Release Strategy Enhancement in Purchase Order

Applies to:
SAP ECC 6.0. For more information, visit the Enterprise Resource Planning homepage

Summary
This document helps the P2P consultants to understand the way in which enhancement can be done for the Release Strategy determination in Purchase Order. It is ideally suited for those Consultants who are new to this subject. How the enhancement can be achieved to add our custom logic for meeting the business requirement in Purchase Order Release Strategy determination has been explained in a simple and understandable way. Any suggestions and improvements towards this document will always be welcomed.

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Author Bio
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Release Strategy

What is Release Strategy? Before we start with the topic of Enhancement in Purchase Order, let us revisit the basics of Release Strategy.

Release Strategy is a facility provided by SAP on several important transactional documents by the way of which companies can ensure that these transactional documents are first checked & only after they are approved by concerned authorities, can they be further utilized down the process line as per the type of transactional document on which the Release Strategy is applied.

A typical example can be of the Purchase Order (PO), which is an external purchasing document that requires verification / approval by some appropriate authority in the Company in the form of releasing the same (either a manual or a digital approval), after which the Company's buyer can send this Purchase Order to the appropriate Vendor for Material / Services procurement.

Release Strategy in Purchase Order

Release Strategies in Purchasing Documents like Purchase Order needs to be applied based on certain conditions like the total PO value, Ordering Plant, Company code, Purchasing Organization, Purchasing Document type, etc.

To meet this requirement in SAP following steps are followed:

Classes are created (Classes are used to group together characteristics that are to constitute a release condition for a release strategy. For Purchase Requisition, Purchase Orders, Service Entry Sheets, etc. based on their communication structure, viz., Purchase Requisitions (CEBAN), Purchase Orders (CEKKO) and Service Entry Sheets (CESSR))

![Display Class:](image)

**Snapshot of a sample class created for a PO release strategy**
Characteristics are created within these Classes (For Net Value, Plant, Purchasing Organization, Purchasing Group, Document Type, etc., based on the respective Communication structure)

**Display Characteristic**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Valid Number</th>
<th>Valid From</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL_PORREL</td>
<td></td>
<td>19.04.2011</td>
</tr>
</tbody>
</table>

Refer to Table Field

<table>
<thead>
<tr>
<th>Table Name</th>
<th>Field Name</th>
<th>UNETV</th>
</tr>
</thead>
</table>

**Snapshot of a sample characteristic (PO Value) created for a PO release strategy**

**Release Groups** are created via configuration (Release Group is a group of one or more Release Strategies. This permits the multiple usage of the same release strategy key)

**Display View 'Release Groups: External Purchasing Document'**

<table>
<thead>
<tr>
<th>Group</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP</td>
<td>81</td>
<td>Up to 5000</td>
</tr>
<tr>
<td>DP</td>
<td>82</td>
<td>5001 to 2 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>83</td>
<td>2 Lacs to 5 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>84</td>
<td>5 Lacs to 15 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>85</td>
<td>15 Lacs to 20 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>86</td>
<td>20 Lacs to 30 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>87</td>
<td>30 Lacs to 50 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>88</td>
<td>50 Lacs to 100 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>89</td>
<td>100 Lacs to 150 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>90</td>
<td>150 Lacs to 200 Lacs</td>
</tr>
<tr>
<td>DP</td>
<td>91</td>
<td>200 Lacs to 500 Lacs</td>
</tr>
</tbody>
</table>

**Snapshot of a sample Release Groups created for a PO release strategy**

**Release Codes** are created via configuration (Release Code identify who can release a requisition or an external purchasing document. The Release Code is a two-character ID. Further these Release codes are also assigned to individual user ids of Users based on the Business requirements (for e.g. in PO it is done via the authorization object: M_EINK_FRG))

**Display View 'Release Code'**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Rup81 Rup92</td>
</tr>
<tr>
<td>P1</td>
<td>Emp1 Emp2</td>
</tr>
<tr>
<td>P1</td>
<td>Perm1</td>
</tr>
<tr>
<td>P1</td>
<td>Tier 1</td>
</tr>
<tr>
<td>P1</td>
<td>DP1</td>
</tr>
<tr>
<td>P1</td>
<td>NP</td>
</tr>
</tbody>
</table>

**Snapshot of a sample Release codes created for a PO release strategy**
**Release Indicators** are created via configuration (These Indicators are assigned to the Purchasing document after the release is affected. These indicators determine several possibilities like whether the document may be changed after the start of the release, and in cases, where changes are allowed, does a new release strategy gets determined in the event of changes in the characteristic values in the document and finally they determine the status of the document, for e.g., if the purchasing document is released for further processing, i.e., release is completely affected)

*Snapshot of a sample Release Indicators created for a PO release strategy*

**Release Strategies** are then finally defined based on the Business requirement. Appropriate Release Groups & Release codes are used in a Release Strategy along with defining the Release Pre-requisites, Release Statuses & the Classification values required to completely specify a particular Release Strategy.

