

Capacity Leveling in PP-SOP and LO-LIS-PLN



HELP.PPCRPSOP

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Capacity Leveling in PP-SOP and LO-LIS-PLN

Introduction to Sales and Operations Planning (SOP)

Sales & Operations Planning (SOP) is a universal planning and forecasting tool that you can use to plan any area of logistics (for example, sales and distribution, production, purchasing).

Capacity leveling is an important tool for creating realistic plans. It helps you ensure that your targets are within capacity constraints. The following topic describes how to use capacity leveling from the point of view of SOP.

SOP supports planning at any level of your organizational hierarchy from high-level planning across national boundaries to the detailed planning of finished products.

Planning is based on information structures. An information structure contains the following types of information:

- A time unit: this gives the structure a time reference.
- Characteristics: information (for example, sales organization, plant, or material) which represents the different organizational units of your company.
- Key figures: information which says something about the way your company has performed or operated in the past or how you expect it to perform or operate in the future. Examples of key figures are actual invoiced sales, planned incoming order quantities, and planned production quantities.

You can plan several types of master data:

- Planning hierarchies
- Product groups
- Materials

You enter planning data in a planning table. You have the option of creating your own planning tables. A user-defined planning table is known as a "planning type". In a planning type, you can define macros as in a spreadsheet; for example, you can work out the difference between two lines and display the result in a third line.

Aggregation and disaggregation functions guarantee data consistency throughout complex planning hierarchies. These functions are supported by Application Link Enabling (ALE).

SOP is composed of two elements: The standard Sales and Operations Planning (also called "standard SOP") and flexible planning. Standard SOP is predefined for the standard package, flexible planning offers several options for user-specific settings.

See also:

LO Logistics Information System

PP Sales & Operations Planning

Purpose of Capacity Leveling in SOP

Effective resource planning is vital to the realization of operational targets. With SOP's resource leveling function, you can assess the viability of your targets in terms of the resources required to meet them. This gives you the knowledge you need to fine-tune your targets and optimize the use of resources.

Capacity Leveling in PP-SOP and LO-LIS-PLN

The function of resource leveling in SOP allows you to take account of the resources load when creating your plans. Thus you can directly check how changes to your plans affect the resources. You can adjust your plans to make optimum use of available resources.

Since sales and operations planning is generally carried out at an early stage in the planning cycle and on an aggregate level, the resource load for work center groups or product families - rather than individual work centers or materials - is of particular interest. SOP typically focuses on a superior work center in a hierarchy (for example, the root of the hierarchy), a bottleneck work center, or a product grouping.

Features in Standard SOP

In standard SOP you perform resource leveling for the production quantities of a product group or material. The following resources are possible: work center capacities, materials, production resources/tools and costs. These resources are stored in a rough-cut planning profile. Work center capacities may also be read from a routing or rate routing.

Resource leveling may be carried out for the active version or any inactive version in a single-level planning screen.

You view the capacity load for work centers in the standard planning table. From here, you can branch into a standard analysis of the resource loads for materials and production resources/tools or costs.

You can check the capacity load for the following scheduling levels:

- Detailed planning
- Rate-based planning
- Rough-cut planning

The system generates resource requirements for the quantities that you have entered in the *Production* line of the standard planning table.

Features in Flexible Planning

In Flexible Planning, you perform resource leveling in the same way. Here, however, a resource may be tied to any key figure (not just production) and characteristic values combination (not just to a product group or material).

The system generates resource requirements for the planned key figure. If resource leveling is based on a rough-cut planning profile, this is the key figure defined here. If resource leveling is based on a routing or rate routing, this is the key figure defined in the information structure parameters.



If resource leveling is based on a rough-cut planning profile, it must contain the same characteristic values combination as the one you are planning in the planning table. This means, for example, that you cannot view the resource requirements of just one product if you created the rough-cut planning profile for the whole product family.

Rough-Cut Planning Profiles

Definition

Rough-cut planning profiles are used in resource leveling. In a rough-cut planning profile, you plan the requirements of one or more of the following resources:

- Work center capacities
- Materials (typically, raw materials)
- Production resources/tools
- Costs

These are the resources you will require to meet a sales target, production target, purchasing target, or any other logistic target you have set for a material, product group, or characteristic value combination.

Rough-cut planning profiles are designed to give you an aggregate view on your resources; that is, you look at workdays rather than hours or minutes, and work center groups and product groups rather than individual work center or products. They are therefore an ideal tool for medium- and long-term planning or for the planning of hierarchies.

You enter your resources data in a few easy steps: the system guides you through a series of dialog boxes. The results of your entries are shown in a resources table which is laid out along the time axis.

The resources table displays a lot of information at a glance, that is, the resources required not just for the final assembly but for the entire production process, starting with the lowest-level components and ending with the finished product. Planned resources are displayed in the periods to which they relate.

