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Replenishment Lead Time Monitor

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1 Replenishment Lead Time Monitor

Improve your logistics planning and use realistic replenishment lead times for all your materials. The **replenishment lead time monitor** helps you to determine and propagate realistic replenishment lead times quickly.

The main functions of this **SCM Consulting Solution** are:

- Determination of historical planned delivery times, in-house production times, and total replenishment lead times
- Mass maintenance of times in info records, contracts, delivery schedules, and the material master
- Simulative scheduling of large orders (“big deal scenario”)

You can also use the **comprehensive functions**. These include the following functionalities:

- Tasks and resubmissions
- Comment function
- Individual material groups
- Alerts
- Formula editor for creating your own formulas
  You use the formula editor to create your own formulas to calculate your own key figures. The formulas can be used in all SCM consulting solutions.

In addition, the following **SCM Consulting Solutions** are part of the **comprehensive functions**:

- **Material master update**
- **Enhanced material master view**
- **Material Document Analysis**
- **Excel Upload/Download**
- **Flexible Material Master Update**

The **comprehensive functions** consist of various functions that can make your work with the **SCM Consulting Solutions** even more effective.The material master update allows you to save data in standard SAP fields and fields of the **enhanced material master view**. You can edit the material master data directly from the results list of your SCM Consulting Solutions.You can use the **enhanced material master view** to access the material master data fields of the **SCM Consulting Solutions**. You can use **material document aggregation** to create customized consumption and inventory histories that you can use for the analyses in the **MRP monitor**, **inventory controlling cockpit**, and **safety stock and buffer simulation**. The **stock development** shows you the current stock values and provides you with a variety of aggregation options.

> ⓘ Note
>
> Please note that when executing **SCM Consulting Solutions**, you must enter the prefix */n/SAPLOM/* before each transaction.

For this **SCM Consulting Solution**, the following note exists: 1341571

You can create error messages under this component: `XX-PROJ-CON-WBZ`

Related Information

Documentation on the **comprehensive functions**
Overview of **SCM Consulting Solutions**

1.1 Definition of Replenishment Lead Time

Total Replenishment Lead Time:

The total replenishment lead time is the time required to make the product fully available again (that is, after all BOM levels have been procured or produced). It is not calculated by the system. Instead, it is specified in this field as the sum of the in-house production time(s) and/or the planned delivery time(s) of the longest production path.

This time is necessary if the availability check taking the replenishment lead time into account is to be carried out for materials produced in-house.

In the availability check with replenishment lead time, the system checks only within the replenishment lead time to determine whether sufficient receipt quantities and stock are available to fulfill demand. Outside the replenishment lead time, the system assumes that a sufficient quantity of the material is again available.

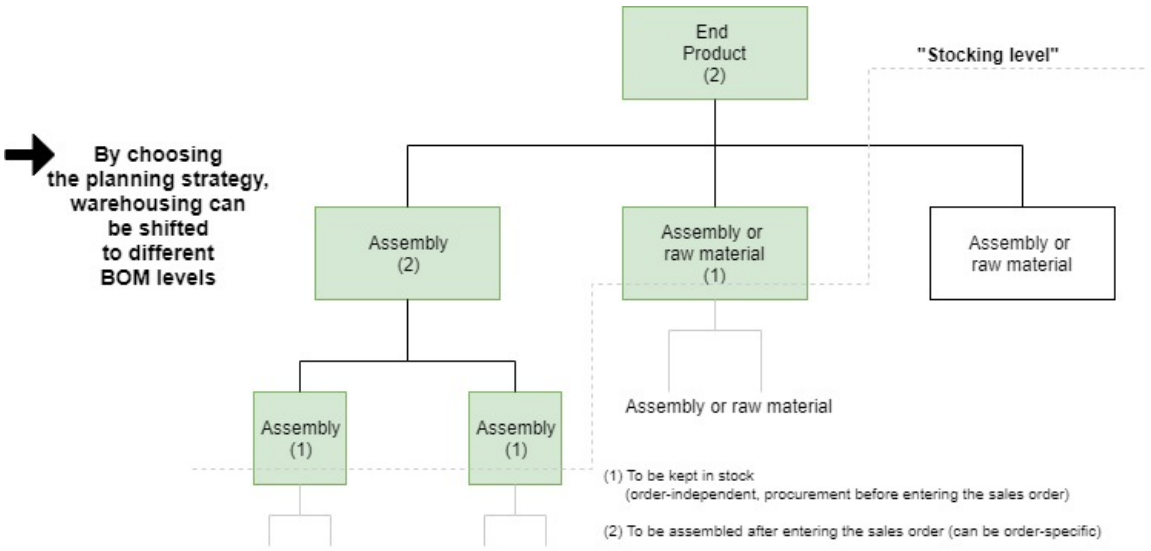
In this case, it is therefore usually necessary to map the total replenishment lead time of the product with all BOM levels as the replenishment lead time.

Use

- If the availability check with replenishment lead time is performed, there are the following options for materials produced in-house:
- The *Total replenishment lead time* field is maintained
- The time maintained in this field is then used for the availability check.
- The *Total replenishment lead time* field is not maintained
- The system then reads the in-house production time and, if available, the goods receipt processing time, and interprets the sum of both times as the replenishment lead time for the availability check.

> ⓘ Note
>
> For externally procured materials, it does not make sense to maintain the *Total replenishment lead time* field. For external procurement, the sum of the purchasing processing time, planned delivery time, and goods receipt is always interpreted as the replenishment lead time for the availability check with replenishment lead time.

Therefore, not only the material-specific BOM must be exploded. The components in the BOM must be exploded again until the lowest BOM level of the structure is finally reached. However, as mentioned above, the BOM explosion that makes sense for determining the total replenishment lead time still depends on the stocking level.

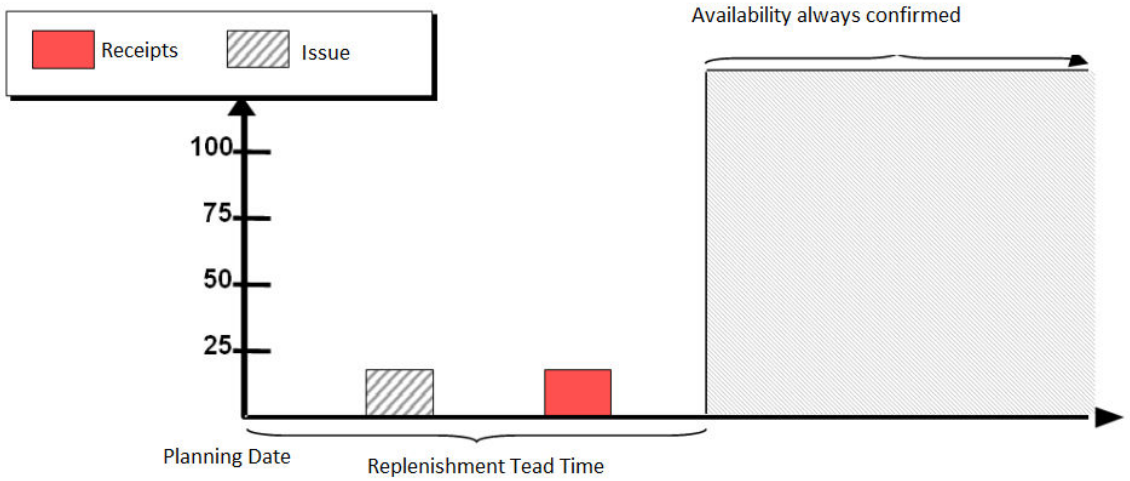


Selecting the Stocking Level

The total replenishment lead time is used in the availability check to yield a confirmation date depending on the Customizing settings. It is possible that all requirements that lie outside the replenishment lead time must be confirmed automatically.

The total replenishment lead time is the time required to make the product fully available again (that is, after all BOM levels have been procured or produced).

Total replenishment lead time = sum of in-house production time(s) and/or the planned delivery time(s) of the longest production path



Graphic for Replenishment Lead Time

If the replenishment lead time is not maintained, the availability check with replenishment lead time (Customizing) uses the sum of the in-house production and goods receipt processing time.

For externally procured materials, the sum of the purchasing department processing time, planned delivery time and goods receipt processing time is used. It is not necessary to maintain the total replenishment lead time field.

> → Remember
>
> It is assumed that the requirements outside the total replenishment lead time can still be met by initiating the production or the procurement process. If sufficient warehouse stock is always kept at a particular BOM level (for example, through systematic preplanning), it can be assumed that the timeframe for procuring components below the stocking level does not have to be considered in the availability check.

The selection includes the option of restricting the depth of the BOM explosion.

2 Selection Screen

The RLT Monitor consists out of the following seven individual screen tabs (for more details on the individual tabs, check the respective sections):

- *General*
- *External Procurement*
- *In-House Production*
- *Multilevel RLT*
- *Simulation*
- **External Planned Delivery Time**
- *Result*

Note that, depending on the analysis mode selected on the *General* tab, the tabs might not all be displayed. In addition, the RLT monitor provides the two buttons **Read Saved Analysis** and **Delete Saved Analysis** on the selection screen header to navigate to respective screens.

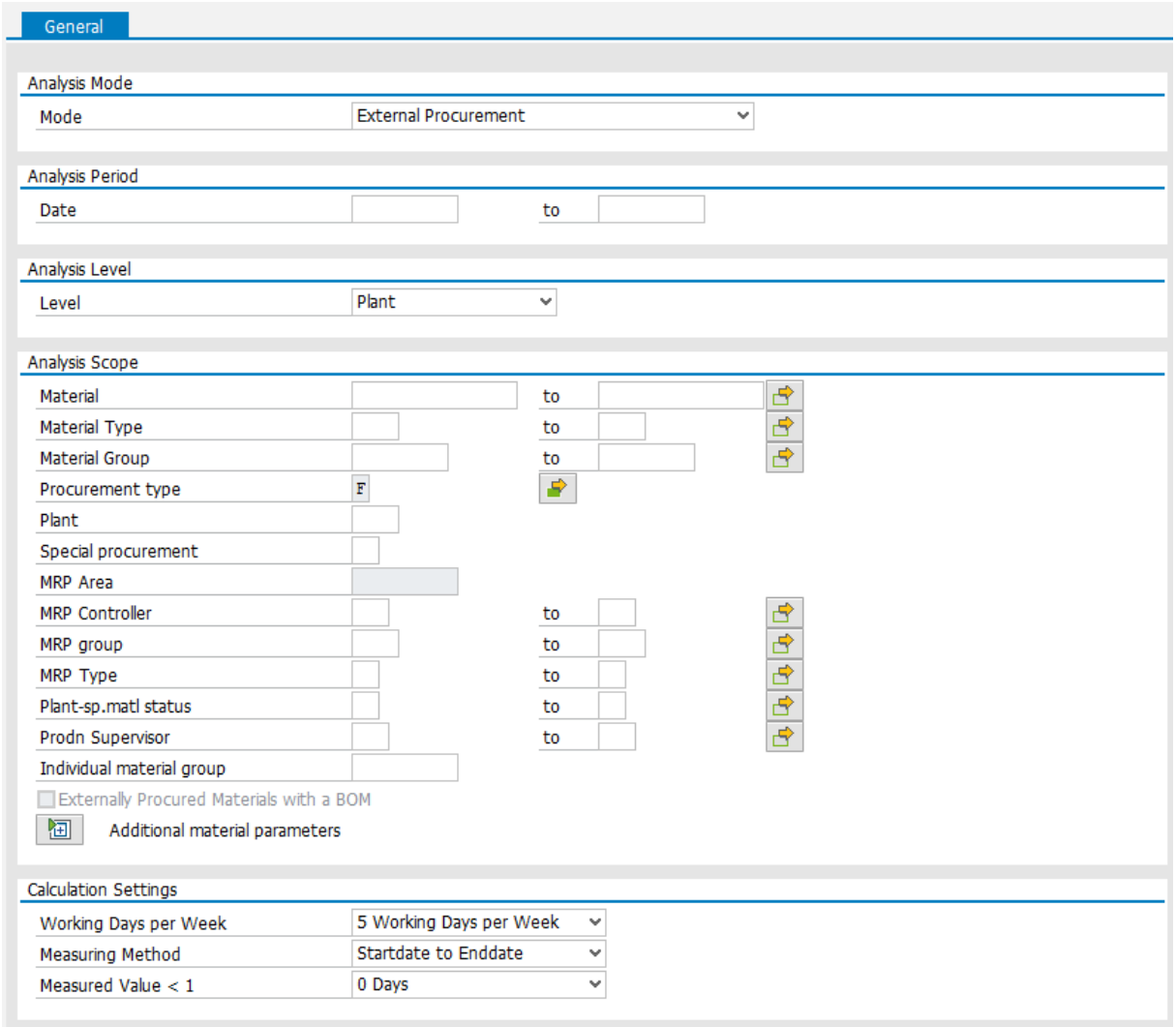
> ⓘ Note
>
> As with the standard SAP ERP system, you have the option of saving frequently used selections as variants and reloading them.

Related Information

External Procurement [page 13]
In-House Production [page 21]
Multilevel RLT [page 25]
Simulation [page 31]
External Planned Delivery Time [page 32]
Result [page 35]

2.1 General

This section describes the general selection options of the RLT Monitor. Please, select the links below for further details to each section.



Related Information

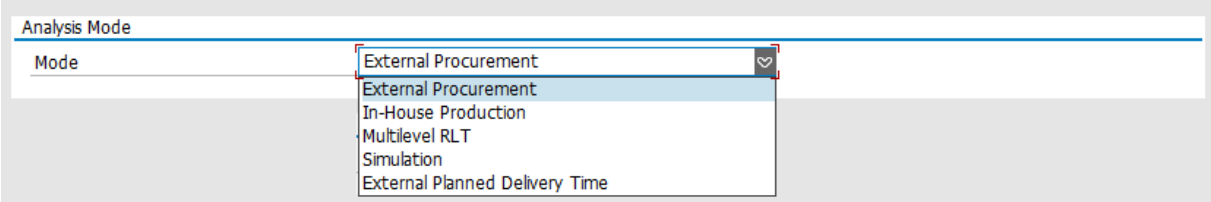
Analysis Mode [page 10]
Analysis Period [page 11]
Analysis Level [page 11]
Analysis Scope [page 12]
Calculation Settings [page 12]

2.1.1 Analysis Mode

The analysis mode defines the type of analysis to be performed. The following modes are available:

- **External Procurement:** The replenishment lead time of externally procured materials is analyzed based on purchase orders

- **In-House Production:** The replenishment lead time of in-house produced materials is analyzed based on production orders
- **Multilevel RLT:** The total replenishment lead time and the decoupled replenishment lead time are calculated based on the master data of the entire BOM
- **Simulation:** Checks the feasibility of a simulated demand
- **External Planned Delivery Time:** Externally planned delivery times can be uploaded via Excel file

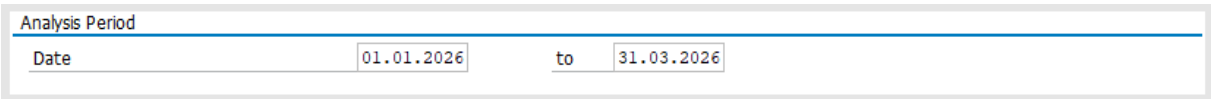


2.1.2 Analysis Period

This is where you specify which period and therefore which documents (production orders, purchase orders, and so on) are to be taken into account for the analysis. This entry is only relevant for the analysis modes *External Procurement* and *In-House Production*. The following applies to the documents:

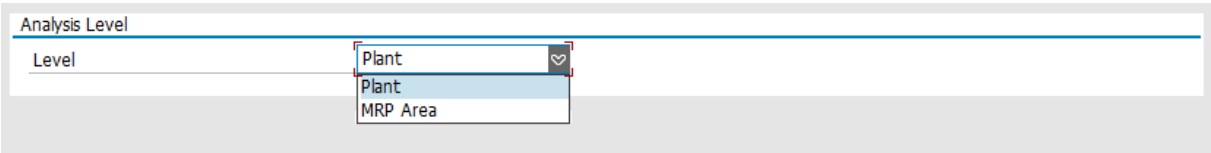
- Standard purchase orders with and without contracts and scheduling agreement: Start and end date of the document must be within the selected period
- Stock transport orders: Start and end date of the document must be within the selected period

For outline agreements as well, only the above data is checked at schedule line/purchase order level. The validity periods of the outline agreements are not relevant for the selection.



2.1.3 Analysis Level

The Analysis Level selection is only active in the *External Procurement* analysis mode. This is where you define whether the planned delivery times are to be determined or maintained at plant or at MRP area level. For **In-House Production** as well as **Multilevel RLT** the level **Plant** is used per default.

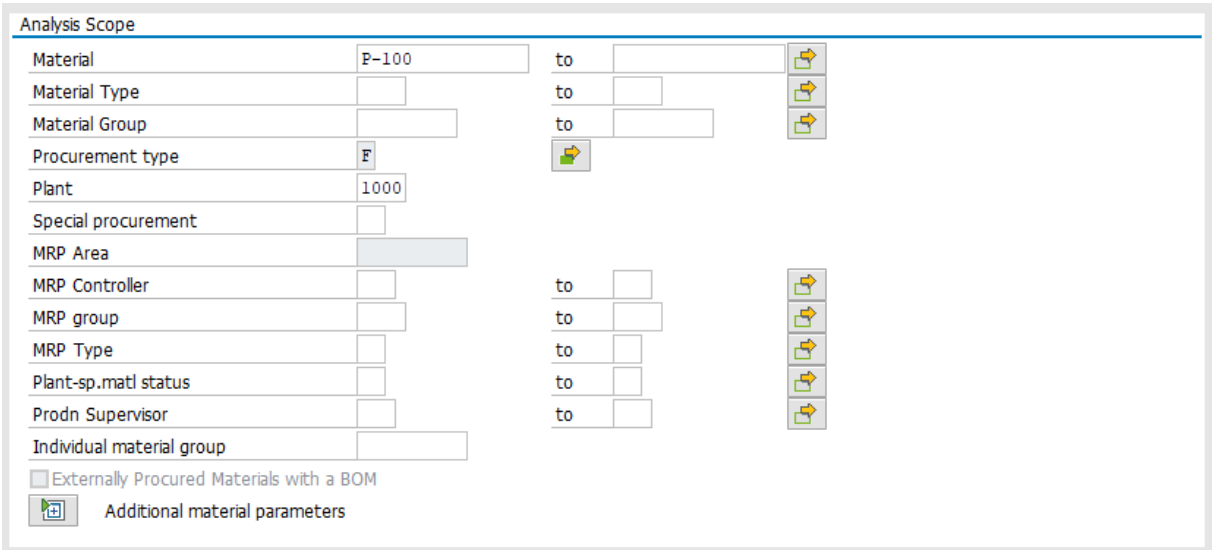


2.1.4 Analysis Scope

In this area, you select which materials are to be analyzed. Only materials that match the scope are included in the analysis. The procurement type is determined using the selected analysis mode:

- **External Procurement**: Procurement type F or X
- **Inhouse Production**: Procurement type E or X
- **Multilevel RLT**: Procurement type E or X (procurement type F can also be added)

The **fields** Plant **and MRP Area** are compulsory fields depending on the selected analysis mode (MRP Area is only valid for external procurement mode). A multiple Plant or MRP area selection is not supported. You can use the *Other Material Parameters* button to show or hide additional selection fields.



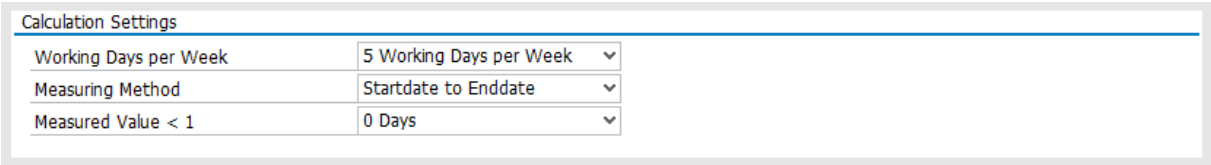
> **Note**
>
> By activating the option *Also externally procured materials that have a BOM* in the *Scope of Analysis* block, you can add externally procured materials to the selection.

2.1.5 Calculation Settings

To calculate replenishment lead times, it is necessary to convert some master data into calendar or working days. In this area, you can define how this conversion is to take place. You have the option of using the factory calendar of the analysis plant or of defining a fixed number of working days per week. The default setting is 5 **Working Days per Week**. If the factory calendar is selected, the average working days per week are calculated and used for the conversion.

In the *Measuring Method* selection, specify whether the start date should be considered as a entire day in the duration calculation or not.

In the *Measured Value < 1* selection, specify whether calculated replenishment lead times below 1 day are set to 0 days or are increased to 1 day.



2.2 External Procurement

The *External Procurement* tab is separated into eight areas:

- *Display:* Here you can define what data is to be displayed
- Vendor**:** Here you can define which vendors are to be considered
- *Documents:* Here you can define which documents are to be read
- **Planned Delivery Time**
- **Outlier Correction**
- **Replenishment Lead Times**
- *Key Figures:* Here you can define settings for calculating the key figures and replenishment lead times
- Alerts**: Here you can define settings for Alert**

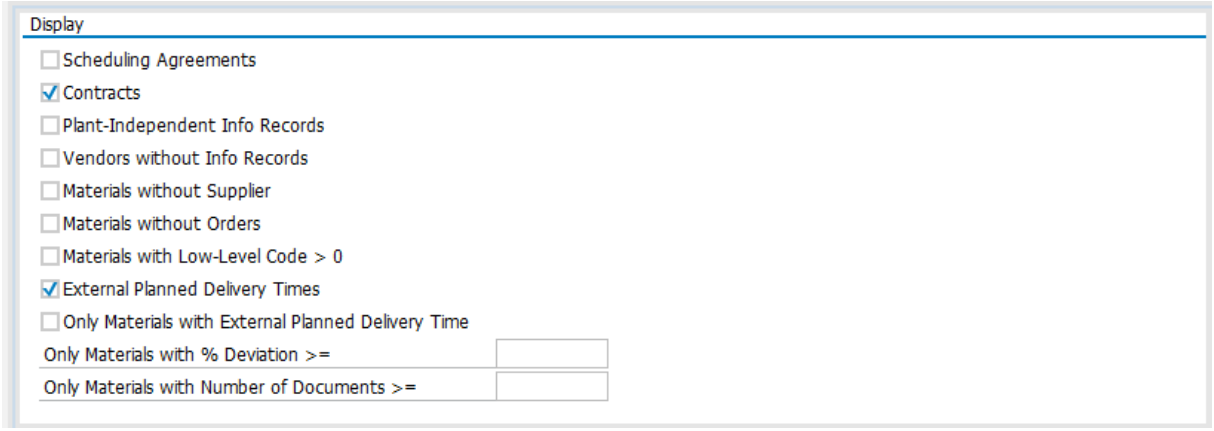
For details on the individual tabs, check the respective sections.

Related Information

Display [page 13]
Documents [page 15]
Key Figures [page 19]
Alerts [page 19]

2.2.1 Display

In the *Display* section, you can define which materials and documents are displayed in the analysis. If nothing is selected, the RLT only displays the materials with supplier, info record and relevant purchase orders. Purchase orders with a deletion indicator are not selected by default.