*Snapshot of a sample Release Strategy created for POs*

With the **Release Pre-requisites**, you specify the order in which the individual release points (individuals or departments) represented by the release codes may release the document, i.e., effect the final Release.

**Example**

The following table shows release prerequisites for a strategy with four release codes.

<table>
<thead>
<tr>
<th>Code / Release Pre-requisite</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>-</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
<tr>
<td>02</td>
<td>[X]</td>
<td>-</td>
<td>[]</td>
<td>[]</td>
</tr>
<tr>
<td>03</td>
<td>[X]</td>
<td>[X]</td>
<td>-</td>
<td>[]</td>
</tr>
<tr>
<td>04</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>-</td>
</tr>
</tbody>
</table>
In this release strategy, the codes 01, 02, 03, and 04 must successively release the purchase order. Read the table from left to right. For instance, the third line for release code 03: For code 03, release via code 01 and code 02 is a prerequisite. That is to say, the PO must be released via codes 01 and 02 before it can be released via code 03.

**Snapshot of a sample Release Pre-requisites created for a PO release strategy**

In the **Release statuses**, you specify the status a PO has after certain release points have effected release. Specify which release indicator/status a PO is to have after having been released via a certain release code.

**Snapshot of a sample Release Statuses created for a PO release strategy**

In the **Classification**, you maintain the values assigned to the individual characteristics of a Release Strategy. Via the Characteristics and their values, you specify the POs to which your release strategy is assigned by system when a PO is created or changed.
Release Strategy Enhancement in Purchase Order

The above details thus explain that when a Purchasing document like a PO is either created or changed (changes relevant to bringing a change in the characteristics value in the PO), a Release Strategy is applied to this PO or a new Release Strategy is determined, based on the Release Strategy configured for Purchase Orders in customizing.

Business Requirement pertaining to PO Release Strategy determination

During Implementation of SAP for one of our Clients (The Client is into Engineering & Construction business, which basically have Project driven scenario), one major challenge was that most of the Projects were at 80-90% completion stage. For such Projects, the majority of the procurement was completed. For balance requirements either partial delivery were balance from the existing Purchase Orders in its existing SAP R/3 4.7 system or new Purchase Orders will be created in the new SAP ECC 6.0 system after go-live.

As per the best practices followed, for the data cutover, it was decided to migrate only the Open POs line items to the new SAP ECC 6.0 system. So in this case for POs whereby partial deliveries are completed i.e., say around 90-95% PO is already closed, only the balance 5% value’s PO line items will be migrated to the new SAP ECC 6.0 system. Due to this for POs having very high value in existing SAP R/3 4.7 system, will in future have a low total PO value in the new system after go live (say 5% of original value).

Business Scenario

A typical case will have a PO with Original Value in billions which will have a release code of the Executive Director of the Company. He will also be the PO signatory based on the PO release strategy configured as per the Clients Business guidelines. Now, when this PO gets migrated into new system, only 10000 is the Open PO value, and hence this PO will be subjected a release strategy, as per which a Supervisor level executive will be able to release the PO. Also in case of future amendments (changes in Quantity, Price, etc.) in PO, he will be the PO signatory for this PO which will then go to the Vendor. Hence in such cases, Client was having a requirement, that the PO release for all such migrated POs should always be determined on the total PO value (i.e., Closed PO value, for which the delivery was already completed + the Open PO value which is migrated in the new SAP ECC 6.0 system)
Significance

The requirement was very well justified by Client by explaining that in a normal scenario, when a PO is 95% delivered & only 5% open in the same SAP system, then in case when any amendments (Changes) are made in the PO, and if such changes are relevant for Release Strategy re-determination, then the new Release Strategy is re-determined on the total PO value (Delivered + Open PO value) and not just on the Open PO value. Hence the same was desired by them for the Migrated POs too when they will go to SAP ECC 6.0 system from their existing landscape of SAP R/3 4.7 system.

Approach

Meeting this requirement seems quite difficult at first look, as our standard SAP system does not have such a provision to meet this requirement directly using the available configuration of PO release process. But if we give it a thought and try to think on this, then to meet the above requirement of Client, it was necessary to change the value of the Release Strategy characteristic: VAL_POREL (refer figure in the characteristics snapshot) from the Open value of the Migrated PO in the new SAP ECC 6.0 system to the total value (which will be a sum of Closed PO value, from their old SAP system of R/3 4.7 & Open PO value from their new SAP ECC 6.0 system).

