables ACESOBJ*.
- After deleting the accrual objects, this program also clears the accrual object fields in the journal entry line items that were posted by the Accrual Engine.
  - Technically, the content of the following fields is cleared in table ACDOCA:
    - ACROBJTYPE
    - ACROBJ_ID
    - ACRSOBJ_ID
    - ACRITMTYPE
  - This clearing of the reference fields is necessary because the content of these fields is carried forward by the G/L balance carry forward run to the next year.
    - If the fields would not be cleared in the line items after archiving of the accrual object, the G/L balance carry forward run could not aggregate the line items with other line items that were posted to the same G/L accounts:
    - Over the years, more and more “senseless” fine-grained records would be carried forward on accrual object level – despite the accrual objects do not exist any more.

Archiving of Journal Entry Line Items

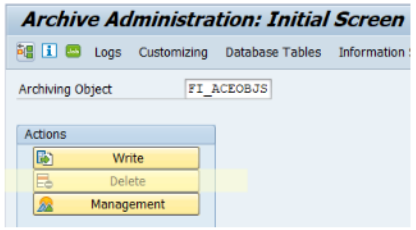
- There are two types of journal entry line items that are treated differently with respect to archiving:
  - Journal entry line items that the Accrual Engine has posted
  - Journal entry line items that were generated by the migration from old to (new) S/4HANA Accrual Engine.
    - Currently this point is relevant for appl. *Manual Accruals* only.

- Archiving of line items that were posted by the Accrual Engine.
  - The current restriction is that first the accrual object has to be archived.
  - After the accrual object was archived, the journal entry line items can be archived with the archiving object of the journal entry **FI_DOC_PPA** or FI_DOCUMNT.

- Archiving of journal entry line items that were generated by the migration from old to (new) S/4HANA Accrual Engine
  - These line items do not have an entry in table BKPF, that is, they do not have a journal entry header.
  - That's why they cannot be archived with the archiving object of the journal entry.
  - During archiving of the accrual object, these line items are written into the archive file of the accrual object.
  - After the accrual object was archived, these line items will remain in the system, but will be compressed in order to save memory.

Relation to Information Lifecycle Management (ILM)

- The point in time when the accrual object is marked as *To be Archived* defines the start of the Residence Period
  - The residence period defines how long the accrual object must stay in the system before it can be archived,
  - More precisely: The accrual object can be deleted from the database tables of the Accrual Engine after the residence period has ended.
  - This deletion is performed by the *Delete* step in the archiving process, see transaction SARA.



- The residence period can be defined using transaction IRMPOL.
  - See also sap help portal for ILM Rules.
  - The audit area should be used in residence period is ARCHIVING and the audit area should be used in retention period is GENERAL.
  - The residence period, that is, the date interval that the accrual object must remain in the database tables in the system after the accrual object was marked as to be archived starts at the **Business Completion Date**.
  - The Business Completion Date is the calendar date, when the accrual object is marked as to be archived.
  - The Business Completion Date can be displayed in the accrual object, for example using *transaction POACTREE03 -> Display Technical Data.*

- The names and meanings of the different dates and periods relevant for ILM are explained in this blog.

- A summary on the interplay of the different periods and dates relevant for ILM refer to this blog.

Thank You

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