The following display options can be selected:

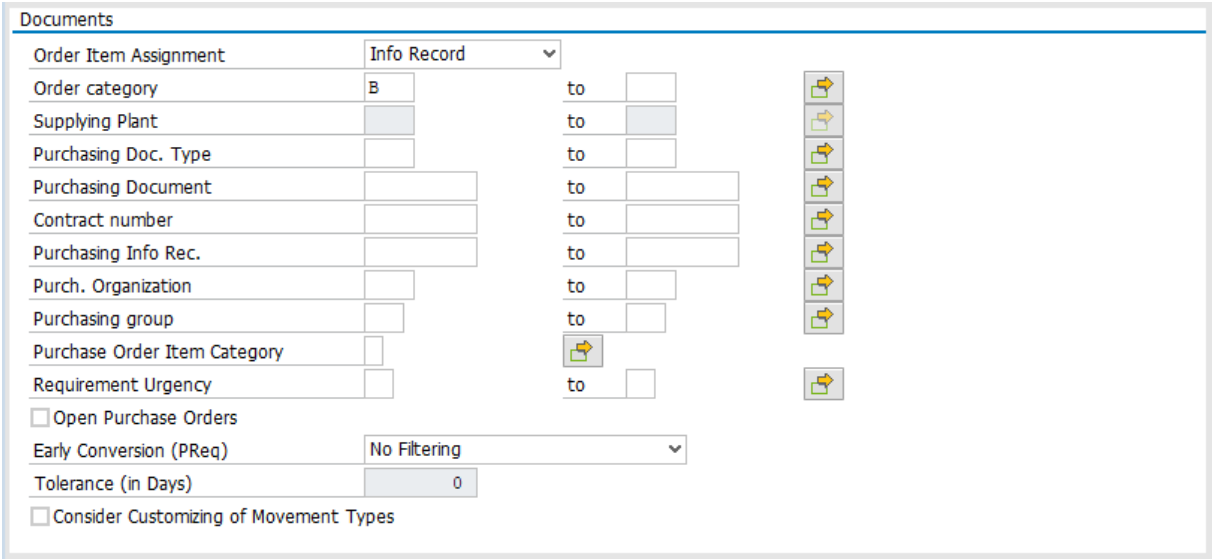
- *Scheduling Agreements:* Additional selection of scheduling agreements for the selected materials
- *Contracts:* Additional Selection of contracts for selected materials
- *Plant-Independent Info Records:*
- *Vendors without Info Records:*
- *Materials without Suppliers:* Materials without suppliers are also displayed on the result screen. This is for information purposes only. The materials are not taken into account in the calculation.
- *Materials without Orders:* Materials without purchase orders are also displayed on the result screen. This is purely for information purposes; the materials are not taken into account in the calculation.
- *Materials with Low-Level Code > 0:*Only materials with low-level code greater than 0 (`MARA-DISST`) are selected.
- *External Planned Delivery Times* The planned delivery times that were maintained using the mode *Upload Planned Delivery Time* are displayed. For more information, see section External Planned Delivery Time [page 32].
- *Only Materials with External Planned Delivery Time:* Restricts the display to materials for which a planned delivery time has been previously uploaded via Excel.
- *Only Materials with % Deviation >=:* Analysis is restricted to materials whose measured planned delivery time deviates from the planned delivery time in the material master by the selected percentage value.
- *Only Materials with Number of Documents > =:* Minimum number of documents from which the replenishment lead time is calculated for a material. Using this option can increase the meaningfulness of the calculated values. If, for example, 50 is entered here, the system checks whether there are at least 50 purchase orders for each material. If this is not the case for a material, it is excluded from the analysis and is not displayed. Selected standard purchase orders and stock transport orders are both valid documents.

Related Information

External Planned Delivery Time [page 32]

2.2.2 Documents

In the **Documents** area, you can define which documents are to be used for the analysis.

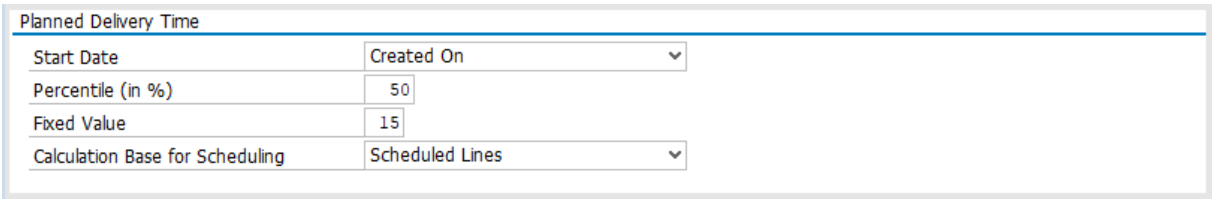


- **Order Item Assignment:** A dropdown listbox to define whether the purchase order item is to be assigned to the outline agreement or to the info record.
- Order Category**:** Define which orders categories are taken into account in the selection. The RLT currently supports purchase order categories B (purchase order) and U (stock transport order). It is possible to make more than one selection. The purchase orders of the selected purchase order category are the basis for the key figure calculations.
- Supplying Plant: Option to restrict the selection to one or more supplying plants. The supplying plant field is only editable if the order Stock Transport Order has been selected as order category.
- Purchasing Document Type: Option to restrict the selection to one or more purchasing document types.
- **Purchasing Document:** Option to restrict the selection to one or more Purchase Orders.
- Contract Number: Option to restrict the selection to one or more contracts with the corresponding documents.
- Purchasing Info Record**:** Option to restrict the selection to one or more purchasing info records with the corresponding documents.
- Purchasing Organization**:** Option to restrict the selection to documents (purchase orders, contracts, scheduling agreements, info records) that are assigned to a specific purchasing organization.
- Purchasing Group: Option to restrict the selection to only purchase orders whose headers meet the selection criteria. The monitor does not check the purchasing group of the material master record (purchasing view).
- Purchase Order Item Category**:** Option to restrict the purchase orders to a specific item category.
- Requirement Urgency**:** Option to restrict the selection of purchase orders to specific requirement urgencies.
- Open Purchase Orders**:** Option to also display open purchase orders. However, they are not taken into account in the RLT calculations. The RLT calculates the replenishment lead times on the basis of completed purchase orders. A completed purchase order is a purchase order that has a Delivery Completed indicator or whose goods receipt quantity is greater than or equal to the purchase order quantity.

- Early Conversion (PReq)**:** A dropdown listbox to define a tolerance for days between the document date (creation date) and the purchase order release. If the option is selected, only purchase orders that meet this tolerance are considered.
- **Tolerance (in Days)**: Option to consider a tolerance in days in case the option Release Date to Document Date has been selected for Early Conversion (PReq).
- Consider Customizing of Movement Types**:** Option to filter purchase orders by these movement types.

2.2.3 Planned Delivery Time

The *Planned Delivery Time* section contains settings for calculating the planned delivery time.



The planned delivery time is always calculated. Based on the calculated replenishment lead times, the minimum, maximum, and average for the planned delivery time is calculated. Optionally, a fixed value or a percentile can also be specified, which is then available on the result screen. In this block, you can also specify for the calculation of the planned delivery time of scheduling agreements whether the calculation is to be based on scheduling agreement schedule lines or scheduling agreement release schedule lines.

Example

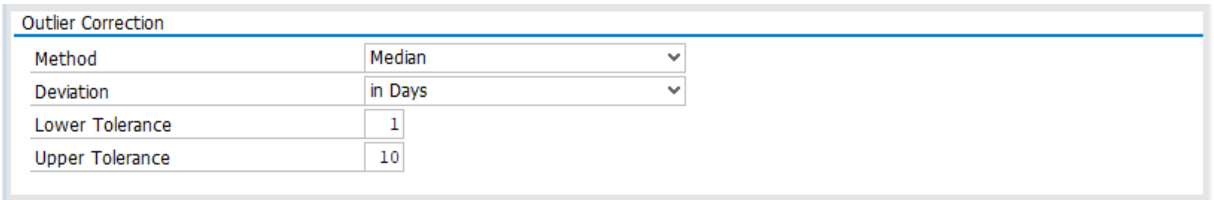
Calculation of the planned delivery time: Material X has 2 purchase orders:

- Purchase order 1 has goods receipts with a calculated RLT of 10, 15, and 5 days. The longest value 15 in the purchase order is assigned to the purchase order.
- Purchase order 2 has goods receipts with a calculated RLT of 10, 30, and 20 days. The longest value 30 in the purchase order is assigned to the purchase order.

The values for the planned delivery time are determined as follows: The minimum calculated RLT for all goods receipts is 5 (minimum). The maximum calculated RLT for all goods receipts is 30 (maximum). The average calculated RLT for all goods receipts is 90/6 = 15 (average). The values for the different levels are always calculated on the basis of the assigned goods receipts to minimize rounding errors. You can also calculate an outlier corrected minimum, maximum, and average value for these values.

2.2.4 Outlier Correction

The **Outlier Correction** section contains settings for the definition of outliers.



Method: Option to select between following two calculation methods:

- Median**:** Here, the absolute deviation from the median is used to identify outliers. The tolerated deviation can be defined either by a fixed number of days or as a percentage. The percentage refers to the median. If the median is 10 and the lower bound is set to 10%, all values below 9 are defined as outliers.
- Standard Deviation from Average**:** The standard deviation is determined as the basis of the tolerance range. The limits of the tolerance range are then basically the average plus or minus the standard deviation. If the percentage deviation is specified, the range is stretched accordingly or extended by a fixed number of days.

Deviation: Option to select between deviation in days and in percent.

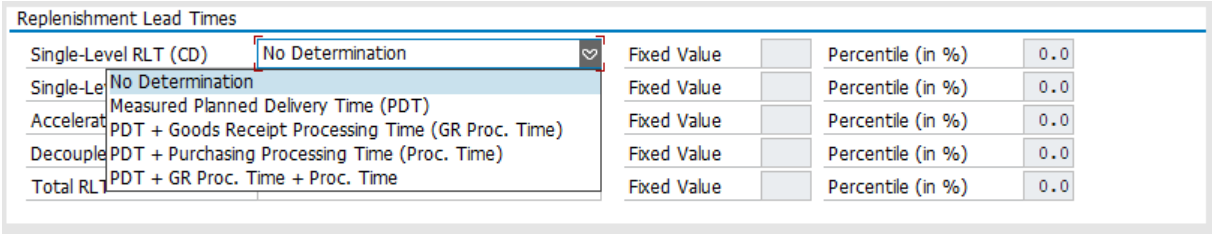
Lower Tolerance: Option to define a lower tolerance range.

Upper Tolerance: Option to define a upper tolerance range.

Values identified as outliers are set to the upper or lower bound of the tolerance range. On the results screen, the corresponding key figures are also available with the outlier corrected values for all calculated replenishment lead times. For more detailed definitions and examples, see section Outlier Correction [page 47].

2.2.5 Replenishment Lead Times

In the *Replenishment Lead Times* section, you can determine and define the replenishment lead times to be calculated. While the planned delivery time is always calculated, the replenishment lead times listed here are only calculated if they are selected. For each selected RLT, you can specify whether goods receipt processing or purchasing processing times are to be included. You can also choose whether a specific percentile value and a fixed value are to be displayed. For each selected replenishment lead time, a minimum, average, and maximum value is calculated. If outlier correction has been selected, outlier values are also calculated for each selected RLT.



The planned delivery time is always calculated. All other replenishment lead times can be activated by selecting the corresponding option. Based on the calculated replenishment lead times, the minimum, maximum, and average is calculated for each selected replenishment lead time. Optionally, a fixed value or a percentile can also be specified. You can also specify whether the goods receipt processing time and purchasing department processing time are to be added. While these settings can be maintained individually for each replenishment lead time and planned delivery time, the settings in the *Outlier Correction* block apply to all replenishment lead times and the planned delivery time.

> **Note**
>
> The percentile value is determined in the RLT as follows: If there are three purchase orders with a planned delivery time of 250 days, 15 days, and 1 day, the 50th percentile is the purchase order with 15 days. 50% of purchase orders have a planned delivery time shorter than 15 days and 50% of purchase orders have a longer planned delivery time.

In addition to the planned delivery time, the RLT allows you to calculate and update the following replenishment lead times:

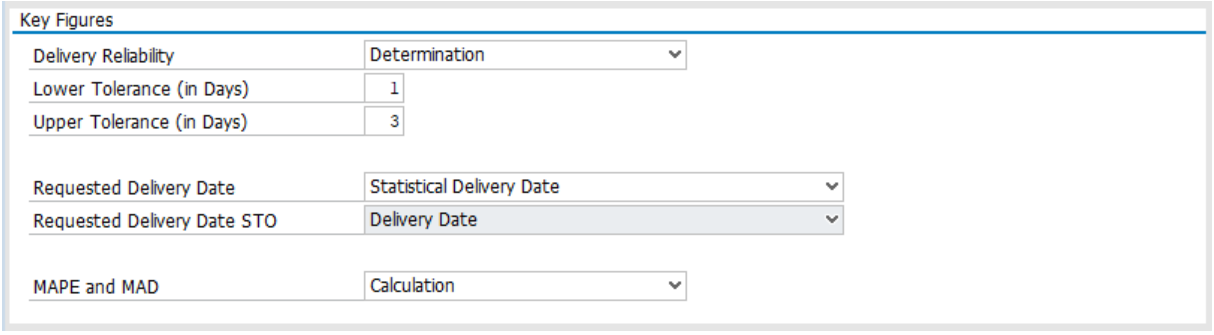
- **Single-level RLT in calendar days (CD):** All calculated RLT of the goods receipts (start date of the purchase order up to the respective goods receipt date) are calculated. Based on this, the minimum, maximum, and average are calculated for the higher levels (for example, vendor or material). If the goods receipt processing time is added, it is converted into calendar days and added. The conversion is performed by multiplying by the factor 7/(no. working days per week). The working days per week are determined using the settings on the selection screen (for more detailed information, see Calculation Settings [page 12]).
- **Single-level RLT in working days (WD):** All calculated RLT of the goods receipts (start date of the purchase order up to the respective goods receipt date) are calculated. Based on this, the minimum, maximum, and average are calculated for the higher levels (for example, vendor or material). The calculated value is then converted into working days (multiplication by the factor (no. working days per week)/7). If the goods receipt processing time is taken into account, this is added to all calculated values.
- **Accelerated RLT (SCM tab) in calendar days (CD):** All calculated RLT of the goods receipts (start date of the purchase order up to the respective goods receipt date) are calculated. Based on this, the minimum, maximum, and average are calculated for the higher levels (for example, vendor or material). If the goods receipt processing time is added, it is converted into calendar days and added. The conversion is performed by multiplying by the factor 7/(no. working days per week).
- **Decoupled RLT calendar days (CD):** All calculated RLT of the goods receipts (start date of the purchase order up to the respective goods receipt date) are calculated. Based on this, the minimum, maximum, and average are calculated for the higher levels (for example, vendor or material). If the goods receipt processing time is added, it is converted into calendar days and added. The conversion is performed by multiplying by the factor 7/(no. working days per week).
- **Total replenishment lead time in working days (WD):** All calculated RLT of the goods receipts (start date of the purchase order up to the respective goods receipt date) are calculated. Based on this, the minimum, maximum, and average are calculated for the higher levels (for example, vendor or material). The calculated value is then converted into working days (multiplication by the factor (no. working days per week)/7). If the goods receipt processing time is taken into account, this is added to all calculated values.

Related Information

Calculation Settings [page 12]

2.2.6 Key Figures

In the **Key Figures** section, you can define settings for determining the delivery reliability and calculating the Mean Absolute Percentage Error (MAPE) and Mean Absolute Deviation (MAD).



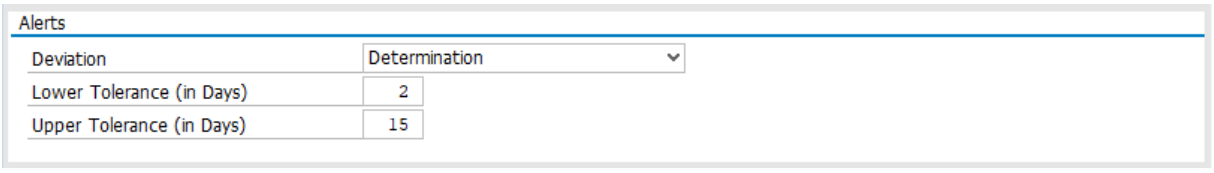
- **Delivery Reliability**: The delivery reliability measures the percentage of on-time deliveries out of the total number of deliveries by taking into account a specified upper and lower tolerance in days (for more information, see sectionDelivery Reliability [page 69]).
- Requested Delivery Date: You can choose whether the Delivery Date or the Advance Shipment Notification or the Statistical Delivery Date should be used.
- MAPE and MAD: The MAPE and MAD metrics are used to measure the forecast accuracy. You can see them in the result screen if the 'Calculation' option has been selected (for more information, see sections MAPE (mean absolute percentage error) [page 70] and MAD (Mean Absolute Deviation) [page 71]).

Related Information

Delivery Reliability [page 69]
MAPE (mean absolute percentage error) [page 70]
MAD (Mean Absolute Deviation) [page 71]

2.2.7 Alerts

In the **Alerts** section, you can define a deviation of the calculated RLT of a purchase order from the planned delivery time from the master data in days. As a result, purchase orders for which the variances are too large are flagged with a red traffic light.



- **Deviation**: Option to determine a deviation or not to determine a deviation.

- **Lower Tolerance (in Days)**: Option to enter a lower tolerance in days.
- **Upper Tolerance (in Days)**: Option to enter a upper tolerance in days.

2.2.8 EXE Functionality

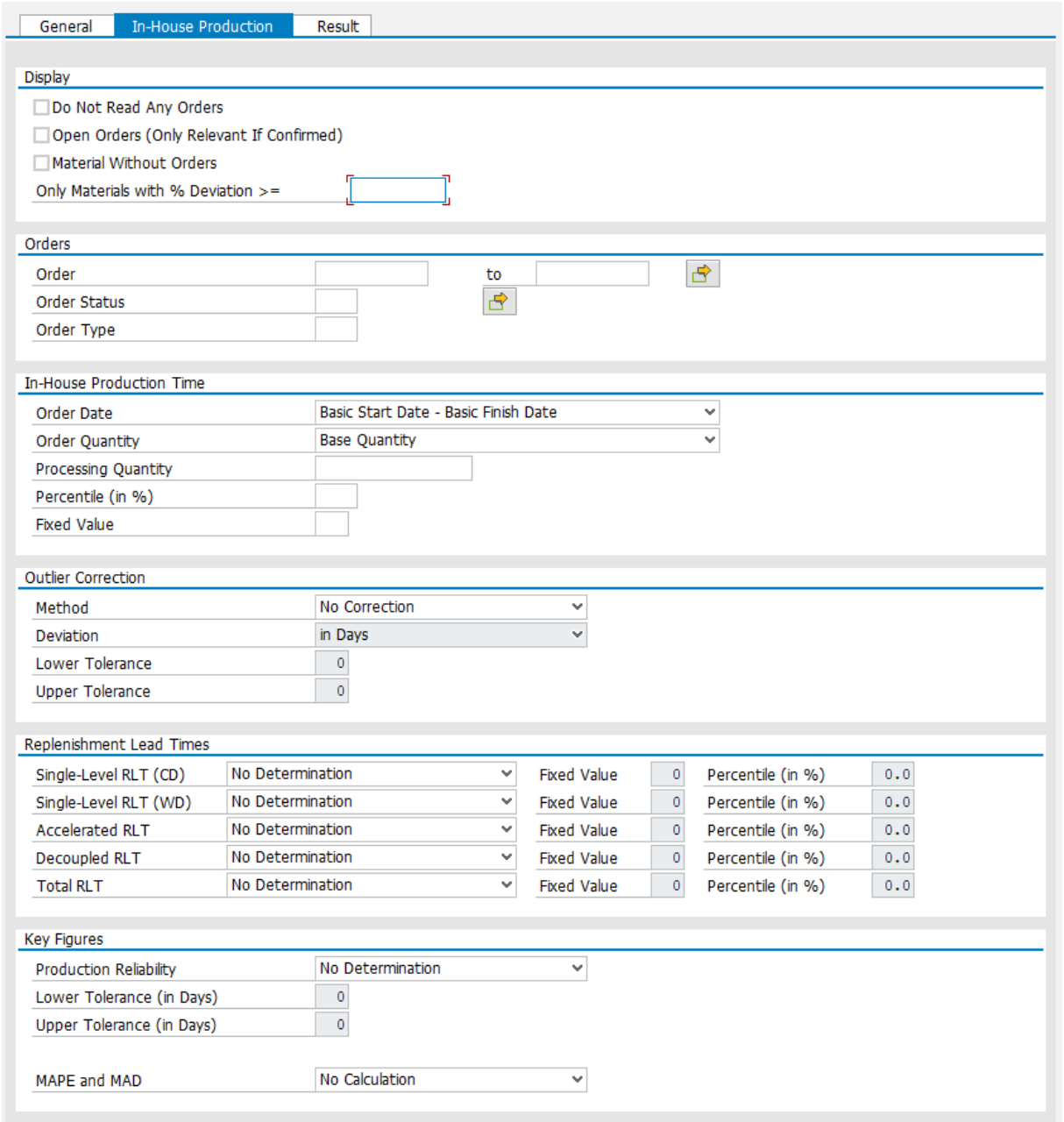
Data from the **SCM consulting solution ex works external supplier** (EXE) can be integrated in RLT. You can use EXE to adjust the delivery date for the vendor, the confirmation date, as well as the notified date from the vendor (see Ex Works External Supplier). The use of EXE data in RLT requires that the EXE is installed. If it is installed, you can display the following information on the results screen in RLT in the analysis mode *External Procurement*:

- Loading date
- Statistical loading date
- Transportation duration in calendar days
- Receiving days

Related Information

Ex Works External Supplier

2.3 In-House Production



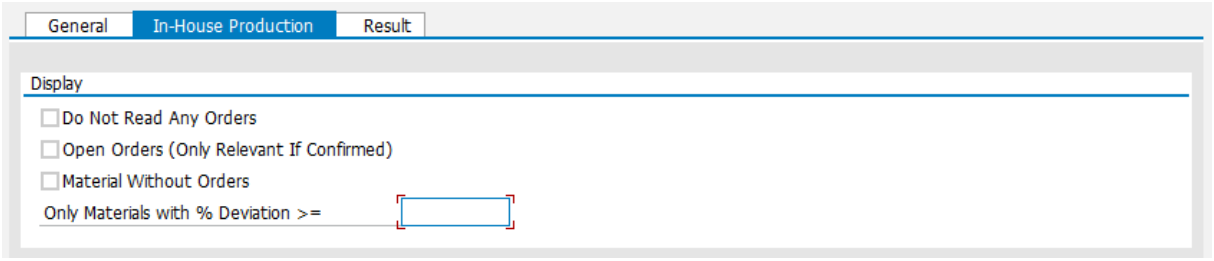
Related Information

Display [page 22]
Orders [page 22]
In-House Production Time [page 23]

Replenishment Lead Times [page 23]
Key Figures [page 25]

2.3.1 Display

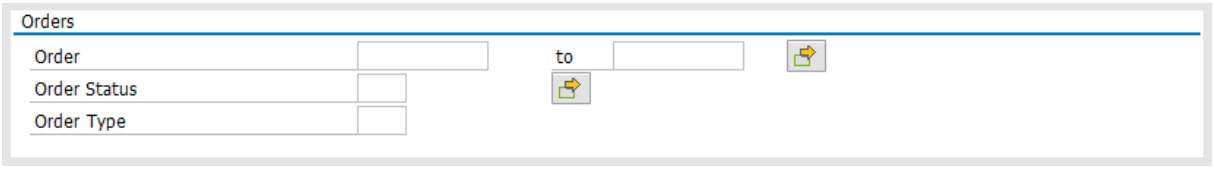
In the *Display* section, you can adjust the display and scope of the selected documents and data.



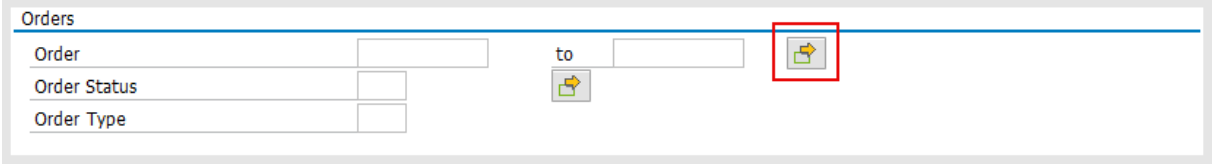
- **Do Not Read Orders:** Option to analyze master data without measuring the actual in-house production times by orders. As a rule, only completed orders are selected.
- **Open Orders (Only Relevant If Confirmed):** Option to add open production orders to the selection.
- **Materials Without Orders**. Option to include materials without orders in the analysis.
- **Only Materials with % Deviation >=:** Option to include materials whose measured in-house production time deviates from the in-house production time in the material master by the selected percentage value.