This can very well be done by inserting the above calculation in the PO release strategy determination, each time a PO is created or changed, if we are able to find a BADI or a Customer exit for inserting our code in the PO program.

Customer Exit for PO Release

For meeting this requirement, we found a Customer exit ➔ M06E0004: Changes to communication structure for release purch. doc.

Tips for finding the customer exit for the above enhancement:

First we need to search the Package for the Transactions where we need to put the enhancement

In this case the T-Codes are ME21N, ME22N & ME23N

Using these T-Codes go to the Transaction SE93 (Maintain Transaction) & When you put the transaction name there are click on Display option, you get the Package details from the field Package, which in this case was “ME”
Alternatively you can run the Package details from the Transaction ME21N by going in the Status option in System menu & double click on Program name & then select the Attributes Option from the Goto Menu.

Refer the below snapshots for details:

**Snapshot for fetching Package details from ME21N transaction**

**Snapshot for fetching Package details from ME21N transaction**

**Snapshot for fetching Package details from ME21N transaction**
Once the Package is determined, the Customer Exit can be found from the T-Code – SMOD by clicking the Search help & giving Package details in the Search for Customer Exit.

**Snapshot for finding the Customer Exit from T-Code SMOD**
After finding the relevant Exits, you can check their details in display mode by viewing their components & checking the structures available in the includes available for the Function modules of the exit (double click the Function module, refer the snapshot below)

Thus we found a customer exit which has import and export parameters from the communication structure used in the PO Release Strategy (CEKKO), and hence this customer exit can be used for inserting our custom logic of calculation of the total PO value (Open PO value + Closed PO value).

For feasibility check this can be further checked along with a Technical expert of ABAP, who can put the desired coding needed as per the Business requirement in the ABAP programming language in the Z-Include. From Functional point of view we need to ensure that all the requisite details, logic and table / field details go clearly along with the desired customer exits in the Functional Specification to the ABAP Technical consultant.
A word of Caution

In some cases, by activation of certain customer exits, some functionality may be impaired of some undesirable behavior may be observed in the transactions, where the customer exits are activated, hence thorough testing needs to be done to take care that in case of any issues, the necessary corrective actions or corrections in the form of SAP notes can be implemented to remove all the undesired effects in the affected transactions. In the above case, by activating the Customer Exit, the release strategy failed to be applied in POs. This was due to some missing assignment statements within the coding of the user-exit after it was activated, for which we found a Note released by SAP: Note # 371667 - Release strategy fails when invoking a user-exit

This Note gave the corrections to be done by incorporating a statement in the Z-Include, which after implementing as per the Note, the problem was resolved. Refer the note number 371667 for further details on the corrections.

Customer Exit Implementation

Now after we find the Customer Exit for implementing our enhancement required for PO release, we need to give the complete logic as per which the ABAP Technical consultant can complete the coding for the desired results.

In our case, to find the Total Net value on which release strategy has to be determined, should have the Closed POs Net value from old SAP system of R/3 4.7 & the Open PO value from their new SAP ECC 6.0 system

Now closed POs net value can be taken out from Old SAP R/3 4.7 system and the value can be stored in new SAP ECC 6.0 system. For this purpose we can create a Z-Table with the fields PO number, PO line item & the PO line item Net value & thus we can store the data of Closed PO Net value in the new SAP ECC 6.0 system.

Finally the desired coding can be done accordingly to get the value of the field GNETW field from the communication structure CEKKO & replace it with the total PO value, each time the release strategy is re-determined.

Sample Code Overview

Refer the sample coding that we used to achieve our Client’s Business requirement using our Customer Exit.

Sample Code:

```
TABLES: zmm_prpogrn_h, bekpo.
DATA: c_bukrs(4) TYPE c VALUE '4000'. " company code for HMD
DATA: v_ebeln TYPE ekko-ebeln.
DATA: total_gnetw LIKE i_cekko-gnetw. "Total net order value

DATA: BEGIN OF it_ekpo OCCURS 0.
  INCLUDE STRUCTURE bekpo.
DATA: END OF it_ekpo.

CLEAR v_ebeln.
CLEAR it_ekpo[].

" get po number from current screen structure
it_ekpo[] = it_bekpo.
READ TABLE it_ekpo INDEX 1.
v_ebeln = it_ekpo-ebeln.
```
IF i_cekko-bukrs = c_bukrs.
  " Number range for Migrated PO for HMD
  IF v_ebeln IS NOT INITIAL AND ( v_ebeln >= '4000000000' AND v_ebeln <= '4999999999' ).