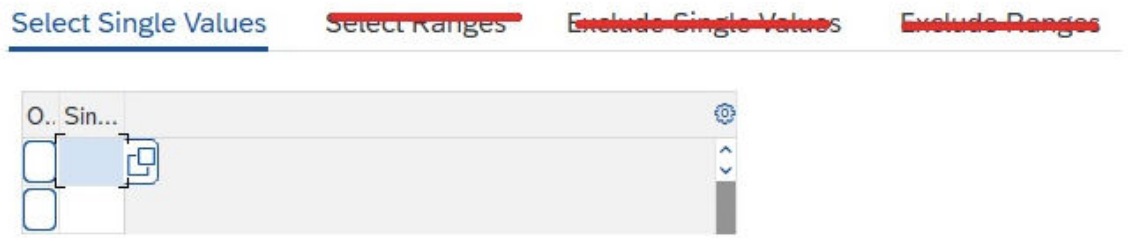
2.3.2 Orders

In the *Orders* section, you can select individual orders for analysis based on their order number and order status.



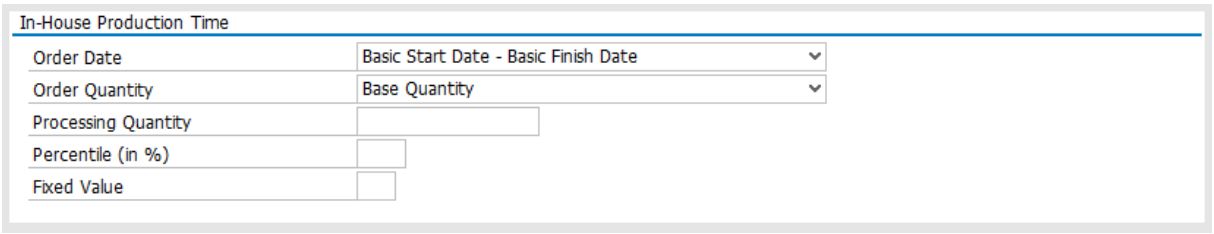
Since the status keys from the monitor must be translated internally via an additional table, individual values or ranges to be excluded cannot be considered:





2.3.3 In-House Production Time

In the *In-House Production Time* section, you can adjust the display and scope of the selected documents and data.

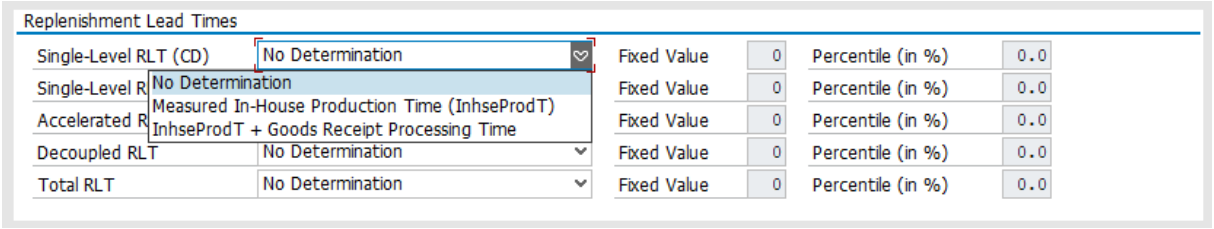


- **Order Date**:
- **Order Quantity**: Option to choose between the Total Order Quantity or Base Quantity
- **Processing Quantity**:
- **Percentile (in %)**:
- **Fixed Value**: Option to use a fixed value to be used for the In-House Production time

2.3.4 Outlier Correction

2.3.5 Replenishment Lead Times

In the *Replenishment Lead Times* section, you can determine and define the replenishment lead times to be calculated. For each of the replenishment lead times, you can define the calculation bases individually. As with external procurement, the minimum, average, and maximum are always calculated for each time. You can also define a percentile value in % or a fixed value. On the result screen, only the replenishment lead times that have been selected for calculation are displayed.

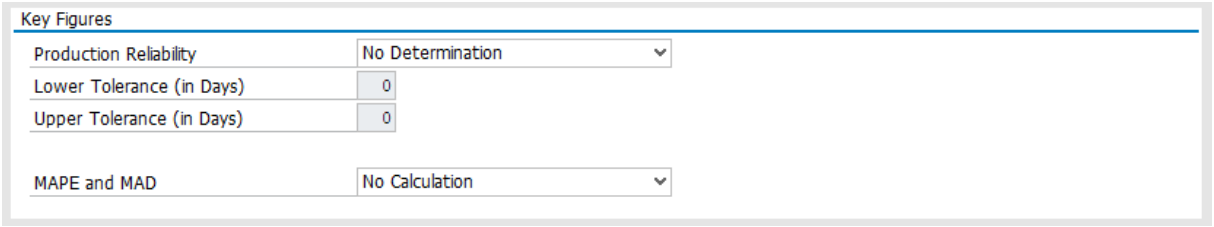


You can choose whether and how replenishment lead time is calculated. The individual key figures are described below:

- **Single-level RLT in calendar days (CD):** For each material, the duration of the selected orders is calculated on the basis of the selected start and end date. This is used to calculate the minimum duration, the average duration, and the maximum duration of the material for each material. If Outlier Correction has been selected, the corrected minimum duration, average duration, and maximum duration are also calculated. If a percentile value has been maintained, the percentile method calculates a percentile value based on the determined order times. The values determined for the material are then increased by the processing time if selected. Processing time is converted from WD to CD. The calculated values can then be used to update the in-house production time, either automatically or manually. The determined single-level RLT (CD) is displayed in the result and can be written to the enhanced material master view.
- **Single-level RLT in working days (WD):** For each material, the duration of the selected orders is calculated on the basis of the selected start and end date. This is used to calculate the minimum duration, the average duration, and the maximum duration of the material for each material. If Outlier Correction has been selected, the corrected minimum duration, average duration, and maximum duration are also calculated. If a percentile value has been maintained, the percentile method calculates a percentile value based on the determined order times. The values determined for the material are then increased by the processing time if selected. The calculated values can then be used to update the in-house production time, either automatically or manually. The determined single-level RLT (WD) is displayed in the result and can be written to the enhanced material master view.
- **Accelerated RLT in calendar days (CD):** For each material, the duration of the selected orders is calculated on the basis of the selected start and end date. This is used to calculate the minimum duration, the average duration, and the maximum duration of the material for each material. If Outlier Correction has been selected, the corrected minimum duration, average duration, and maximum duration are also calculated. If a percentile value has been maintained, a percentile value is calculated using the percentile method based on the determined order times. The values determined for the material are then increased by the processing time if selected. Processing time is converted from WD to CD. The calculated values can then be used to update the in-house production time, either automatically or manually. The determined accelerated RLT is displayed in the result and can be written to the enhanced material master view.
- **Total replenishment lead time in working days (WD):** For each material, the duration of the selected orders is calculated on the basis of the selected start and end date. This is used to calculate the minimum duration, the average duration, and the maximum duration of the material for each material. If Outlier Correction has been selected, the corrected minimum duration, average duration, and maximum duration are also calculated. If a percentile value has been maintained, the percentile method calculates a percentile value based on the determined order times. The values determined for the material are then increased by the processing time, if selected, and the special procurement key time. The calculated values can then be used to update the in-house production time, either automatically or manually.
- **Decoupled RLT in working days (WD):** For each material, the duration of the selected orders is calculated on the basis of the selected start and end date. This is used to calculate the minimum duration, the average duration, and the maximum duration of the material for each material. If Outlier Correction has been selected, the corrected minimum duration, average duration, and maximum duration are also calculated. If a percentile value has been maintained, the percentile method calculates a percentile value based on the determined order times. The values determined for the material are then increased by the processing time, if selected, and the special procurement key time. The calculated values can then be used to update the in-house production time, either automatically or manually. The decoupled RLT is displayed in the result and can be written to the enhanced material master view.

2.3.6 Key Figures

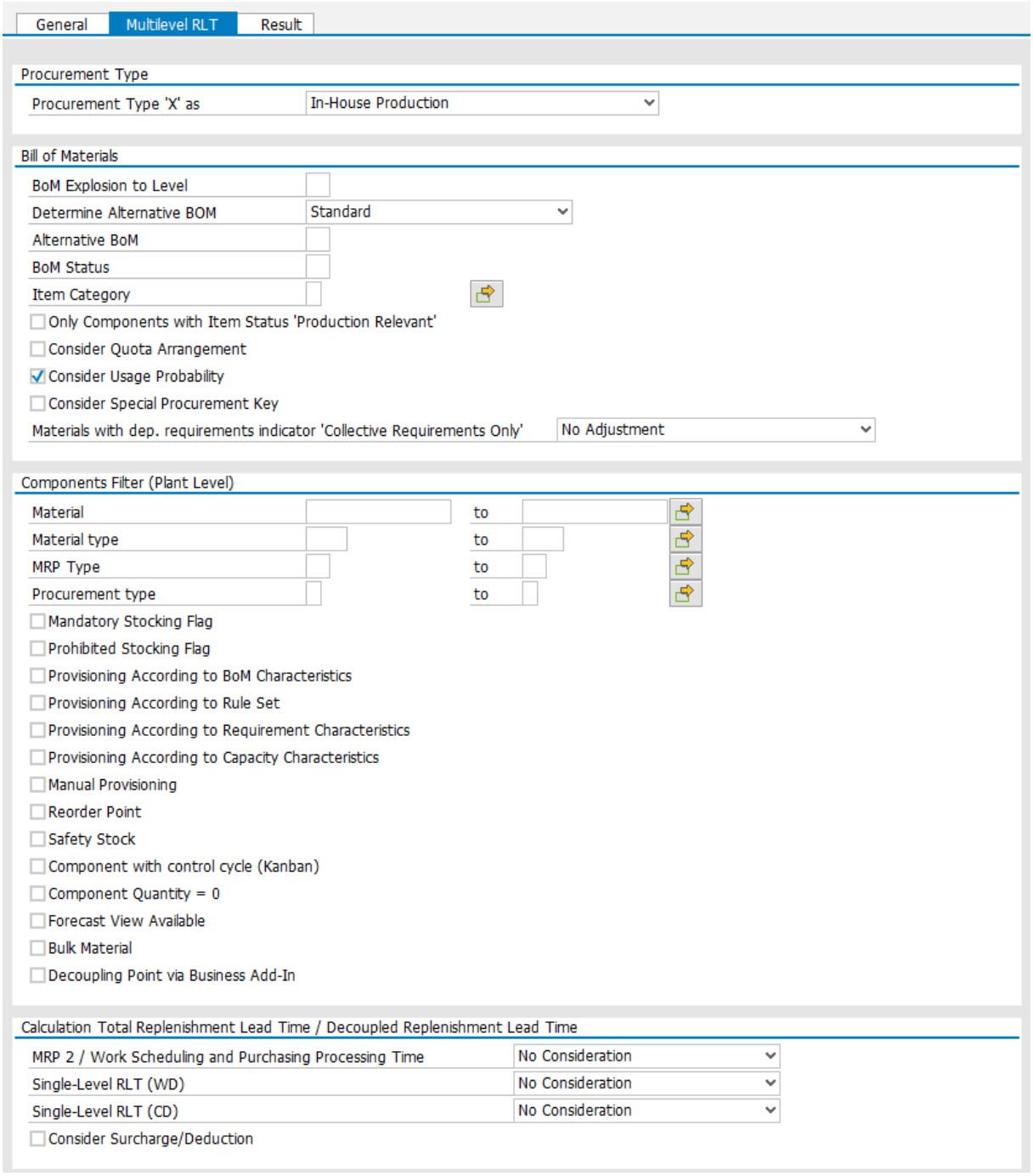
In the Key Figures section, you can define settings for determining the production reliability and calculating the Mean Absolute Percentage Error (MAPE) and Mean Absolute Deviation (MAD).



- **Production Reliability**: The production reliability measures the percentage of on-time productions out of the total number of productions by taking into account a specified upper and lower tolerance in days (for more information to the production reliability determination, you can check a similar determination example for theDelivery Reliability [page 69]).
- **MAPE and MAD**: The MAPE and MAD metrics are used to measure the forecast accuracy. You can see them in the result screen if the 'Calculation' option has been selected (for more information, see sections MAPE (mean absolute percentage error) [page 70] and MAD (Mean Absolute Deviation) [page 71]).

2.4 Multilevel RLT

On the *Multilevel RLT* tab, you can make settings to calculate the total replenishment lead time or the decoupled replenishment lead time. The analyses in this mode are based exclusively on the master data. No orders or other documents are read.

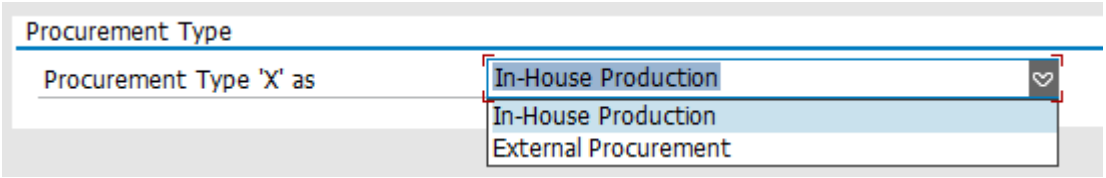


Related Information

Procurement Type [page 27]
Bill of Materials [page 27]
Component Filter [page 28]
Total Replenishment Lead Time [page 30]

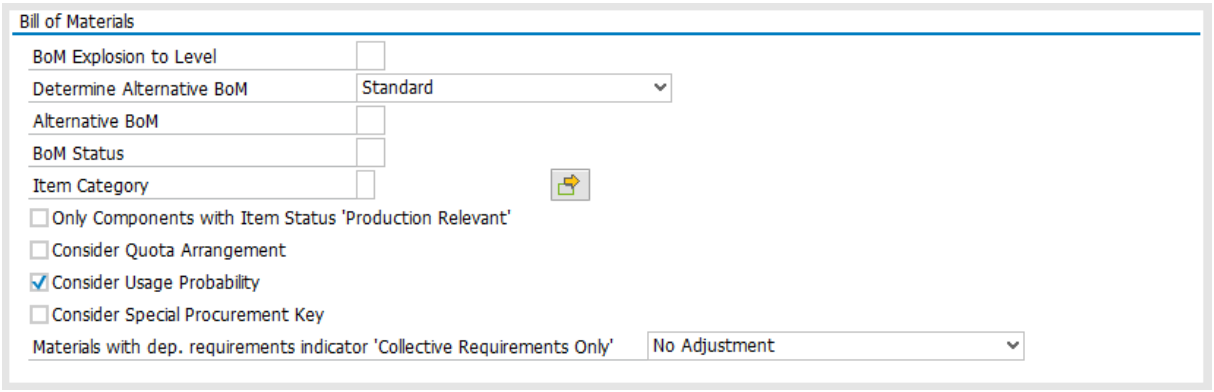
2.4.1 Procurement Type

In the Procurement Type section, you can define whether materials with the procurement type “Both Procurement Types” (X) are to be considered as **In-House Production** or **External Procurement**. If an X material is to be analyzed as externally procured, and if components or orders exist for this material, the system will display them. The times for these subobjects are also displayed but are not included in the calculation of the total RLT or the decoupled RLT.



2.4.2 Bill of Materials

In the **Bills of Materia**l section, you define which bills of material are to be used for the analysis of multilevel RLTs.



Depending on the system prerequisites, there are up to 3 ways to determine the alternative BOM used by the RLT:

- *01 Standard*: A specific alternative can be specified in the field 'Alternative BOM'. This entry is optional. If no alternative is specified, the alternative BOM 1 is evaluated.
- *02 PDS Priorities (Source: SAP ERP)*: The alternative BOM is determined based on the PDS priority from the R/3, ECC, or S/4HANA system.
- *03 PDS Priorities (Source: PP/DS)*: The alternative BOM is determined based on the PDS priority from the PP/DS or /SAPAPO tables.

If no alternative BOM can be determined when option 02 or 03 is selected, option 01 is used.

> **Note**
>
> If PP/DS is used, the PDS priorities can be maintained both in the corresponding PDS tables of the SAP ERP system (S/4HANA, R/3, ECC) and in the APO (/SAPAPO) tables. It is recommended that you maintain the PDS priorities in the PDS tables of the ERP system and transfer the data to PP/DS to ensure consistent

data. If the PDS priorities are maintained directly in the APO tables despite this recommendation, you can use option 3 to determine the required information from these tables.

By checking the **Consider Quotation** checkbox, you determine whether the MARC-USEQU field (usually MRP view) is read. If a value is maintained in the material master, the monitor checks whether there is a valid quota arrangement. A quota arrangement is valid if it lies within the analysis period of the replenishment lead time monitor. The system also checks whether the procurement indicator 'E' has been maintained in the quota arrangement. If this is the case, the procurement plant specified in the quota arrangement is determined, and the BOM is re-exploded accordingly.

The quota arrangement takes priority over the special procurement key indicator. This means that the special procurement key maintained for a component is ignored if a quota arrangement indicator has been maintained.

Selecting **consider special procurement key** enables you to control whether a special procurement indicator is to be taken into account during the bill of material explosion. You can, for example, represent cross-plant manufacturing. The special procurement keys 80 and 81 are considered. No logic has been implemented for taking assemblies into consideration. This means that these BOMs can also be exploded, if necessary.

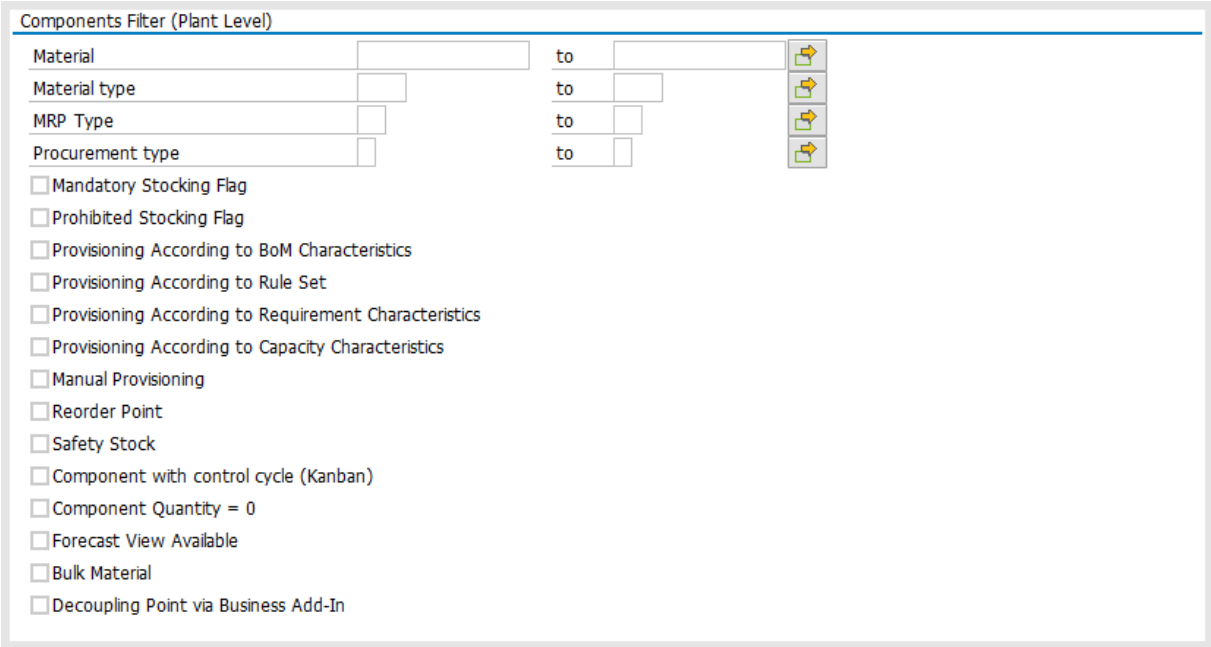
For more information, see the Color Legend section in the ALV tree.

If you have activated the radio button Set time for Mat. with individual and coll. reqmts. = 2 to 0, the materials that have only collective requirements are considered as stocked parts and are not used to calculate the total RLT (the representation of the number of components changes accordingly). An additional BOM explosion is not performed for these materials.

Using the radio button **...only on component level, not for header materials**, you disable the aforementioned function at header level. In other words, if a header material is set to coll. rqmts., and this radio button is activated, the dependent quantity indicator is ignored.

2.4.3 Component Filter

In the **Components Filter (Plant Level)** section, you can exclude individual materials or groups of materials from the determination of the longest path.



Analysis scope inserted or included in the analysis by the BOM explosion can be excluded using the filters.

To do so, you can access indicators in the enhanced material master view.

- Mandatory Stocking Flag
- Prohibited Stocking Flag
- Provisioning According to BoM characteristics
- Provisioning According to Rule Set
- Provisioning According to Requirement Characteristics
- Provisioning According to Capacity Characteristics
- Manual Provisioning

You can also filter materials that have a:

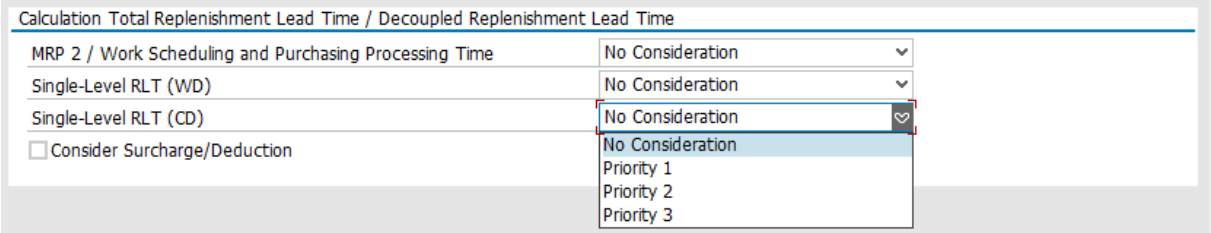
- Reorder Point
- Safety Stock
- Component with control cycle (Kanban)
- Component quantity = 0 with consideration of usage probability (materials with component quantity 0 are filtered out.) When the BOM is exploded, the usage probability of the component is used to determine the component quantity.
- Forecast View Available
- Bulk Material
- Decoupling Point via Business Add-In

.

In addition, you can use the BAdI /SAPLOM/RLT_CALCULATE to filter materials.

2.4.4 Total Replenishment Lead Time

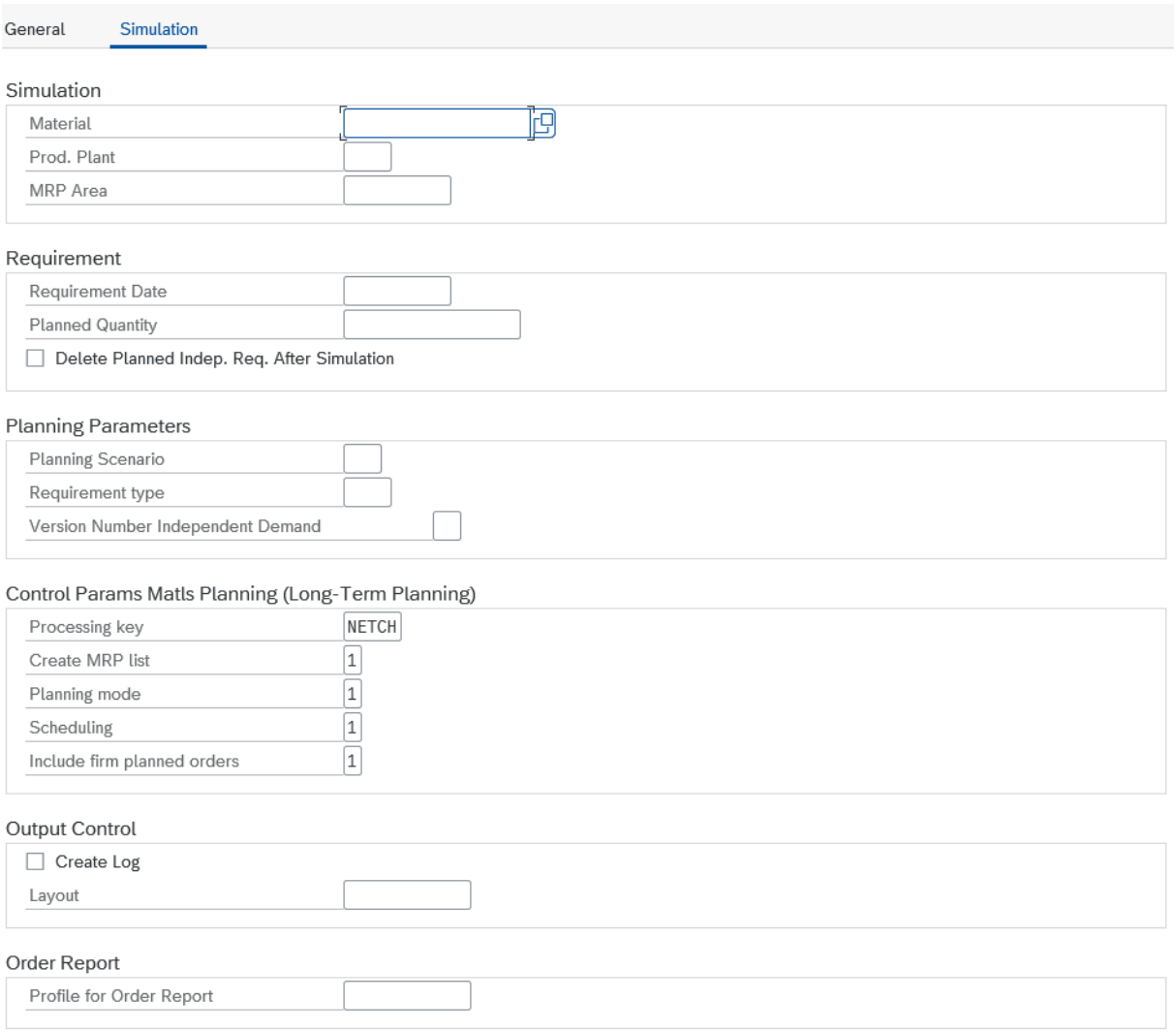
In the **Calculation Total Replenishment Lead Time / Decoupled Replenishment Lead Time**, you can define which sources are to be used for the RLT calculations.



You can select whether a source is to be used for the calculations and you can specify the order in which the corresponding sources are to be read (priority). The RLT then first tries to read the times from the source with the highest priority. If this is not maintained or if 0 is maintained, the source of the next lowest priority is used. The first source is evaluated as 'not maintained' if the planned delivery time and goods receipt processing time are 0 for externally procured materials, meaning that the purchasing processing time alone is not decisive here.

1. *MRP 2/Work scheduling and purchasing department processing time*:
    - Materials produced in-house: In-house production time + goods receipt processing time If the in-house production time is 0, the master data from work scheduling and the goods receipt processing time are taken into account instead as follows: *Component quantity * processing time/base unit of measure + setup time + interoperation time + goods receipt processing time*.
    - Externally procured materials: Planned delivery time, goods receipt processing time, and purchasing department processing time
2. *Single-Level RLT (WD) (SCM CS View)*
3. *Single-Level RLT (CD) (SCM CS View)*

2.5 Simulation



To perform the simulation, you must enter the following parameters on the selection screen for the simulation:

- Material
- Plant
- MRP area (if applicable)
- Requirement date
- Planned quantity
- Planning scenario
- Requirement type
- Version number independent demand

In the **MRP control parameters** area, you specify the planning parameters that are to be used in long-term planning. The same parameters are available as in transaction `MS02`.

The results of the simulation are based on the order report from transaction MS04. You can change the display of the results by specifying an **order report profile** in such a way that, for example, the safety stock is available. For more information, see Customizing for the order report (transaction `OPPF`).

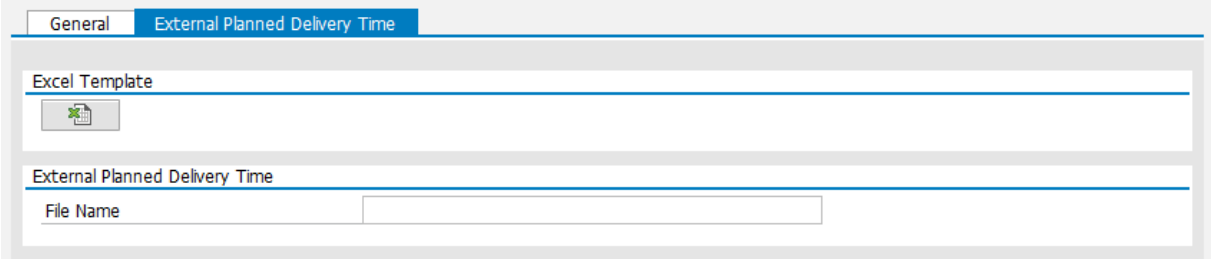
You can use the **Delete Independent Requirements After Simulation** option to delete the created planned independent requirement as soon as you use the Back button to exit the results screen.

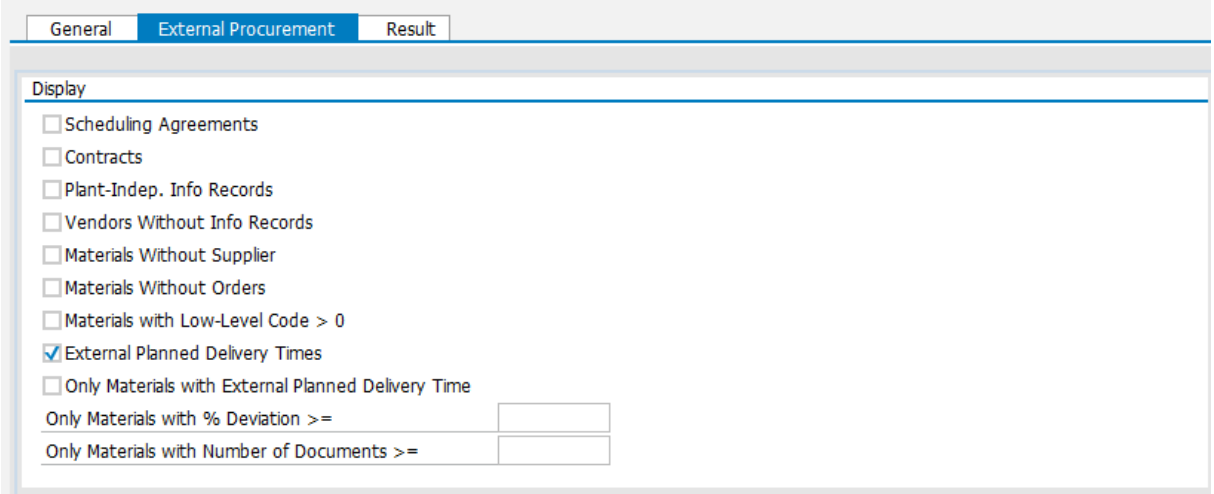
2.6 External Planned Delivery Time

The RLT Monitor offers the option of uploading external planned delivery times from an Excel file into the system and to comparing them with the calculated delivery times. For this, you first have to enter the file path of the Excel list and to upload the data into the system via button Execute (F8). The data from the Excel list is then saved in the database table `/saplom/rlt_uplo` and can be considered in the next external procurement analysis in case the option **External Planned Delivery Times** has been selected.

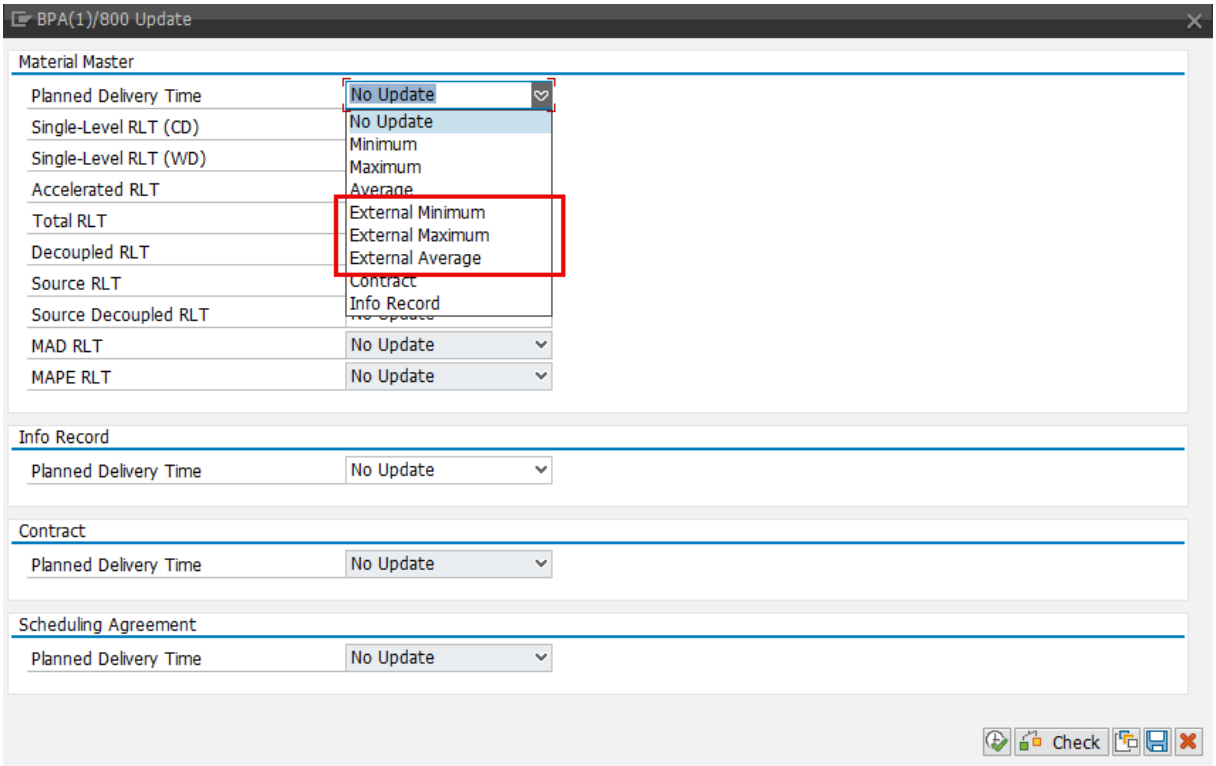
> ⓘ Note

A maximum of 999 lines are read from the Excel file to be uploaded. You can use 133 characters to specify the path.



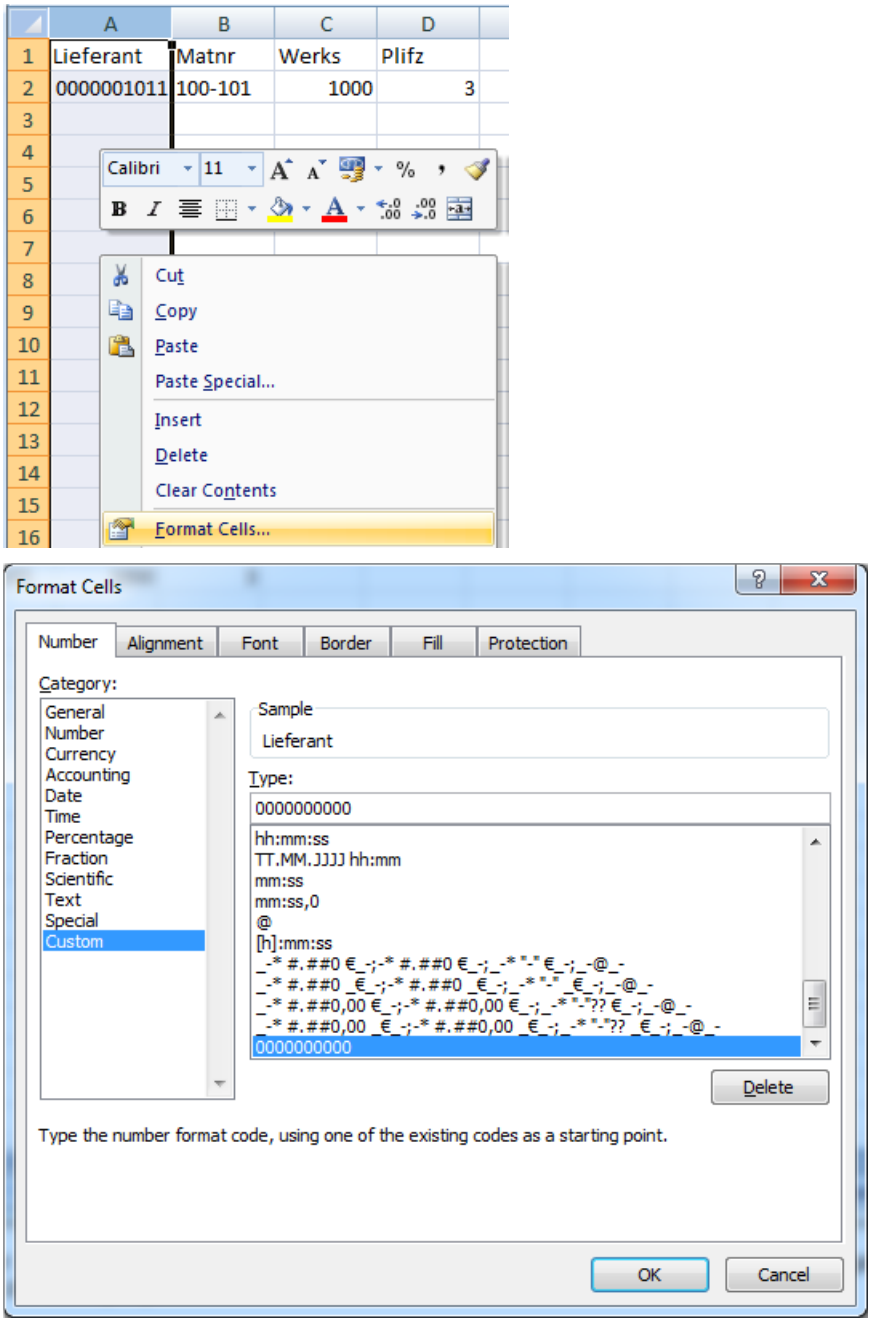


Furthermore, the planned delivery time from the material master can be updated with the external planned delivery times via the respective selection from the manual update dialog (for more information about the manual update dialog, see section Manual Master Data Update External Procurement [page 56]).



The following requirements must be met in order to update the database table `/saplom/rlt_uplo` from the Excel file:

- The Excel table contains exactly 4 columns with the following sequence (you can use the "Generate Excel Template" button download an empty Excel template that contains all required columns in the right format):
  - Column 1: Vendor
  - Column 2: Material
  - Column 3: Plant
  - Column 4: External Planned Delivery Time
- The first row of the Excel table is not taken into account. This can be used for the column headers. The values are imported as of row 2.
- The columns for the plant (4 characters) and for the vendor (10 characters) must contain leading zeros. Format the corresponding cells as specified below.

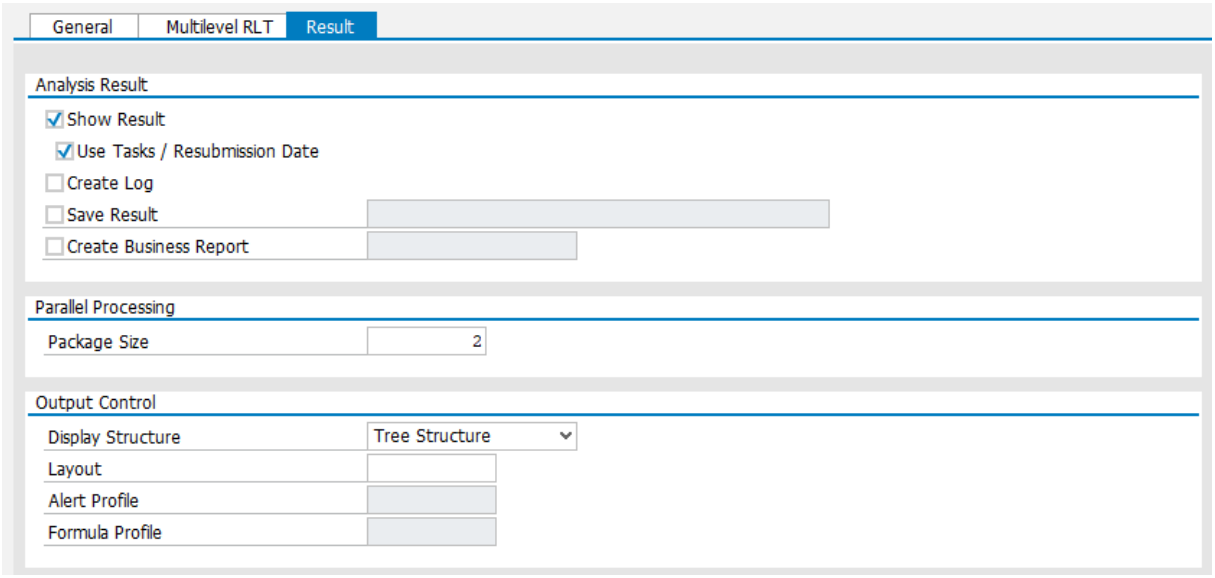


Related Information

Manual Master Data Update External Procurement [page 56]

2.7 Result

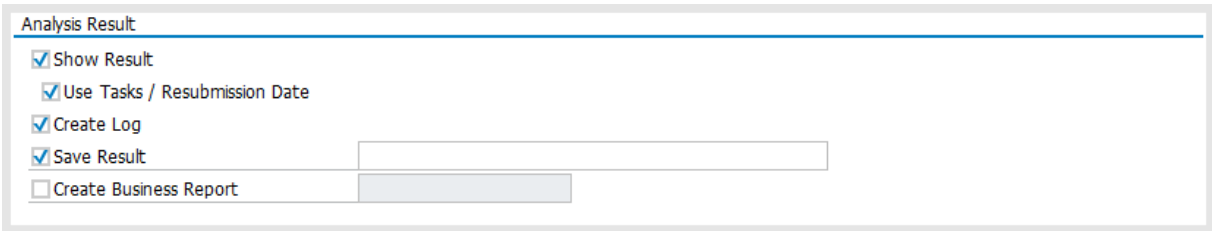
On the *Result* tab, you can make settings to for the analysis result display as well as for saving and parallelization.



Related Information

Analysis Result [page 35]
Parallel Processing [page 36]
Output Control [page 36]
Update Material Master [page 37]

2.7.1 Analysis Result



- *Show Result*: Option to control whether you want to see the result of the analysis after execution. You can deactivate this option, for example, if you only want to perform an automatic master data update based on the analysis.

- Create Log:
- Save Result: Option to **save the result of an analysis as well as the option to trigger a direct master data update**. Saving a analysis result might be useful for analyses that are scheduled as a batch job and whose result is viewed at a later point in time. To identify the analysis more easily, you can enter a description into the text field.
- Create Business Report: You can save the result of the analysis in an Excel file. You can use the **Report Folder** function to do this. For more information, see the comprehensive functions documentation, under General Report Folder. This option is only available if you use the output as a table.

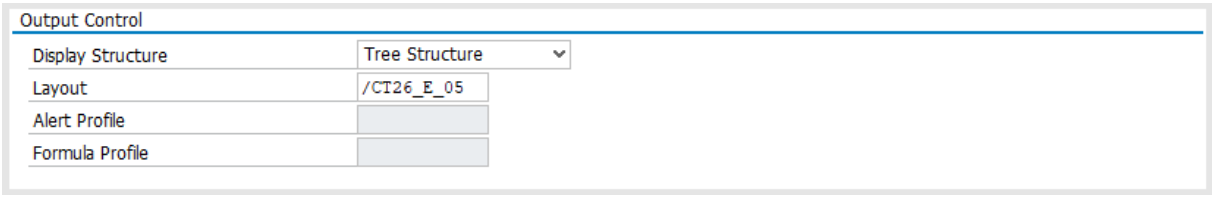
2.7.2 Parallel Processing

In the **Parallel Processing** section, you can define the package size for the parallel processing in order to improve the performance. For this, you have to maintain the respective parallel processing Customizing of the RLT monitor (transaction /SAPLOM/RLT_CUST > **Maintain Data for Parallel Processing**). Parallelization is executed only if at least the specified minimum of processes is available. When you execute the analysis in dialog mode, you can output the result as a screen output (*Display Result*).



2.7.3 Output Control

In the *Output Control* section, you can define settings for the result display.



- Display Structure: Option to choose whether the result is displayed as a tree or a table structure.
- Layout: Option to select a predefined result layout.
- Alert Profile: Option to specify an existing alert profile
- Formula Profile: Option to specify an existing formula profile

> ⚠ Restriction
>
> Due to technical restrictions, the tree display in RLT can display up to 5000 nodes. Depending on the individual system settings, it may also be possible to display more entries. If you would like to do so, the maximum value of 5000 can be overwritten by the settings in Customizing (transaction `/SAPLOM/RLT_CUST` > *Nodes for Tree Display*). If the maximum number of entries is exceeded, a prompt appears asking whether you want to return to the selection screen or to the table display. These restrictions do not exist in the table display.

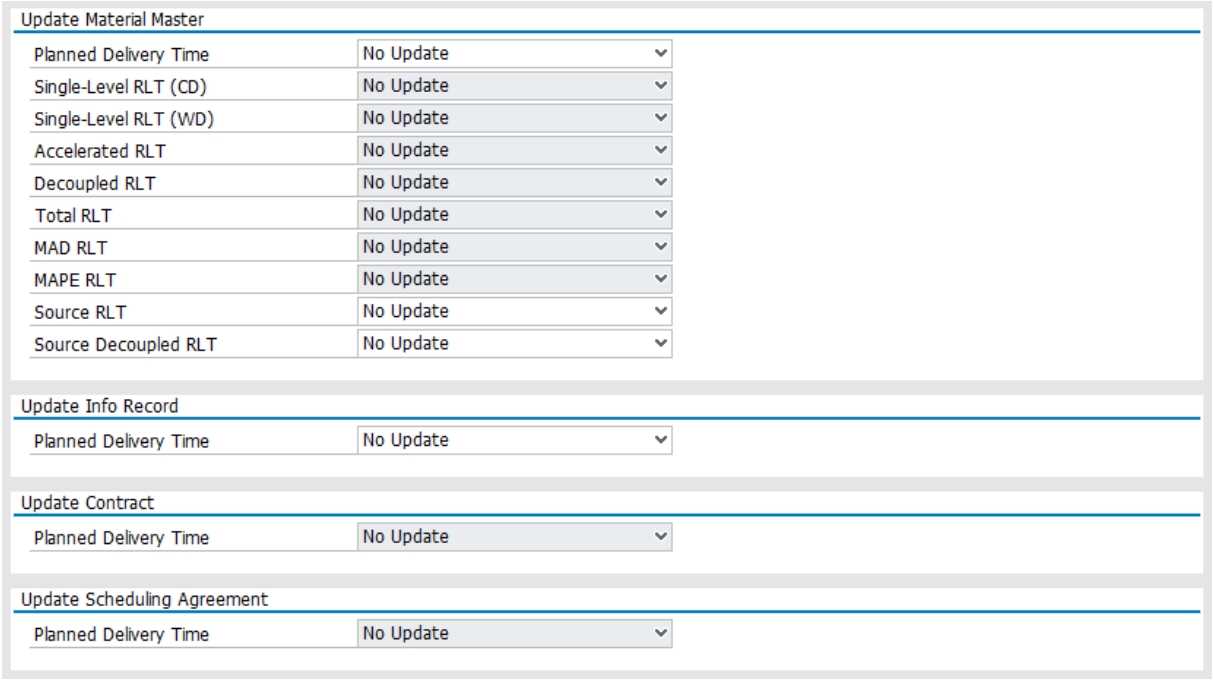
2.7.4 Update Material Master

In the Update Material Master section, you can specify which fields to be updated in the material master record (info records, contracts, scheduling agreements for external procurement). For this, you have to select the Save Result checkbox of the Analysis Result section. The fields that are available for selection depend on the analysis scope and the selected key figures on the tabs External Procurement, In-House Production, and Multilevel RLT.