  DATA: it_zmm_prpogrn_h TYPE STANDARD TABLE OF zmm_prpogrn_h.
  DATA: wa_zmm_prpogrn_h LIKE zmm_prpogrn_h.
  DATA: wa_zmm_poitemcat_h LIKE zmm_poitemcat_h.

  'Field-symbols : <fs_ebeln> TYPE ekko-ebeln.
  CLEAR: wa_zmm_prpogrn_h.
  CLEAR: it_zmm_prpogrn_h[].

  'ASSIGN ('(SAPLMEGUI)MEPO_TOPLINE-EBELN') TO <fs_ebeln>.

  " Calculate net value only for migrated po
  " for that check po in table zmm_prpogrn_h
  CLEAR: zmm_prpogrn_h.
  SELECT * FROM zmm_prpogrn_h
     INTO CORRESPONDING FIELDS OF TABLE it_zmm_prpogrn_h WHERE ebeln = v_ebeln.

  IF sy-subrc = 0.

    " Calculate Total GNETW
    CLEAR total_gnetw.
    LOOP AT it_zmm_prpogrn_h INTO wa_zmm_prpogrn_h.

      clear wa_zmm_poitemcat_h.
      SELECT SINGLE * FROM zmm_poitemcat_h
        WHERE ebeln = wa_zmm_prpogrn_h-ebeln
        AND ebelp = wa_zmm_prpogrn_h-ebelp.

      IF sy-subrc = 0.
        IF wa_zmm_poitemcat_h-pstyp = '9'.  " Check Item Category for Service PO Item
          total_gnetw = total_gnetw + wa_zmm_prpogrn_h-netpr.
        ELSE.
          total_gnetw = total_gnetw + ( wa_zmm_prpogrn_h-grn_qty * wa_zmm_prpogrn_h-net_price ).
        EDIF.
      ENDIF.
    ENDLOOP.

    " Change I_CKEKKO-GNETW from Calculated Total GNETW
    i_cekko-gnetw = total_gnetw + i_cekko-gnetw.
  ENDIF.
ENDIF.

ENDIF.
e_cekko = i_cekko.
" E_CKEKKO = I_CKEKKO This statement is mandatory other wise after calling this exit
" Release Strategy will not appear on screen Reference Note # 371667
Customer Exit effect on Release Strategy Determination

Now for seeing the effect of our enhancement on the Release Strategy getting applied on POs, we will just have a look on one of the migrated POs for our Client.

Original PO value in Client’s Legacy system of SAP R/3 4.7 = 6,365,352.20 INR

PO Value already delivered = 6,363,535.70 INR

Effective Open PO value to be migrated in Client’s new SAP ECC 6.0 system = 1,816.50 INR

Now to map the values of migrated PO’s old values in new system, a Z-Table - “ZMM_PRPOGRN_H” is created. This table contains the required details in the form of PO number, PO line item, GRN Quantity & Net price, etc, using which we can programmatically calculate the Total Closed value of a given PO in Client’s Legacy system of SAP R/3 4.7

Dictionary: Display Table

Snapshots of the Z-Table created

Refer the below snapshot of the PO # 4500047175 with a value of 1816.50 INR having a release strategy PJ-05 (30 Lacs to 75 Lacs*) assigned to it.

(* In India, “Lac” is used to denote the value of 0.1 Million INR, i.e. 1 Lac = 1,00,000 INR = 0.1 Million INR)

Snapshot of the PO showing its Current Open value in Client’s new SAP system
Snapshots of the PO showing the Enhanced Release Strategy determined in Client’s new SAP system

But this Release Strategy (PJ-05: Release Strategy “PJ” & Release Group “05”) is applicable only, when the PO Net value is above 30,00,000 & below 75,00,000 INR.

Refer the below snapshot of the Release Strategy characteristics.

Snapshot of the Release Strategy PJ-05 showing its Characteristics in Client’s new SAP system

This has happened as the PO # 4500047175 is present in the Closed PO’s Z-Table & hence the Total Closed PO value for this PO is calculated by system using our customer exit for all of its 102 closed line items & then finally this total closed PO value (63,65,352.20) is added to the POs Open value (1,816.50) to determine the “Total PO value” (63,65,352.20) on which the Release Strategy is finally determined

Thus, as the total value 63,65,352.20 INR falls between 3000000 to 7500000 INR, the system determines the Release Strategy (PJ-05) for this Purchase Order.
Snapshots of the Z-Table showing the closed PO details stored in Client’s new SAP system for the PO

This is the way in which we were successful to meet our Client’s Business requirement by enhancing the PO Release Strategy through the use of Customer Exit.
Related Content

http://forums.sdn.sap.com/thread.jspa?messageID=10189947#10189947

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