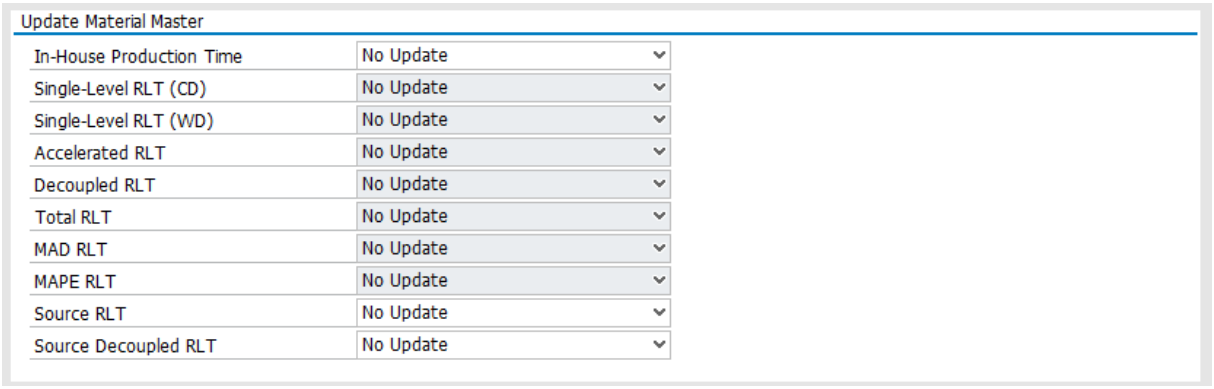
In *External Procurement* mode, the following values can be updated:

- The planned delivery time is always available. If you select it, you can use the dropdown box to determine the value with which it is updated. Minimum, Maximum, and Average are always calculated and available. Percentile value, outlier correction, and fixed value are only offered as a selection option if they have been maintained for this key figure on the External Procurement tab.
- Single-level RLT (CD) can only be selected if it was selected for calculation on the External Procurement tab. All key figures except the planned delivery time must be explicitly selected for calculation. The values that can be used to determine the update are described in the Planned Delivery Time key figure.
- Single-level RLT (WD) can only be selected if it was selected for calculation on the External Procurement tab. All key figures except the planned delivery time must be explicitly selected for calculation. The values that can be used to determine the update are described in the Planned Delivery Time key figure.
- Accelerated RLT can only be selected if it was selected for calculation on the External Procurement tab. All key figures except the planned delivery time must be explicitly selected for calculation. The values that can be used to determine the update are described in the Planned Delivery Time key figure.
- Total replenishment lead time can only be selected if it was selected for calculation on the External Procurement tab. All key figures except the planned delivery time must be explicitly selected for calculation. The values that can be used to determine the update are described in the Planned Delivery Time key figure.
- Decoupled RLT can only be selected if it was selected for calculation on the External Procurement tab. All key figures except the planned delivery time must be explicitly selected for calculation. The values that can be used to determine the update are described in the Planned Delivery Time key figure.

In addition to the key figures for the replenishment lead time, there are also MAD and MAPE values that can only be selected if they were selected on the *External Procurement* tab. The sources for RLT and decoupled RLT can always be updated. In addition, info records, contracts, and scheduling agreements can be updated. The values available as the basis for the update are the same as for the planned delivery time.



In *In-House Production* mode, the following values can be updated:

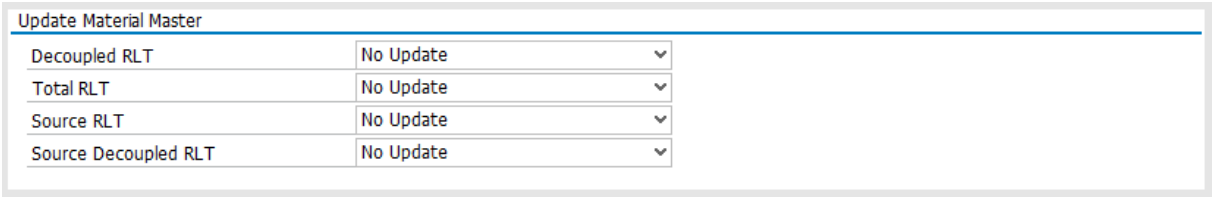


- In-house production time in the material master. If you select it for calculation on the Internal Procurement tab, you can use it as an update and you can use the dropdown box to determine the value with which it is updated. Minimum, Maximum, and Average are always calculated and available. Percentile value, outlier correction, and fixed value are only offered as a selection option if they have been maintained for this key figure on the Internal Procurement tab.
- Single-level RLT (CD) can only be selected if it was selected for calculation on the Internal Procurement tab. All key figures must be explicitly selected for calculation. The possible values for the update are described in the In-House Production Time key figure.
- Single-level RLT (WD) can only be selected if it was selected for calculation on the Internal Procurement tab. All key figures must be explicitly selected for calculation. The possible values for the update are described in the In-House Production Time key figure.
- Accelerated RLT can only be selected if it was selected for calculation on the Internal Procurement tab. All key figures must be explicitly selected for calculation. The possible values for the update are described in the In-House Production Time key figure.

- Total replenishment lead time can only be selected if it was selected for calculation on the Internal Procurement tab. All key figures must be explicitly selected for calculation. The possible values for the update are described in the In-House Production Time key figure.
- Decoupled RLT can only be selected if it was selected for calculation on the Internal Procurement tab. All key figures must be explicitly selected for calculation. The possible values for the update are described in the In-House Production Time key figure.

In addition to the key figures for the replenishment lead time, there are also MAD and MAPE values that can only be selected if they were selected on the *Internal Procurement* tab. The sources for RLT and decoupled RLT can always be updated.

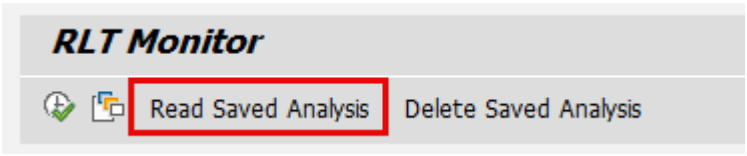
In the *Multi-Level RLT* mode, the following values can be updated:

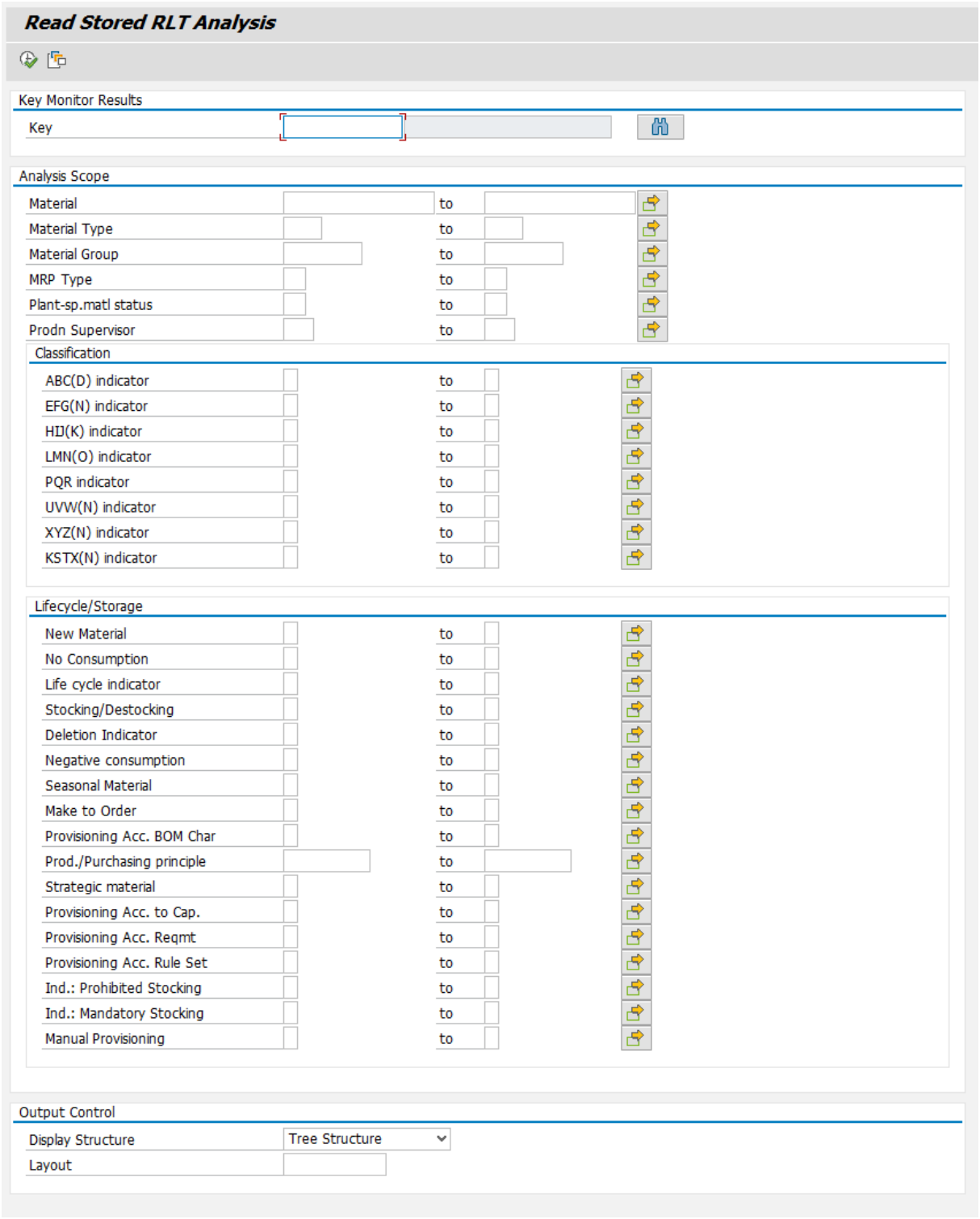


- Total replenishment lead time: If you select it for calculation on the Multi-Level tab, you can use it as an update.
- Decoupled RLT: If you select it for calculation on the Multi-Level tab, you can use it as an update.

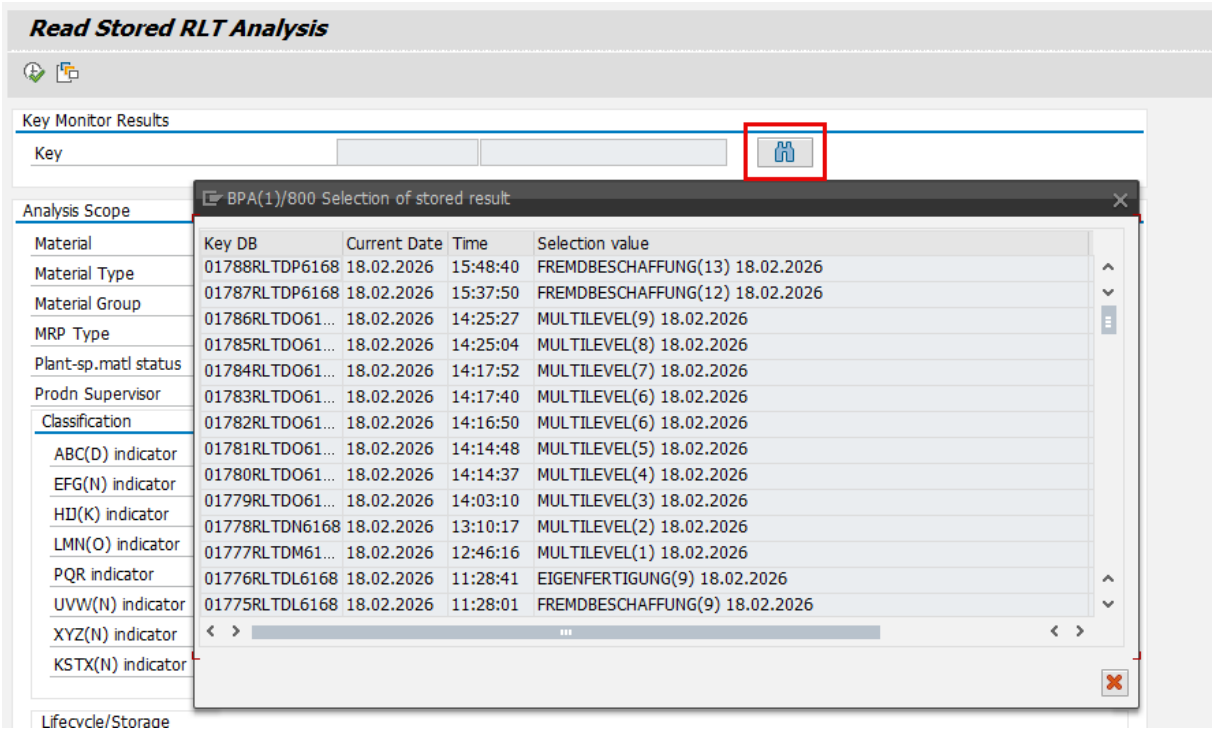
2.8 Read Saved Analysis

You can use the **Read Saved Analysis** transaction to display a saved analysis result. For this, you can either use the Read Saved Analysis button from the RLT monitor or you use separate transaction /SAPLOM/RLT_L.





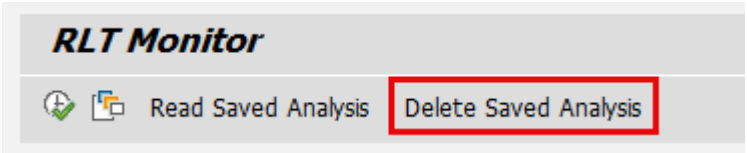
The transaction includes a selection screen where you first have to enter the **Key** of the saved result in order to retrieve the stored analysis. The key selection can be done either manually or via the search button . The search button will open a dialog from where you can select the respective key.

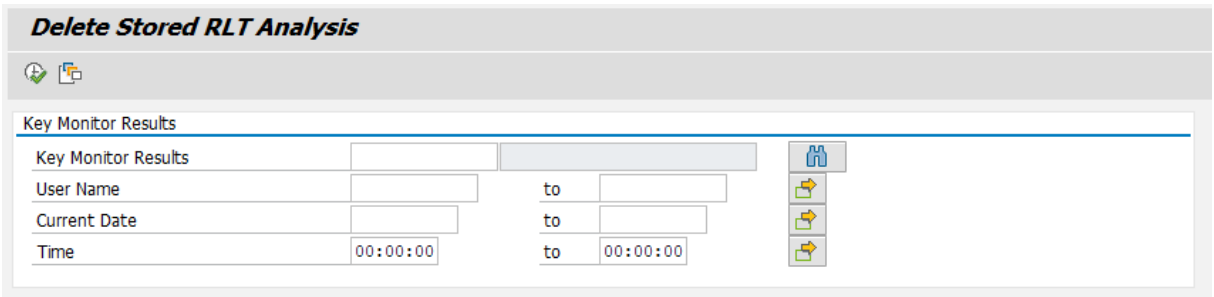


Furthermore, you can use the parameters from the selection screen to filter the saved analysis accordingly.

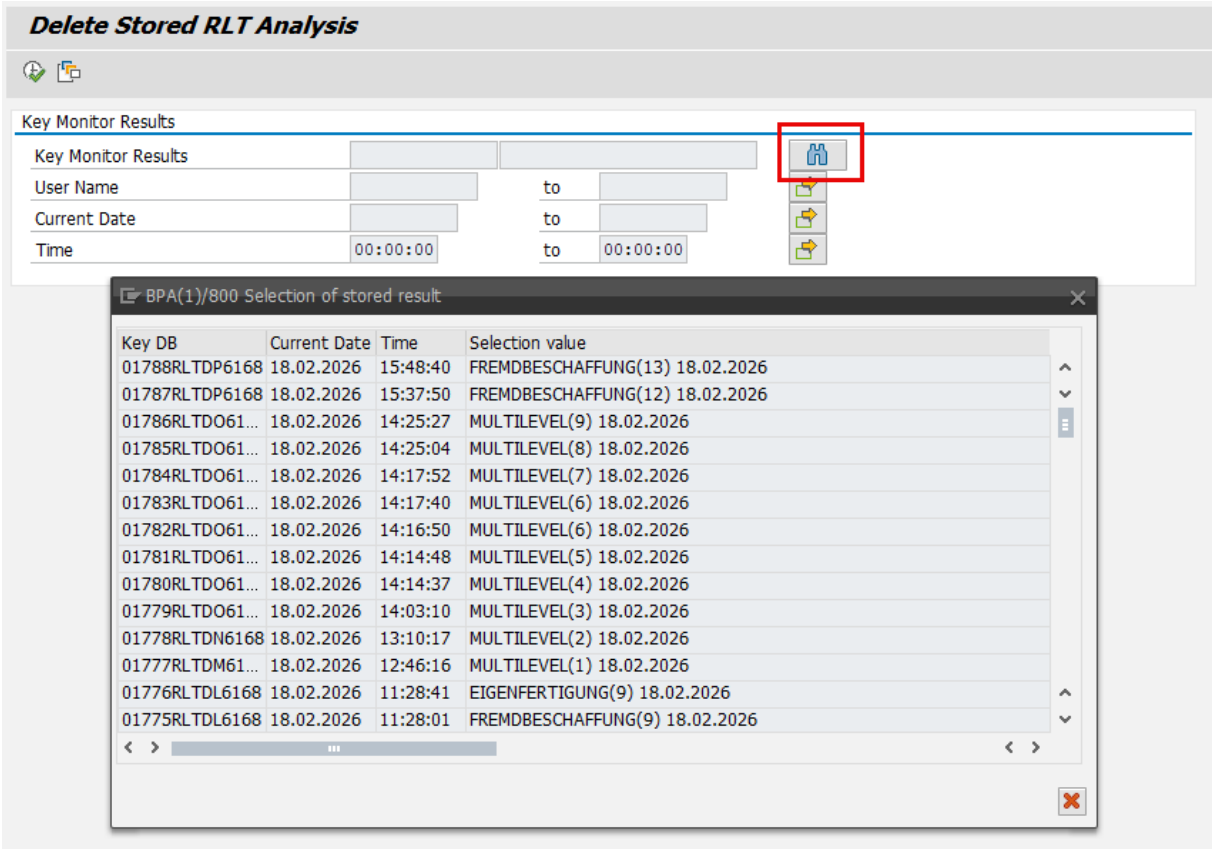
2.9 Delete Saved Analysis

You can use the Delete Saved Analysis transaction to delete saved analysis results from the database. For this, you have to select the Delete Saved Analysis button from the RLT monitor.





The transaction includes a selection screen where you first have to enter the **Key** of the saved result in order to delete the stored analysis. The key selection can be done either manually or via the search button  . The search button will open a dialog from where you can select the respective key.



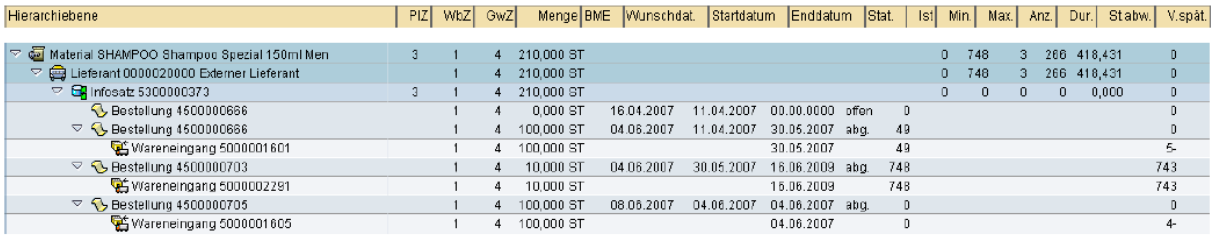
Furthermore, you can use the parameters from the selection screen to filter the results accordingly..

3 Results

The following sections describe the result display.

3.1 Result Display: External Procurement

External procurement uses purchase orders and the corresponding goods receipts for the purchase orders to determine the actual planned delivery time.

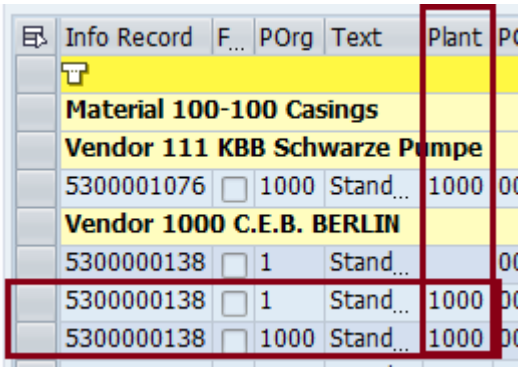


Hierarchiebene	PIZ	WbZ	GwZ	Menge	BME	Wunschdat.	Startdatum	Enddatum	Stat.	Ist	Min.	Max.	Anz.	Dur.	St.abw.	V.spät.
Material SHAMPOO Shampoo Spezial 150ml Men	3	1	4	210,000	ST						0	748	3	266	418,431	0
Lieferant 0000020000 Externer Lieferant		1	4	210,000	ST						0	748	3	266	418,431	0
Infosatz 5300000373	3	1	4	210,000	ST						0	0	0	0	0,000	0
Bestellung 4500000686		1	4	0,000	ST	16.04.2007	11.04.2007	00.00.0000	offen	0						0
Bestellung 4500000686		1	4	100,000	ST	04.05.2007	11.04.2007	30.05.2007	abg.	49						0
Wareneingang 5000001601		1	4	100,000	ST			30.05.2007		49						5-
Bestellung 4500000703		1	4	10,000	ST	04.05.2007	30.05.2007	16.06.2009	abg.	748						743
Wareneingang 5000002291		1	4	10,000	ST			16.06.2009		748						743
Bestellung 4500000705		1	4	100,000	ST	08.05.2007	04.06.2007	04.06.2007	abg.	0						0
Wareneingang 5000001605		1	4	100,000	ST			04.06.2007		0						4-

Result Display: External Procurement

Purchasing Info Records:

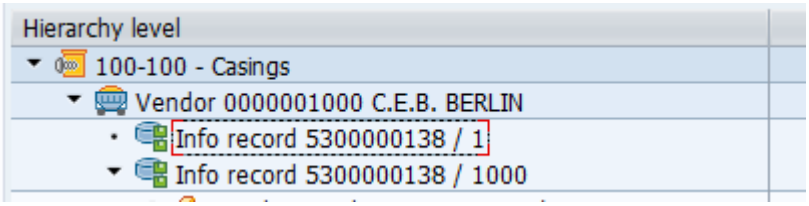
In the SAP system, there are plant-specific info records and info records without plant reference (central info record). You can initially see purchase orders under the central info record. However, if there is additionally (or only) a plant info record, you see the purchase order under this plant-specific info record.



Info Record	F...	POrg	Text	Plant	PO
Material 100-100 Casings					
Vendor 111 KBB Schwarze Pumpe					
5300001076	☐	1000	Stand...	1000	00
Vendor 1000 C.E.B. BERLIN					
5300000138	☐	1	Stand...		00
5300000138	☐	1	Stand...	1000	00
5300000138	☐	1000	Stand...	1000	00

Screenshot 1 of Purchasing Info Record

> ### Example
>
> You can see the purchase order for vendor 1000 under the central info record. For vendor 2000, there is an info record in addition to the central info record for plant 1000. This is why you see the purchase order under the plant-specific info record. In the **replenishment lead time monitor**, the info record number is followed by the purchasing organization and, in the case of a plant info record, the plant. The purchase order number is followed by a purchase order item number.



Screenshot of Example

Contracts:

As with the purchasing info records, the contract include both central and plant contracts. As with the info record, purchase orders with reference to a central contract are displayed under the central contract, and purchase orders referencing a plant contract are displayed below the plant contract.

Scheduling Agreement Delivery Schedule Line:

In a scheduling agreement, all schedule lines to be delivered are displayed with their quantity and delivery date. If goods receipts for partial deliveries have been posted, you will see the corresponding quantity below the schedule line. The current schedule line is always read from the *EKET* table.

Hierarchy level	Pdt	Godds-rec. time	RLT	Amount	BUn	Desdeldate	Startdate	Enddate	open	Delay	Is	Min	Max	Amnt	Avg	St.dev	Residue
Material 100-110 Slug for spiral casing	1	1	0	3.286	ST							0	67	38	30	31,453	
Supplier 0000001003 Gusswerk US				1.254	ST					3		0	53	19	4	12,125	
Supplier 0000009999 IDES Liefera				2.032	ST					1		4	67	19	56	21,435	
Scheduling agreement 550000	10	1	0	2.008	ST					0		4	67	18	59	19,093	
Sched line 5500000137				12	ST	23.09.2010	10.09.20...	14.09.2...	comp.	9-	4						
Sched line 5500000137				7	ST	23.09.2010	10.09.20...	19.09.2...	comp.	4-	9						
Stock receipt 5000012				2	ST			15.09.2...		8-	5						0.000
Stock receipt 5000012				2	ST			17.09.2...		6-	7						0.000
Stock receipt 5000012				3	ST			19.09.2...		4-	9						2.000
Sched line 5500000137				572	ST	24.09.2010	10.09.20...	16.11.2...	comp.	53	67						
Sched line 5500000137				903	ST	24.09.2010	10.09.20...	16.11.2...	comp.	53	67						
Sched line 5500000137				4	ST	24.09.2010	10.09.20...	16.11.2...	comp.	53	67						
Sched line 5500000137				22	ST	24.09.2010	10.09.20...	16.11.2...	comp.	53	67						

Screenshot for Schedule Lines

Goods receipts are assigned to the relevant records by the number of the purchasing document (EKBE-EBELN). The status is set to Cmpl. (completed) as soon as the quantity of the schedule line can be covered by the goods receipt or by multiple goods receipts, otherwise the status remains open. If a residual quantity remains after this assignment, the system displays this in the Remaining quantity column.

Example

In the above diagram, multiple goods receipts are assigned to the schedule line quantity of 7 pieces (9/23/2010). Of the last 3 pieces delivered, 2 remain; this quantity is displayed as a remaining quantity and is added in the next schedule line.

The columns for outlier correction and error measure calculation appear in the tree display only if the corresponding checkboxes on the selection screen have been checked.

With the pushbutton in the status bar, you can display a graphic. The graphic is displayed in an additional window and compares the maximum, minimum, and average delivery time determined by the **replenishment lead time monitor** with the total of planned delivery time and goods receipt processing time saved in the material master. The x-axis specifies the material numbers; the y-axis specifies the time in days.



This graphical display is possible only if the **replenishment lead time monitor** is executed online. This means the graphic cannot be displayed when saved results are loaded.

Data and Key Figures in the Results Table

Column Name	Description
Delta: Purchase Order/Purchase Requisition Release Date	Difference between the release date of the purchase requisition (EBAN-FRGDT) and the creation date of the purchase order (EKKO-AEDAT).

3.1.1 Other Examples of Calculations and Database Fields

The delay is calculated from the end date minus the requested date of a purchase order.

Example

Replenishment lead time external procurement

Hierarchy level	Pdt	Godds-rec. time	RLT	Amount	BUn	Desdeldate	Startdate	Enddate	open	Delay	Is	Min	Max	Amnt
Material 100-110 Slug for spiral casing	1	1	0	2.032	ST							4	67	19
Supplier 0000009999 IDES Liefera				2.032	ST					1		4	67	19
Scheduling agreement 550000	10	1	0	2.008	ST					0		4	67	18
Info record 5300005920 / 100	10	1	0	24	ST					1		12	12	1
Purchase order 450001724				0	ST	10.03.2008	28.02.20...	00.00.0...	open	0				
Purchase order 450001737				24	ST	03.12.2010	23.11.20.	05.12.2...	comp.	2	12			
Goods receipt 5000012				24	ST			05.12.2...		2				
Purchase order 450001737				0	ST	03.12.2010	23.11.20...	00.00.0...	open	0				

Example of Calculating Delay and Actual Time

The actual time is calculated from the goods receipt date (2/6/2010) minus start date (11/23/2010).

The days are calculated in calendar days. At the scheduling agreement, info record, and outline agreement levels (directly below the vendor), you can see the minimum, maximum, average, standard deviation and number of all lower-level closed purchase orders. Purchase orders that have not been closed are not taken into account.

At the vendor level, you can see all the times (minimum, maximum, and so on) of the lower-level purchase orders.

> ### Example
>
> In the example above, vendor 9999 has 19 purchase orders. Times of one purchase order from the info record and 18 times from purchase orders of the scheduling agreement have been taken into account here.

The times at material level are determined in the same way by calculating all closed purchase orders of all vendors of the relevant material.

> ### Example
>
> In the screenshot above, it is material 100-110.

Replenishment Lead Time Monitor Column	Database Field
Desired delivery date (depends on selection on *External procurement* tab):	*EKET-EINDT* (delivery date of the schedule line) *EKET-SLFDT* (stat. delivery date) *EKES-EINDT* (confirmed delivery date)
Start Date	*EKKO-AEDAT* creation date For scheduling agreements: *EKET-BEDAT* purchase order date
Enddate for purchase order (document date)	*MKPF-BLDAT*
Enddate booked goods-rec. of schedule agreement	Date of the last goods receipt for the purchase order *MKPF-BUDAT*

3.1.2 Tasks and Resubmission Date

If you choose the *Set resubmission date* button, you can save a date for a material on which the material is to be considered again. You can also maintain specific measures for material. For more information, see the documentation for the **comprehensive functions**

After you have set a resubmission date or created a task, the result view does not update automatically. This means that the resubmission date appears only after the calculations have been performed again, for example.

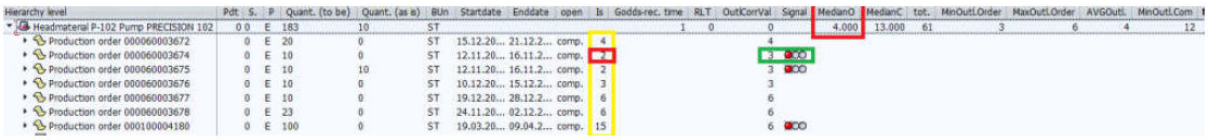
If you choose the table display in the selection, you can also change the task object.

Related Information

Documentation on the **comprehensive functions**

3.1.3 Outlier Correction

The following screenshot shows the result of an outlier correction as an example. The outliers are calculated based on the median. The limits are 1 day (lower) and 2 (upper) as in the screenshot of the selection in section .



Median for Outlier Correction

> ### Example
>
> The median of the orders for the header material is 4 (note yellow border). The actual value for order 60003674 (2 in red frame) to 3 (green frame) is corrected, for example, because the limit the value 4-1 = 3.

The above screenshot shows that a red traffic light (column signal) is set for each corrected value.

The calculation using the standard deviation (sigma) as a replacement for the median is performed in a similar way. In this case, however, the user must set the limit not in days but in percent. The limits are calculated as follows:

Upper limit = average + sigma * percentage from text field for upper limit

Lower limit = average - sigma * percentage from text field for the lower limit

As a result of external procurement, the control is used only on the actual values of closed purchase orders.

Related Information

3.2 Result Display: In-House Production

In the result display, you can see a tree view with multiple lines. In the top row, you can see the result for the material.

For the material, you see the fields in the material master that are important for the replenishment lead times:

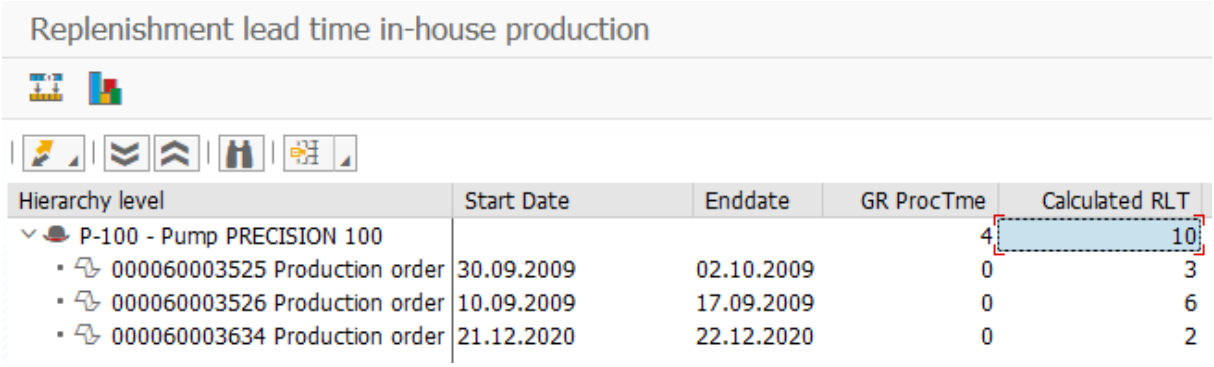
- Total replenishment lead time: GWBZ (table field WZEIT)
- In-house production time: In-house production time (table field DZEIT)
- Planned delivery time Plnd. Dely (table field PLIFZ)
- Goods receipt processing time: GR procTme (table field WEBAZ)

In the corresponding columns, the calculated values are listed with regard to the replenishment lead times. For in-house production, this is the *realized in-house production time*; that is, the time-span between the order start and end of confirmation. For the material, these values are displayed aggregated by the orders, meaning that the orders analyzed in total are evaluated over time and the minimum, maximum, average, and percentile

are displayed. In addition, the standard deviation is used to determine MAD and MAP statistical measures of dispersion; in other words, key figures that quantify the deviation from the mean.

For each order with goods receipt, you can see the time periods from order start to the end date in the row for the corresponding order. From here, the times are aggregated to the material as described above.

The arrow keys allow you to expand and collapse the data for all materials.



Hierarchy level	Start Date	Enddate	GR ProcTme	Calculated RLT
P-100 - Pump PRECISION 100			4	10
000060003525 Production order	30.09.2009	02.10.2009	0	3
000060003526 Production order	10.09.2009	17.09.2009	0	6
000060003634 Production order	21.12.2020	22.12.2020	0	2

The *Status* field is set to Completed as soon as a start and end date exist for the relevant order.

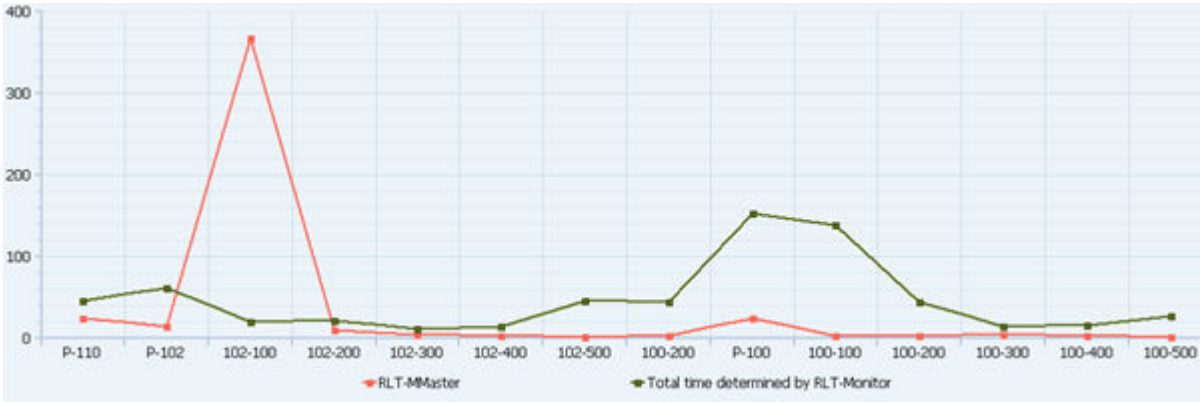
The columns for outlier correction, error measure calculation, and the lot size-dependent in-house production time appear in the tree structure only if you select the corresponding checkboxes on the selection screen. More information about outlier correction can be found in the appendix.

Delta RLT shows the difference (*complete RLT from material master* – *calculated RLT*):

Hierarchy level	DElta TRLT	Calc. RLT	Total replenishment lead time
100-100 - Casings	80-	82	2
000060003745 Production or	0	12	0
000060004105 Production or	0	57	0
000060004199 Production or	0	33	0
000060004228 Production or	0	15	0
000060004229 Production or	0	15	0
100-110 - Slug for spiral casing	12-	12	0
100-120 - Flat gasket	25-	25	0
100-130 - Hexagon head scre	13	2	15

Function of the Delta RLT Column

You can use the button in the status bar to display a graphic. The graphic is displayed in an additional window and compares the total time determined by the **replenishment lead time monitor** with the total replenishment lead time saved in the material master. The x-axis specifies the material numbers; the y-axis specifies the time in days.



Graphical Display

The data basis for the above graphic is the materials in the evaluation.

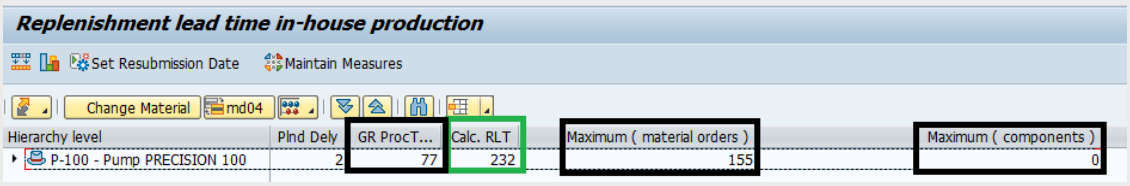
This graphical display is possible only with online execution of the **replenishment lead time monitor**. This means the graphic cannot be displayed when saved results are called. The connections between the points also have no significance. They are intended merely to make points more visible.

3.2.1 Calculation of the Values of the “Calc. RLT” Column

The *Total replenishment lead time* column is calculated in different ways depending on the relevant level. There are the following two levels:

1. Calculated TRLT at material level = Max. own orders + GR processing time.
   Before an analysis, you specify via the selection screen whether the maximum, minimum, or the average is to be calculated. (See In-House Production [page 21])

   Example

   Screenshot of Example

   In the figure above, the total time was determined by the maximum of the orders. The goods receipt processing time is then added, yielding a total of 10 days.

2. Calculated TRLT at production order level = end date – start date.
   You choose the fields of the production order that are read as the start and end date (reported, basic, or scheduled) on the selection screen on the Inhouse production tab (see In-House Production [page 21]).

3.3 Result Display: Multilevel RLT

3.3.1 Columns for Special Procurement and Quota Arrangement

If you have selected the *consider special procurement key* or *Consider Quotation* checkbox, additional columns are visible on the results screen (*QuotaUsage*, *Spec.proc.type*, *Add. transportation time*):

Hierarchy level	QuotaUsage	SP type	Plant	ad.sp.proc	Calc. RLT
400-200-NN -		70	1100	0	54
000060005790 Production or				0	0
400-210-NN -			1100	0	10
400-152-NN -			1100	0	9
100-300TIO - Hollow shaft	4	20	0001	5	53

Caption Missing

These columns display the quota arrangement indicator or the special procurement key and the additional transportation time of the requesting plant. The requesting plant can be recognized easily by the component above it. Only the header material requires you to know the plant for which the analysis was started.

> ### Example
>
> In the above screenshot, if material 100-300Tio has the quota arrangement indicator 4 and special procurement key 82 in plant 1100.

The plant in the *Plant* column shows the *manufacturing plant* resulting from the quota arrangement or the special procurement key.

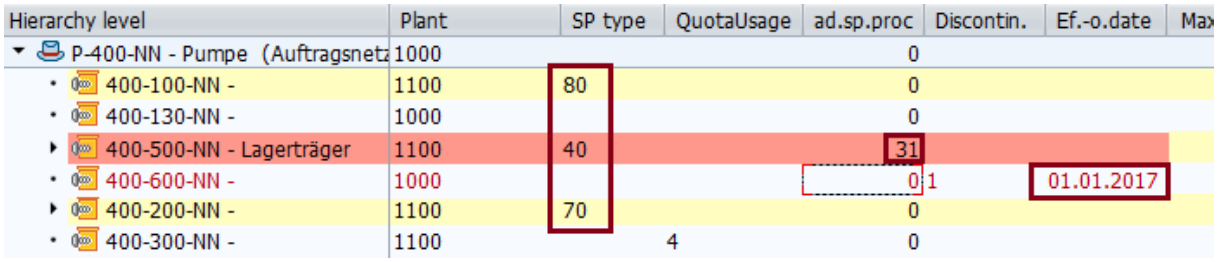
> ### Caution
>
> A quota arrangement takes priority over the special procurement key.

If a component is procured from a plant via special procurement key or quota arrangement, the system displays an additional transportation time.

> ### Example
>
> In the above case, there are 5 days for the material “100-300TIO". These 5 days are calculated from 3 days planned delivery time + 2 days goods receipt processing time that were entered in Plant 1100.

3.3.2 Color Legend in the ALV Tree

Rows in the tree result screen are highlighted in color depending on the selection in the in-house production area.



Hierarchy level	Plant	SP type	QuotaUsage	ad.sp.proc	Discontin.	Ef.-o.date	Max
P-400-NN - Pumpe (Auftragsnetz	1000			0			
400-100-NN -	1100	80		0			
400-130-NN -	1000			0			
400-500-NN - Lagerträger	1100	40		31			
400-600-NN -	1000			0	1	01.01.2017	
400-200-NN -	1100	70		0			
400-300-NN -	1100		4	0			

Colors in the Table

Yellow Background:

The material is a special procurement without stock transfer. The special procurement indicator is displayed in the corresponding column. You see only the times from the procuring plant.

> ⓘ Note
>
> Prerequisite: The *consider special procurement indicator* function on the *Inhouse production* tab is activated.

Red Background:

The material is a special procurement with stock transfer. The special procurement indicator is displayed in the corresponding column. The stock transfer gives rise to an additional period (*Add. special procurement key* column). The time is calculated using the planned delivery time of the components and the goods receipt processing time from the receiving plant and is added to the total replenishment lead time.

> ⓘ Note
>
> Prerequisite: The *consider special procurement indicator* function on the *Inhouse production* tab is activated.

Red Font:

The material has an entry in the Effective-out date field in the material master (MRP 4 view), and the date is less than or equal to the current date, or it has no entry in the effective-out date, but the discontinuation indicator field is not empty.

3.3.3 Calculation of the Values of the “Calc. TRLT” Column

The *Calculated RLT* column always displays the largest RLT of the components plus the RLT of the material at the various levels.

In this example, the total replenishment lead time is calculated based on the single-level RLT (AT) in the enhanced material master view.

Hierarchy level	Calculated RLT	SingleLev.RLT(WorkD) SCM-TAB
101-100 - Casing 101	86	6
101-110 - Slug for spiral casing-	80	80
100-120 - Flat gasket	2	2
100-130 - Hexagon head screw	30	30
100-100 - Casings	35	5
100-110 - Slug for spiral cas	0	0
100-120 - Flat gasket	2	2
100-130 - Hexagon head sc	30	30

Material 100-100 has a RLT of 5 days. The calculated RLT is specified with 35 days. The maximum of the components 100-110, 100-120, and 100-130 plus the custom RLT of 5 days.

If the calculation is based on the master data in the MRP 2 view, the planned delivery times, goods receipt processing times, in-house production times, and purchasing department processing times are used.

The total RLT is always calculated in workdays. If the decoupled replenishment lead time is updated, the RLT is converted into calendar days.

3.4 Result Display: Simulation

The result of the simulation is displayed as a tree structure.

The structure of the tree reflects the bill of material structure. However, only those components are displayed for which a long-term planned order was generated during the simulated MRP run. In the other columns on the results screen, you can see information from the material master and also information about the created long-term planned orders.

If a start date of an order is in the past, it is highlighted as follows:

Material	Descr.	Pl...	R	Resub.Dat.	O	Pu...	M...	P	S	Safety Stk	I.	Receipt	Requiremen	U	Avail.Date	End	Start date	Open. date	InhseProdT	Proc. time	SetupTime	Interop.	Plnd Dely	GR ProcTme
P-400-NN	Pumpe (Auftragsnetze)	1000					101	E		10.000,000		10.025,000	25,000	PC	22.08.2018	22.08.2018	08.08.2018	25.07.2018	10				10	
400-110-NN	Rohling für Spiralgehäuse	1000	X	10.06.2013	X	001	101	F		0,000	2	5.013,000	5.013,000	PC	21.08.2018	20.08.2018	08.08.2018	25.07.2018					10	1
400-130-NN	Sechskantmutter M10	1000	X	11.06.2013	X	001	101	F		0,000	2	5.013,000	5.013,000	PC	21.08.2018	20.08.2018	08.08.2018	25.07.2018					10	1
400-300-NN	Welle	1000				001	101	E		0,000	2	15.038,000	15.038,000	PC	17.03.2022	16.03.2022	08.08.2018	25.07.2018		902,28	0,07	3,99	30	1
400-400-NN	Antriebselektronik	1000				001	101	E		0,000	2	5.013,000	5.013,000	PC	20.03.2019	19.03.2019	08.08.2018	25.07.2018		150,39	0,01	3,22	10	1
400-410-NN	Platine für Antriebselektronik	1000				001	101	F		0,000	2	5.013,000	5.013,000	PC	21.08.2018	20.08.2018	08.08.2018	25.07.2018					10	1
400-420-NN	Stromversorgungsmodul	1000				001	101	F		0,000	2	5.013,000	5.013,000	PC	11.09.2018	10.09.2018	08.08.2018	25.07.2018					30	1
400-430-NN	Kabelbaum	1000				001	101	F		0,000		5.013,000	5.013,000	PC	11.09.2018	10.09.2018	08.08.2018	25.07.2018	1				30	1
400-500-NN	Lagerträger	1000				001	101	X	40	0,000	1	5.013,000	5.013,000	PC	11.09.2018	10.09.2018	08.08.2018	25.07.2018		200,52	0,02	3,23	30	1
400-500-NN	Lagerträger	1100	X	14.06.2013	X	001	101	E		0,000		5.013,000	5.013,000	PC	07.08.2018	06.08.2018	01.08.2018	18.07.2018	3				13	1
400-510-NN	Kugellager	1100				001	101	F		20,000	2	5.021,000	5.013,000	PC	01.08.2018	31.07.2018	19.07.2018	05.07.2018					10	1
400-700-NN	Blech ST37	1000	X	14.07.2013	X	001	101	F		0,000	2	5.100,000	5.012,500	M2	21.08.2018	20.08.2018	08.08.2018	25.07.2018					10	1
400-800-NN	Farbe blau	1000				001	001	F		0,000	2	5.012,500	5.012,500	KG	20.08.2018	20.08.2018	08.08.2018	25.07.2018					10	
400-140-NN	Drehzahlmesser	1000	X	13.06.2013		001	101	E	80	0,000		10.026,000	5.013,000	PC	14.08.2018	10.08.2018	08.08.2018	25.07.2018	2				10	2
400-153-NN	Gehäuse	1000				T24	101	F		0,000	2	5.075,000	5.013,000	PC	21.08.2018	21.08.2018	08.08.2018	25.07.2018					11	
400-200-NN	Laufrad	1100				001	101	E		200,000	1	5.113,000	5.013,000	PC	08.08.2018	07.08.2018	24.07.2018	10.07.2018	10				10	1
100-300TIO	Hollow shaft	1100				100	001	E	20	0,000	1	5.113,000	5.113,000	PC	24.07.2018	20.07.2018	16.07.2018	02.07.2018		51,13	0,10	1,00	3	2
400-152-NN	Anzeige	1100				001	000	F		0,000		5.113,000	5.113,000	PC	24.07.2018	24.07.2018	11.07.2018	27.06.2018					12	
400-210-NN	Rohling	1100				001	101	F		0,000	2	5.113,000	5.113,000	PC	24.07.2018	23.07.2018	09.07.2018	25.06.2018					13	1
400-151-NN	Temperatursensor	1000	X	13.06.2013		T24	101	F		0,000	2	5.125,000	5.013,000	PC	24.08.2018	24.08.2018	08.08.2018	25.07.2018					14	

Highlighting

If there is special procurement for a component, this is highlighted with a yellow background in the Special Procurement Type column.

If, for example, special procurement results in a different plant from the one entered in the selection, this is also displayed with a yellow background in the Plant column.

In front of the components, there is a traffic light icon that indicates whether the component belongs to the critical path or not. The critical path is the path with the longest total lead time. It is displayed from the level at which it begins up to the header material.

3.5 Call Standard SAP Transactions

In the results tree view, you can navigate to different SAP standard transactions.

> ✤ Example
>
> Double-click on a row of a material or component: This takes you to the display of the respective material master (transaction *MM03*). Double-click on a production order: You can see the relevant order (TA *CO03*).

You can link to other transactions by creating and adapting a navigation profile with .

The following table lists the implemented links:

Accessible Using	Transaction	Called Using
Results tree view for in-house production and external procurement	Material master (*MM03*)	Double-click on a row with material
Results tree view for in-house production and external procurement	Material document (*MB03*)	Double click on goods receipt
Results tree view for in-house production	Production order (*CO03*)	Double-click on a row with production order
Results tree view for external procurement	Display vendor (*MK03:*)	Double-click on vendor
Results tree view for external procurement	Scheduling agreement (*ME33L*)	Double-click the header line of a scheduling agreement
Results tree view for external procurement	Display info record (*ME13*)	Double-click the header line of a scheduling agreement
Results tree view for external procurement	Standard purchase order (*ME23N*)	Double-click purchase order under an info record or outline agreement

3.6 Simulation in In-House Production and Multilevel RLT

On the results screen for in-house production and multilevel RLT, you can use the calculated data to run a simulation. The result of the simulation is displayed as a Gantt chart.

During the simulation, you have three options for in-house production:

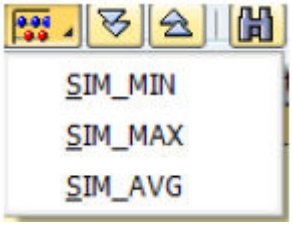
- Simulation with minimum values: This is the minimum of the own orders of the relevant material
- Simulation with average values: Here, the average of the own orders of the relevant material is used

- Simulation with maximum values: This is the maximum of the own orders of the relevant material

If the relevant minimum, maximum, or average value is 0, then the calculated total replenishment lead time is used. The total replenishment lead time is used by default in the multilevel RLT analysis mode.

You can jump to the simulation as follows:

- Select the material to be simulated
- Navigate to the simulation using the navigation menu

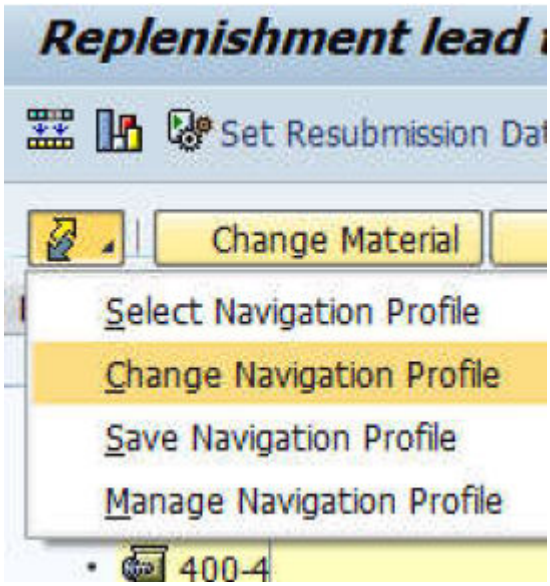


Simulation Button

If the links to the simulation do not exist in the navigation profile, you must integrate the following function codes:

- *SIM_MIN* – simulation with minimum values
- *SIM_MAX* – simulation with maximum values
- *SIM_AVG* – simulation with average values

You integrate the function codes via Change Navigation Profile.

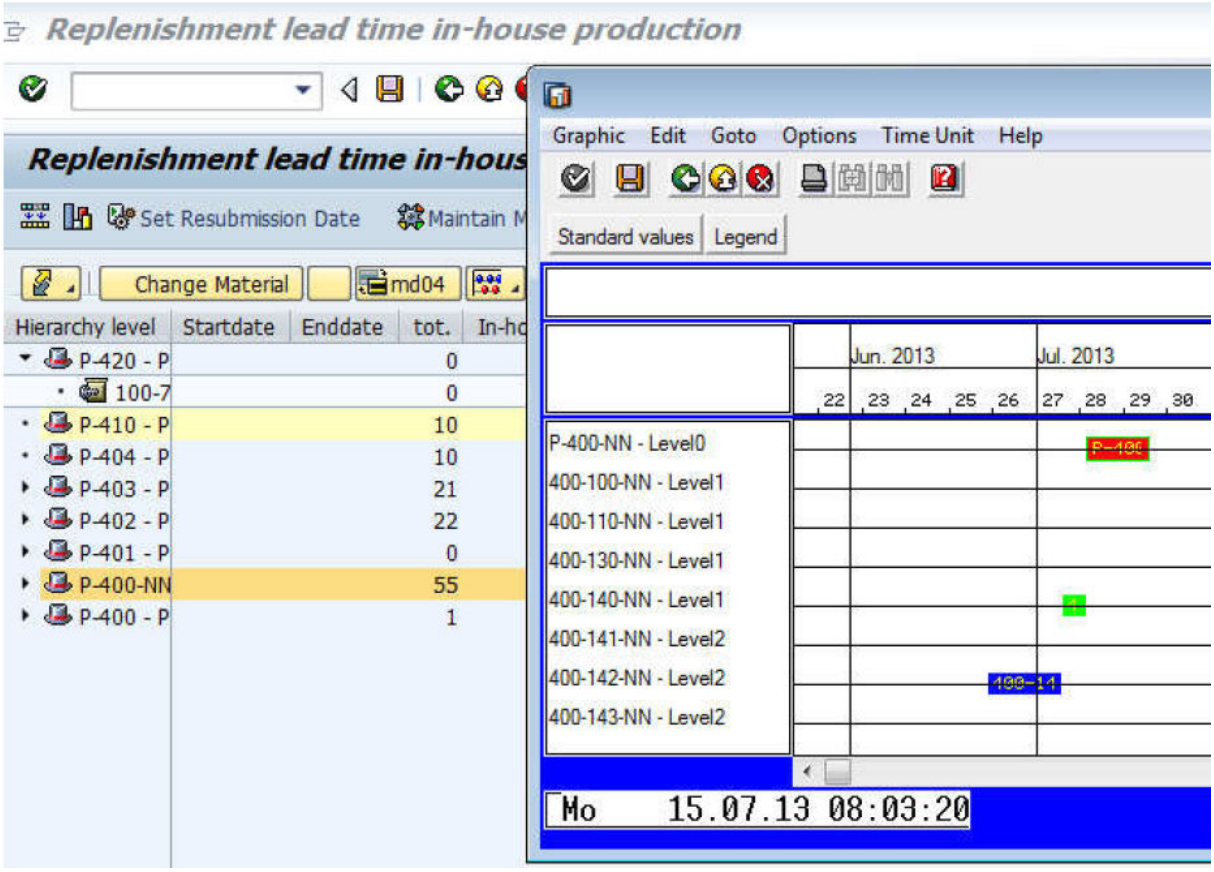


Navigation Profile

After the change, you can save the navigation profile as default and access it again later.

3.6.1 Result of the Simulation

The result of the simulation is displayed in a separate window in the Gantt chart.



Color legend:

- Blue background: Materials with procurement indicator F
- Green background: Materials with procurement indicator E or X
- Red background: This material is part of the critical path
  - Blue frame: Materials with procurement indicator F
  - Green border: Materials with procurement indicator E or X
- Black font: Minimum, maximum, or average value is greater than 0 and has been used for the simulation.
- Yellow font: Minimum, maximum, or average value equals 0. Calculated total replenishment lead time has been used for the simulation.

Definition of Critical Path:

The critical path is the path in the BOM with the longest total replenishment lead time.

Simulation process: During the simulation, the system initially performs forward scheduling. The longest path is determined to define the end date. Starting from the end date, the components are then scheduled backwards. The start date is always the current date.

4 Master Data Update in RLT

The following sections describe master data updates.

The RLT allows automated and manual master data updates. For the automatic update, you must select the *Save Result* option on the *Result* tab of the selection screen (see Result [page 35]). If this option is selected, further selection options are available: Here you specify which key figures are to be updated with which calculated value. The corresponding fields in the material master and on the SCMCS tabs are then updated during the analysis for each material in the selection. In addition to the automatic update, it is possible to update the corresponding material master fields manually from the results screen. This logic is described below for the respective analysis modes.

Related Information

Manual Master Data Update for In-House Production [page 57]
Manual Master Data Update External Procurement [page 56]
Result [page 35]
Manual Master Data Update with Multilevel RLT [page 58]

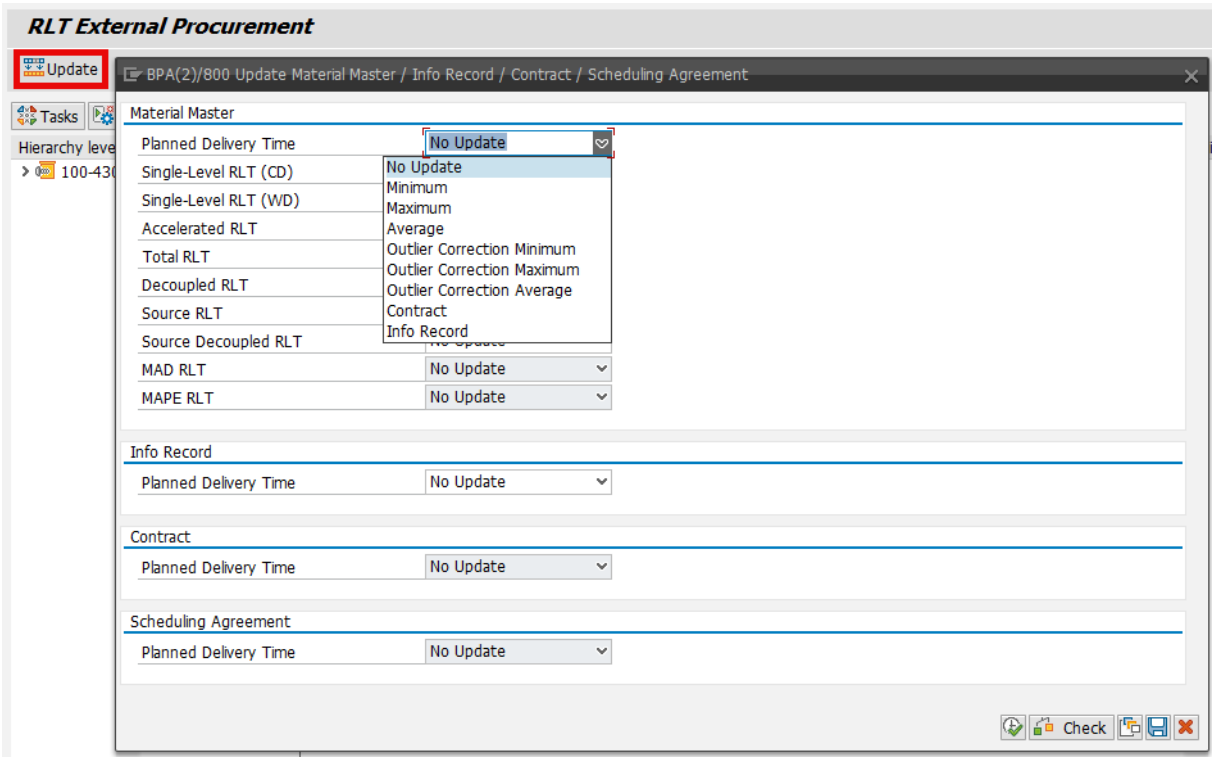
4.1 Manual Master Data Update External Procurement

On the results screen, you can trigger a manual update of master data in the tree and grid display. You can use the button  to open the dialog box for the manual update. Here you can select which key figures are to be updated. The key figures and values available here depend on the selection of the key figures to be calculated on the External Procurement tab of the selection screen (see). Only the key figures that were selected there are available for update here. If you select a key figure, you can select the value that is to be used for the update in the corresponding dropdown box. All selected materials are updated in accordance with the key figures selected here in the material master. In addition to the material master data, the data of the following document types can also be updated:

- Info records
- Contracts
- Scheduling agreements

All data records that were selected on the results screen are updated. Materials are updated according to the selected key figures. Info records, contracts, and scheduling agreements are updated with the calculated planned delivery time. You can use the dropdown box to determine which value (for example, minimum, maximum, or average) is used for this. Again here, only those values are available that were selected for calculation by the selection on the selection screen. You can change the selected data records on the basis of the calculated result, but you cannot change the calculation.

Selecting Options for Updating the External Procurement Data



The changes are updated with the following settings:

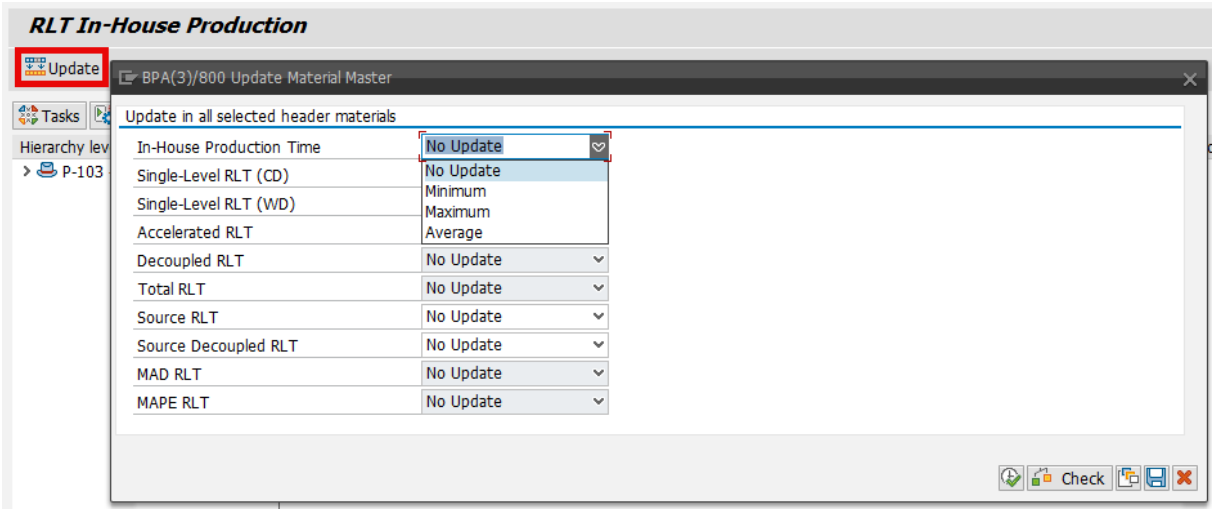
- Update material master data:
  - Save in the background
  - Processing mode N
- Update info records; update contracts
  - Save in the background
  - Processing mode E

You can use the log in *SLG1* under object */SAPLOM/** to analyze update problems.

4.2 Manual Master Data Update for In-House Production

On the results screen, you can trigger a manual update of master data in the tree and grid display. You can use the button to open the dialog box for the manual update. Here you can select which key figures are to be updated. The key figures and values available here depend on the selection of the key figures to be calculated on the In-House Production tab of the selection screen (see In-House Production [page 21]). Only the key figures that were selected there are available for update here. If you select a key figure, you can select the value to be used for the update in the corresponding dropdown box. In addition to the various key figures, you can also update the RLT sources here. All selected materials are updated in accordance with the key figures selected here in the material master. All materials that were selected on the results screen are updated.

Selection Options for Updating the In-House Production Data



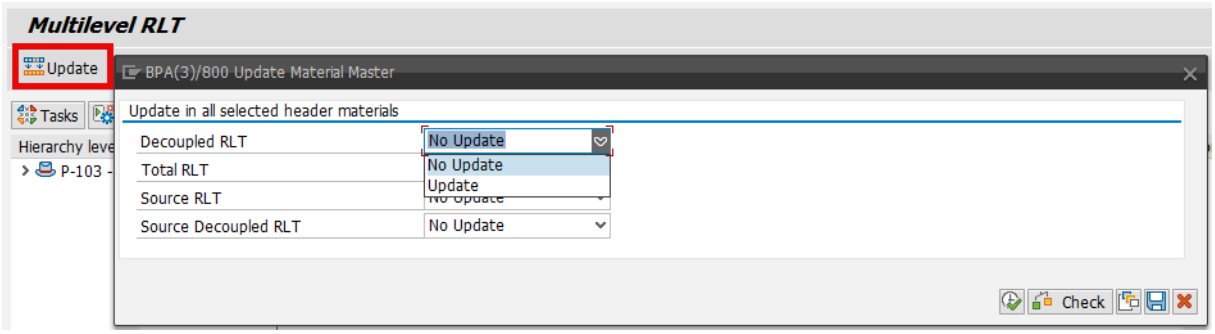
The changes are updated with the following settings:

- Save in the background
- Processing mode N

If you have update problems, you can use the log in *SLG1* under object */SAPLOM/** to determine the cause.

4.3 Manual Master Data Update with Multilevel RLT

In the Multilevel RLT analysis mode, the total replenishment lead time and the decoupled RLT can be selected for the update. The result of the calculation defined on the *Multilevel RLT* tab page is used for the update (see Total Replenishment Lead Time [page 30]). The source of the RLT can also be updated here. The update affects all materials that were selected on the results screen.



The changes are updated with the following settings:

- Save in the background
- Processing mode `N`

If you have update problems, you can use the log in `SLG1` under object `/SAPLOM/*` to determine the cause.

5 Important Information and Restrictions

Please note the information and restrictions described in the following sections.

Related Information

Order Date Delivery Schedule [page 59]
Restriction by Analysis Period [page 60]
Selection Options in General [page 60]
Negative Delivery Times with Goods Receipt Before a Purchase Order Is Created [page 61]
Outlier Correction: External Procurement [page 61]
Alternative BOM Option [page 61]
Load Saved Results [page 61]
Update Master Data [page 62]
Save as Variants [page 62]

5.1 Order Date Delivery Schedule

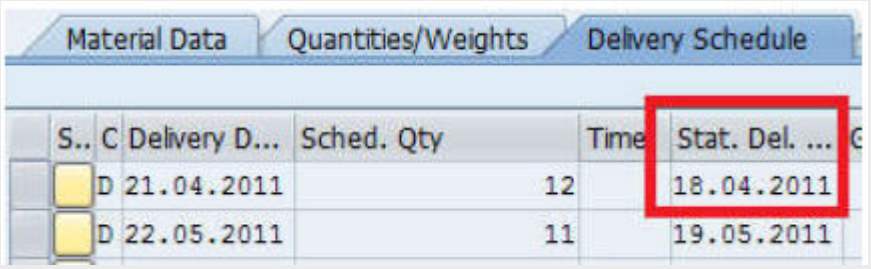
If you select *Stat. delivery date* as the requested delivery date on the *External procurement* tab of the replenishment lead time monitor, you can always see the first date of a schedule line for purchase orders with schedule line.

Hierarchy level	Pdt	Godds-rec. time	RLT	Amount	BUn	Desdeldate	Startdate	Enddate
Material 100-101 CI Spiral casing (with planned scrap)	3	1	7	46	ST			
Supplier 0000001011 SKF Americas	1			46	ST			
Outline agreement 5002000002 / 00010	3	1	7	46	ST			
Purchase order 4500017415 / 00010				23	ST	26.05.2011	18.04.20...	29.04.2..
Purchase order 4500017418 / 00010				23	ST	18.04.2011	28.04.20...	26.04.2..
Goods receipt 0000000039				11	ST			24.04.2..
Goods receipt 0000000040				12	ST			26.04.2..

Requested Delivery Date

Example

Example *ME23N*:



Schedule Lines

5.2 Restriction by Analysis Period

Production:

You can restrict the results by specifying an analysis period. For production orders, a predefined period in the selection screen refers either to the basic start date *(AFKO-GSTRP)*, scheduled start date *GSTRS*, or to the reported end date *GETRI* of the order, depending on the dates selected.

For scheduling agreements, the analysis period refers to the requested date, which is either the delivery date or the stat. delivery date, depending on what you have selected on the *External procurement* tab.

Procurement:

Selection by contracts is performed at document level. This means that no empty contracts are displayed, only contracts that also have a document.

The selection logic with predefined contract number and info record number is an AND operation; this means that only documents that have the predefined contract number (*EKPO-KONNR*) and info record number (*EKPO-INFNR*) are found. When the analysis period is restricted, the change date is checked at item level (*EKPO-AEDAT* field).

5.3 Selection Options in General

Depending on the field type and system settings, selections can sometimes behave in unexpected ways and even fail to deliver any results.

Example

One example is the Vendor field. If you enter 1*, the system searches for all info records/contracts with vendors 1+++++++++. Vendor 1000 is not taken into account because it can have leading zeroes in the system. Therefore, in this example, the entry in the selection field must have leading zeroes: 0000001*.

5.3.1 Selection Using Purchasing Document

If you have entered purchasing document numbers on the *External procurement* tab on the selection screen, the **replenishment lead time monitor** reads all purchase orders for the selection with the order category 'F' (purchase order).

5.4 Negative Delivery Times with Goods Receipt Before a Purchase Order Is Created

If the system contains a goods receipt date for a purchase order that is before the start date (or requested date), the time is set to 1. This time of one day is also included in the minimum, maximum, and averages calculation. Negative time is not calculated.

5.5 Outlier Correction: External Procurement

To improve program runtime, calculation of the minimum, maximum, and averages of outlier corrected values has not been implemented at vendor level.

5.6 Alternative BOM Option

If you enter an alternative BOM, the change has an effect only on the BOM explosion, but not directly on the production orders. This means that you enter a number as the alternative BOM only for the function module (*CS_BOM_EXPLOSION*), and not when reading the order header tables *(AFKO- STLAL)*.

5.7 Load Saved Results

Loading saved results and running the system with a quantity > 1000 may result in crashes. The most common cause is insufficient memory. To avoid crashes with a large number of materials (>1000 with three BOM levels), we recommend that you do not display the results as a tree; instead, load the results using *Advanced LV tree* or as a table, or limit the result by restricting the materials. Please see also 1563641 and 286316

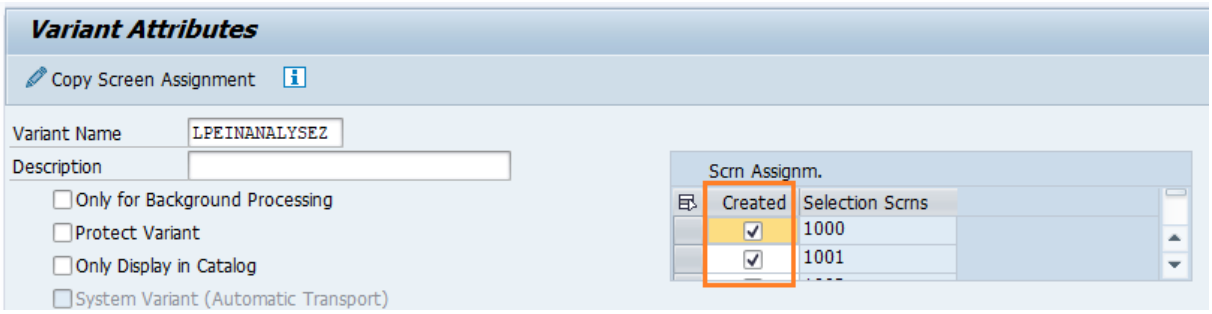
You can restrict the result only by specifying material numbers. All other selection fields are ignored.

5.8 Update Master Data

When updating the planned delivery time of contracts or info records, you must make sure you have selected them. Updating the data with the button can fail if the corresponding transaction contains warning or information messages that must be confirmed.

5.9 Save as Variants

Please ensure you have also checked the values of relevant tabs before saving variants. For variants for external procurement, you must have selected the screen assignment checkboxes 1000, 1001, and 1002:

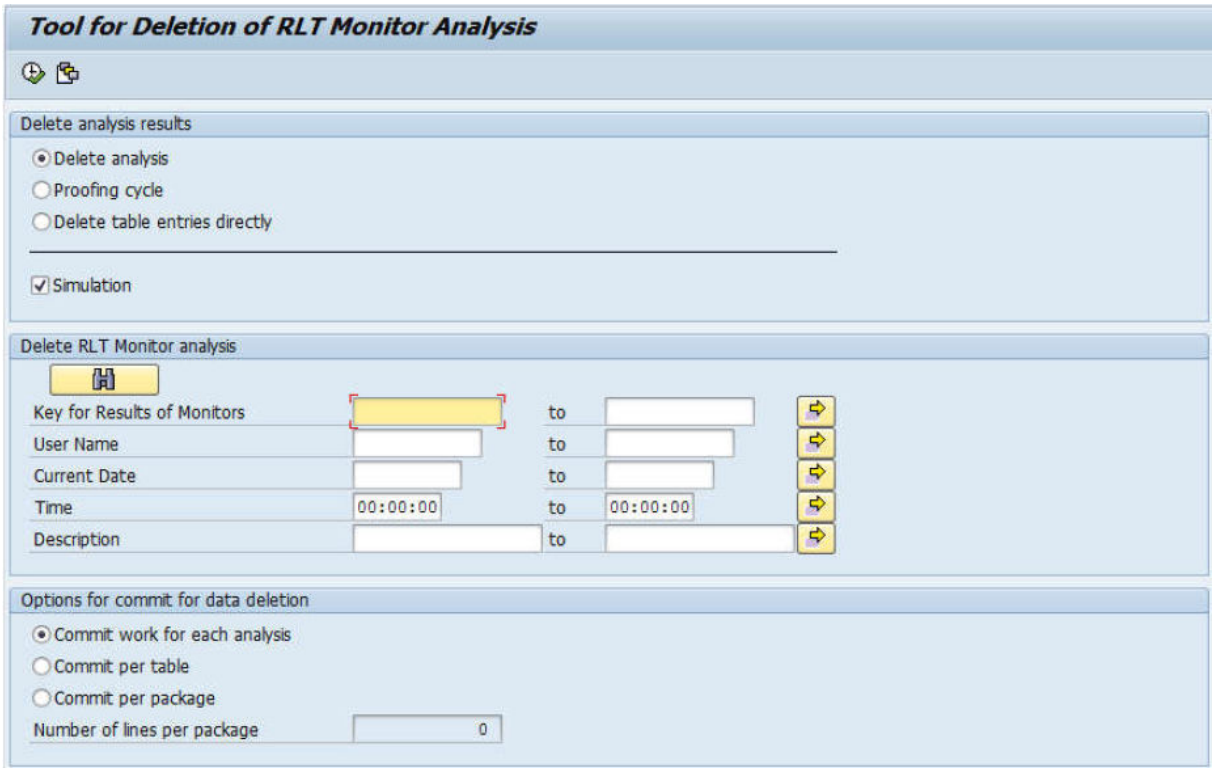


Variant Attributes

For in-house production, you have to select the checkboxes for the selection screens 1000, 1001, and 1003.

6 Deletion Program for Saved Results

There is a separate program for deleting results that are no longer required and the associated selection parameters from the data base. You call this using */SAPLOM/RLT_X*.



Deletion Program

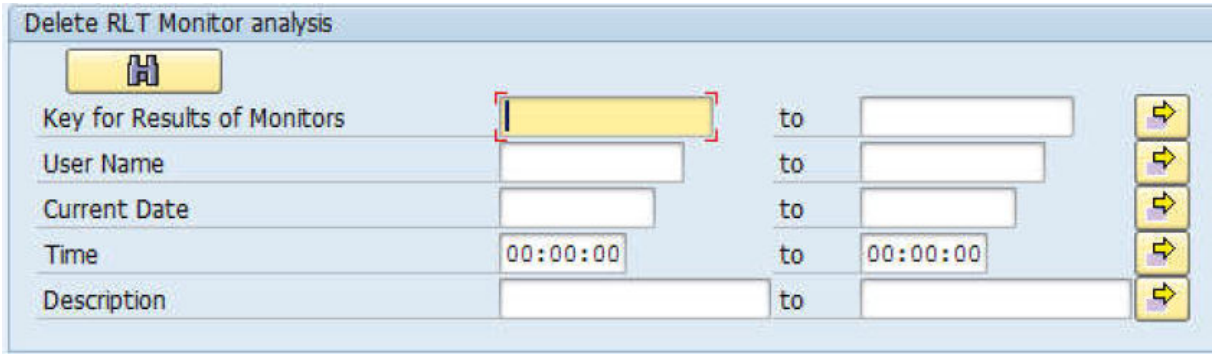
There are three user cases:

1. Delete specific analyses (can be restricted using selection screen)
2. Delete analyses for which selections parameters are no longer stored (in the table */SAPLOM/X_SELECT*)
3. Delete individual analyses from the results table directly (if an inconsistency has occurred)

In each case, there is the option of using the simulation mode without affecting the databases.

Delete Analysis

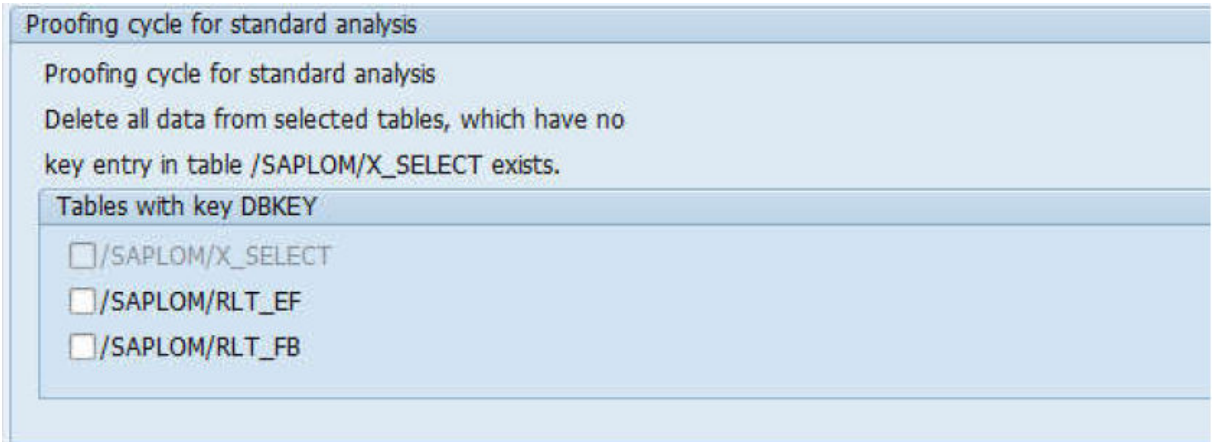
You can select a specific analysis or enter a free selection. The search button displays all the analyses that are in the table */SAPLOM/X_SELECT*.



Deleting Analyses

Correction Run

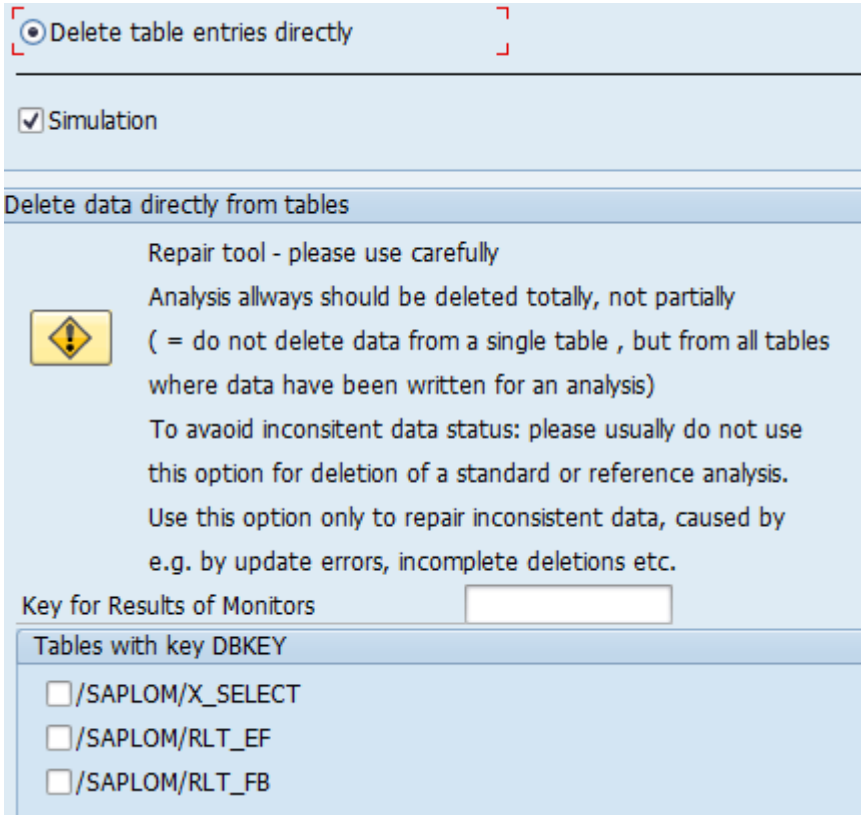
If the table */SAPLOM/X_SELECT* for an analysis no longer contained entries, this would result in errors when loading the analysis. The analysis must therefore be deleted. Use the correction run option und check option /SAPLOM/RLT_EF and/or /SAPLOM/RLT_FB and. You do not have to enter a database key because the program itself determines the corresponding key.



Correction Run

Delete Table Entries Directly

If inconsistencies have occurred, you can use this option to delete analyses directly from the individual tables. In this case, you must specify a key. Please use with care.



Delete Table Entries Directly

7 Enhancement Options

The following enhancement options are available in the **replenishment lead time monitor**. These enable you to add selected functions without modifications, or to change these functions.

Related Information

Enhancement Points [page 66]
Business Add-Ins (BAdIs) [page 67]

7.1 Enhancement Points

Enhancement points are available for enhancing the selection screen. These are explicit enhancement points in ABAP source code. All enhancement points are assigned to the enhancement spot */SAPLOM/RLT_ENH*.

The following enhancements are used to enhance the selection screen:

/SAPLOM/RLT_E01 at the end of subscreen 1001 (*General settings* tab) *ENHANCEMENT-POINT /SAPLOM/RLT_SELSCREEN_1001*

/SAPLOM/RLT_E01 at the end of subscreen 1002 (*External procurement*tab) *ENHANCEMENT-POINT /SAPLOM/RLT_SELSCREEN_1002*

/SAPLOM/RLT_E01 at the end of subscreen 1003 tab (*Inhouse production*) *ENHANCEMENT-POINT /SAPLOM/RLT_SELSCREEN_1003*

/SAPLOM/RLT_E01 at the end of the processing block INITIALIZATION (preassignment) *ENHANCEMENT-POINT /SAPLOM/RLT_SCREEN_INIT*

/SAPLOM/RLT_E01 at the end of the processing block AT SELECTION-SCREEN OUTPUT (customize fields) ENHANCEMENT-POINT */SAPLOM/RLT_SCREEN_OUTPUT*

/SAPLOM/RLT_E01 at the end of the processing block AT SELECTION-SCREEN (input validation) *ENHANCEMENT-POINT /SAPLOM/RLT_SCREEN_AT*

The following enhancement is used to enhance the TOP includes for data declaration:

/SAPLOM/RLT_TOP at the end of the TOP include (data declaration) *ENHANCEMENT-POINT /SAPLOM/RLT_TOP_ENH*

7.2 Business Add-Ins (BAdIs)

To enhance all other places in the program, BAdIs are available. As of SAP NetWeaver 7.0, BAdIs are part of the Enhancement Framework, where they represent explicit enhancement options. They differ from the classic BAdIs particularly in terms of their improved performance.

> **Note**
>
> With Version 2023, the BAdI /SAPLOM/CL_RLT_KEYSLCTN is replaced by /SAPLOM/RLT_KEYADAPT. A description of which method of the original BAdI is replaced by which is displayed next.

BAdIs are initialized in the constructor of the class /SAPLOM/RLT_MAIN.

All BAdIs are assigned to the enhancement spot **/SAPLOM/RLIT_KEYADAPT**. The following BAdIs are available:

/SAPLOM/RLT_KEYADAPT: Selection of master data and transaction data for RLT - methods

ADAPT_EXTERNAL RESULT replaces **SELECTION_FB_HEADER**:

- Allows you to adjust the selected header materials for external procurement
- Called in method SELECT_MATERIAL_EXT_PROC of class /SAPLOM/RLT_MAIM

ADAPT_INFOREC_MATERIAL_RESULT replaces **SELECTION_INFOREC_MAT**

- External procurement: selection of info records with given material
- Called in method SELECT_INFORECORD_FB of class /SAPLOM/RLT_MAIN

ADAPT_PURCHASING_ORDER_RESULT replaces **SELECTION_PURCHASE**

- External procurement: selection of purchase orders
- Called in method SELECT_PURCHASE_FB of class /SAPLOM/RLT_MAIN

ADAPT_RECEIPT_RESULT replaces **SELECTION_RECEIPT**

- Called in method SELECT_RECEIPTS_FB of class /SAPLOM/RLT_MAIN

ADAPT_SELECTION_AGREEM_RESULT replaces **SELECTION_AGREEMENT**

- External procurement selection of scheduling agreements with schedule lines and goods receipt
- Called in method SELECT_AGREEMENT of class /SAPLOM/RLT_MAIN

ADAPT_INTERNAL_RESULT replaces **SELECTION_EF_HEADER**

- In-house production: selection of header materials
- Called in method SELECT_MATERIAL_EF of class /SAPLOM/RLT_MAIN

ADAPT_INTERNAL_COMPONENTS replaces **SELECTION_EF_COMPONENTS**

- In-house production: selection of components
- Called in method ENRICH_COMPONENT_DATA of class /SAPLOM/RLT_MAIN

ADAPT_SELECTION_ORDERS replaces **SELECTION_ORDERS**

- In-house production: selection of orders
- Called in method RLT_SELECT_EF of class /SAPLOM/RLT_MAIN

ADAPT_INFOREC_INF_RESULT replaces **SELECTION_INFOREC_INF**

- External procurement: selection of info records with given info record
- Called in method SELECT_INFORECORD_FB of class /SAPLOM/RLT_MAIN

/SAPLOM/RLT_ADDITION: Enhancement of Results Table - Methods

- ADAPT_FIELDCAT_EF – adapt field catalog for in-house production
- Called in method GET_FIELDCATALOG_FE of class /SAPLOM/RLT_MAIN
- ADAPT_FIELDCAT_FB – adapt field catalog for external procurement
- Called in method GET_FIELDCATALOG_FB of class /SAPLOM/RLT_MAIN
- ADAPT_TABLE_EF – adapt results table for in-house production
- Called in methods PREPARE_4ALVTREE_DBSTORE, GRID_LINE_EB of class /SAPLOM/RLT_MAIN
- ADAPT_TABLE_FB – adapt results table for external procurement
- Called in methods PREPARE_4ALVTREE_DBSTORE, GRID_LINE_FB of class /SAPLOM/RLT_MAIN

So that the results table also contains the required additional columns, the relevant database table must be enhanced using an append.

For external procurement: ADAPT_TABLE_FB

For in-house production: ADAPT_TABLE_EF

/SAPLOM/RLT_CALCULATE

Change calculations in the replenishment lead time monitor - methods

- DECOUPLING_POINT_BOM: Called in class /SAPLOM/RLT_MAIN in method CREATE_RESULT_WITHOUT_ORDERS
- Called in class /SAPLOM/RLT_MAIN in method COMPOSE_RESULT_EF_C
- Called in class /SAPLOM/RLT_MAIN in method COMPOSE_RESULT_EF_H (shortly before end)

See for more details about the

ADJUST_TOTAL_RLT

- Called in class /SAPLOM/RLT_MAIN in method *create_result_without_orders*
- Called in class /SAPLOM/RLT_MAIN in method *compose_result_ef_c*
- Called in class /SAPLOM/RLT_MAIN in method *compose_result_ef_h* (shortly before end)
- [In each case after the decoupling point]

See for more details about the

/SAPLOM/RLT_AUTH authorization checks in the RLT - methods

- *CHECK_AFTER_SELSCREEN*
- Is called up in the form: CHECK_AUTHORITY_BO

8 Appendix

The following sections provide formulas, information on runtime, and answers to frequently asked questions.

Related Information

MAPE (mean absolute percentage error) [page 70]
MAD (Mean Absolute Deviation) [page 71]
Runtime [page 71]
Frequently Asked Questions (FAQ) [page 72]

8.1 Delivery Reliability

To calculate delivery reliability for external procurement, select the corresponding checkbox on the *External procurement* tab.

Delivery reliability is calculated as follows:

Delivery reliability [%] = 100 * (number of on-time deliveries, taking into account the specified tolerance) / number of deliveries

If all deliveries are on time, delivery reliability is 100%.

Required entries for delivery reliability:

If you select the *Delivery reliability* checkbox, you can see additional text fields. Here, you can enter tolerances in days.

To calculate delivery reliability when analyzing in-house production, the system compares the duration of an order with the scheduled duration. You must make sure to specify the tolerances such that the floats are taken into account. This is the only way to usefully compare basic dates with the scheduled dates.

> ### ✤ Example
>
> Example of external procurement:
>
> Planned delivery time of 2 days, tolerance 1 day
>
> Actual delivery time of three purchase orders: 1, 1, 6
>
> Delivery reliability [%] = 100 * 2 / 3 = 67%

Hierarchiebene	PlZ	Wunschdat.	Startdatum	Enddatum	Stat.	V.spaet.	Ist	Liefertreue
Infosatz 5300000866 / 1000 / 100(	2							67
Bestellung 4500004823 / 00010		09.01.1998	08.01.1998	09.01.1998	abg.	0	1	
Bestellung 4500004920 / 00010		24.04.1998	14.04.1998	15.04.1998	abg.	0	1	
Bestellung 4500017365 / 00010		04.09.2010	10.09.2010	16.09.2010	abg.	12	6	

Screenshot of External Procurement Example

Example

Material is procured from two vendors:

There is no calculation of delivery reliability at material level.

Hierarchiebene	Ist	Planlief	Liefert...
CS11_1_WM_ROH0001 - WBZ-Monitor Rel	0	33	75
Lieferant CS_LIEF001	0	0	71
Infosatz 5300006568 / 0001	0	7	71
Bestellung 4500017450 / 00010	14	0	71
Bestellung 4500017606 / 00010	21	0	71
Bestellung 4500017607 / 00010	14	0	71
Bestellung 4500017608 / 00010	16	0	71
Bestellung 4500017964 / 00010	1	0	71
Bestellung 4500017967 / 00010	1	0	71
Bestellung 4500018060 / 00010	27	0	71
Lieferant CS_LIEF002	0	0	100
Infosatz 5300006742 / 0001	0	7	100
Lieferant CS_LIEF003	0	0	100
Infosatz 5300006651 / 0001	0	7	100
Bestellung 4500017609 / 00010	17	0	100

Screenshot of Example with Two Vendors

8.2 MAPE (mean absolute percentage error)

The mean absolute percentage error (MAPE) is calculated using the following formula:

$$MAPE = \frac{1}{n} \sum_{t=1}^{n} |PE(t)|$$

MAPE Formula

e(t) = V(t) – P(t)

PE(T) = e(t) / V(t) * 100

V(t) = Actual value

P(t) = Average value

n = Number of ex-post periods

Example

Number [n]	Average	ACTUAL V(t)	e(t) = V(t) - P(t)	PE(T) = e(t) / V(t) * 100	Sum	Result: Sum * 1/n
1	186	639	453	70.89	70.89	
2	186	387	201	51.94	122.83	
3	186	0	-186	0.00	122.83	
4	186	91	-95	104.40	227.23	
5	186	-13	-199	1530.77	1757.99	
6	186	10	-176	1760.00	3517.99	586.3324731

8.3 MAD (Mean Absolute Deviation)

Formel für die mittlere absolute Abweichung

$$D = \frac{1}{n} \cdot \sum_{i=1}^{n} |x_i - \bar{x}|$$

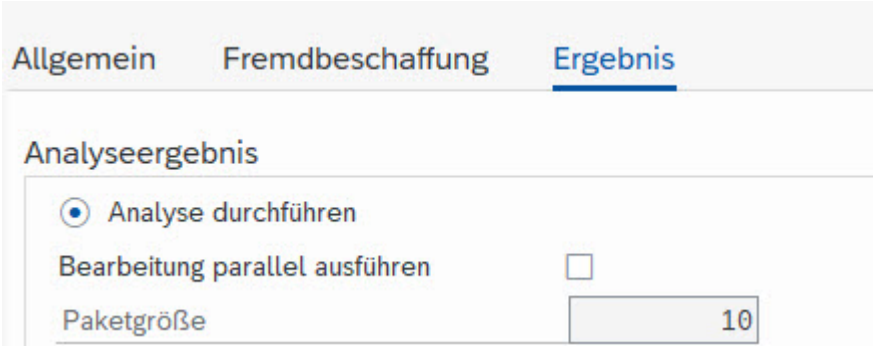
Dabei gilt:

- D = mittlere absolute Abweichung (*engl.* average absolute deviation)
- n = Anzahl an Beobachtungswerten
- x_i = i-ter Beobachtungswert
- $\bar{x}$ = Mittelwert der Verteilung

Formula for MAD

8.4 Runtime

The runtime of the historical analysis depends heavily on the scope of selection. If you cannot restrict this scope further, we recommend that you schedule the analysis as a job. You also have the option of packaging and parallel processing. Enter a package size for the analysis with *Save Result*, otherwise there may be incomplete or empty results. You specify the package size on the selection screen.

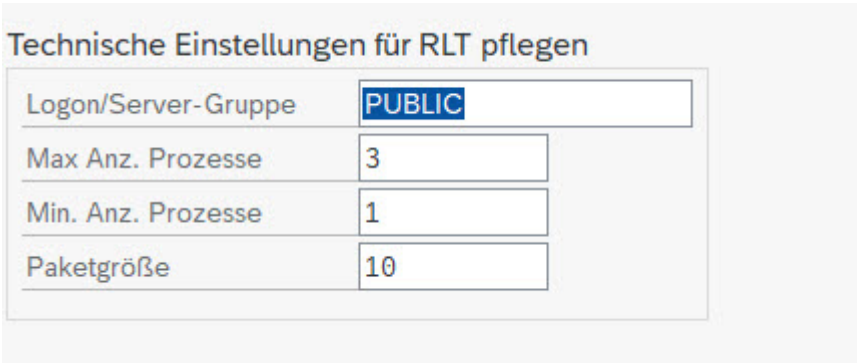


Specifying the Package Size

This enables you to reduce the likelihood of a termination due to a timeout or a memory overflow.

You activate parallel processing with the separate */SAPLOM/RLT_PARAM*.

The values defined here are saved in table */SAPLOM/RLT_PAR*. Example:



Parallel Processing

8.5 Frequently Asked Questions (FAQ)

Question: According to transaction *ME2M*, material XYZ has multiple purchase orders in the period 2014–2017. Why is the material not displayed in the replenishment lead time monitor?

Answer: Like *ME2M*, the monitor first selects documents for a material. The system then checks whether the vendor, info records, and purchase orders are valid, or whether there is a deletion flag at one level. You should therefore check whether vendors, info records, or purchase orders are invalid, for example locked (central or purchasing block). Check whether info records or purchase orders are marked for deletion.

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