In a rough-cut planning profile, you define the following:

- The material, product group, or (in the case of an information structure) combination of characteristic values requiring the resources.
- The key figure causing the resource load (if the rough-cut planning profile is defined for an information structure).
- The time span of one planning period in the resources table, expressed in workdays.
- The status of the rough-cut planning profile (as in a routing).
- The planner group of the rough-cut planning profile (as in a routing).
- The usage of the rough-cut planning profile (as in a routing).
- How much of which resource is required for the base quantity. For example, if the base quantity is 1 piece, the amounts you enter on one line of the resources table are the amounts required to produce 1 piece. Moreover, if you enter amounts in four columns, each column representing a timespan of one workday, then you are saying that it will take four workdays to produce 1 piece using this resource. The amounts you enter for the resource "work center" apply to each capacity category at the work center.
- The base quantity; that is, the number of units for which the resource is required. You cannot change the base quantity once you have saved the rough-cut planning profile. (In

Rough-Cut Planning Profiles

Release 3.0 the base quantity was always 1. In Release 4.0 you define the base quantity as required.)

- The lot size range if the quantity of the resources required depends on lot size. Different lot sizes can have different base quantities. For example, a lot size of 1-10 may have a resource requirement of 1, and a lot size of 11-100 a resource requirement of 10.

See also:

[Maintaining Rough-Cut Planning Profiles \[Page 9\]](#)

[How to Carry Out Resource Leveling \[Ext.\]](#)

[Resource Leveling \[Page 11\]](#)

[Carrying Out Resource Leveling \[Ext.\]](#)

Maintaining Rough-Cut Planning Profiles

1. From the standard SOP or flexible planning menu, choose *Tools* → *Rough-cut planning profile* → *Create* (or *Change* or *Display*).

A selection screen appears.

2. Enter the material, product group, or information structure to which you want the rough-cut planning profile to apply. In the case of a material or product group, enter a plant as well. In the case of an information structure, specify the characteristic values and key figures that generate the resource requirements.

3. Choose *Execute*.

The dialog box *General Data* appears.

4. Enter a time span; the default time span is five days. As necessary, enter a status, a planner group, a usage, and/or a lot-size range.

5. Choose **ENTER**.

The resources table appears.

6. Choose *Choose*.

A dialog box appears asking you to choose between the four resource types.

7. Select a resource type and choose *Continue*.

A dialog box appears in which you specify a resource.

8. Enter the resource which your material, product group, or information structure requires and choose **ENTER**.

You return to the resources table.

9. In the resources table, enter the amount of the resource, per unit of the planning object, that you estimate will be consumed in each period.

The amounts you enter for the resource “work center” apply to each capacity category at the work center.

10. Repeat steps 6 to 9 until you have entered all relevant resources.



To delete a line in the rough-cut planning profile, place the cursor on it and choose *Edit* → *Delete line*.

11. To check an entry, place the cursor on it and choose *Check*.

The system checks whether the selected resource exists. It also checks that at least one planned figure has been entered on every line. It does not check at this point whether the resource requirements can be met.

12. To save your rough-cut planning profile, choose *Rough-cut planning profile* → *Save*.

See also:

[Rough-Cut Planning Profiles \[Page 7\]](#)

Maintaining Rough-Cut Planning Profiles

Resource Leveling

Use: Resource Leveling for Work Center Capacities

SOP comes with a split screen for the planning and leveling of work center capacities. The advantage of the split planning screen is that you can compare the capacity situation directly with your plan. In the lower section of the screen, the available capacity, capacity requirements, and capacity load are displayed for **each work center used in production** and **each capacity category**. The system reads the available capacity from the work center, and the capacity requirements from the routing or rough-cut planning profile. If you change the production quantities/key figure values in the upper section of the screen, the new capacity requirements and capacity load appear in the lower section of the screen.

Planning is related to specific periods. For example, your company might plan to produce 1,000 units of the product group “chairs” in the month of May. In the same way, available capacity and capacity requirements are displayed on a period-by-period basis. For example, the system works out that 100 machine hours of an available 160 hours will be required at work center “assembly” in the month of May to produce 1,000 units of the product group “chairs”. You cannot overwrite the capacity requirements in the planning table. To change the capacity requirements in the planning table, you change the quantities in the production line (if you are working in standard SOP) or the key figure to which the capacities are tied (if you are working in flexible planning), and then you choose `Enter`.

Of particular interest is the capacity load. The capacity load shows you instantly whether you have sufficient capacities to realize your plan. Capacity load is expressed as a percentage. In our example, if the work center “assembly” requires 100 of the 160 available machine hours to produce 1,000 units of the product group “chairs”, then the capacity load is 62.5%.

SOP gives you an all-embracing view of the capacity situation. It takes into account the requirements of all materials, product groups, or characteristic value combinations for the same capacities. The *Capacity requirements* and *Capacity load* lines reflect total requirements for a particular capacity. To view the source of the capacity requirements in a period, place your cursor on them and choose *Views* → *Capacity situation* → *Pegged requirements*.

The system creates an SOP order for each production target in each period when you save the planning version. SOP orders are used internally. If capacity requirements exist, the system records these, too, with reference to the internal SOP order when you save the planning version.



If you run a background job (for example, a macro) that creates or changes the key figure to which the resources are tied, the new capacity requirements are automatically computed and updated internally for the SOP order.



If you change the rough-cut planning profile, the new capacity requirements are not shown in the planning table unless you change the production line or key figure to which the resources are tied. You can do this, for example, by defining a default macro (-1, +1).

Resource Leveling



In standard SOP, if you carried out capacity leveling at product group level before disaggregating the production line to the material level, the capacity requirements of the materials are **not** recorded internally for their SOP orders. However, these requirements need to exist if the *Capacity requirements* and *Capacity load* lines at the material level in the planning table are to show total requirements for a particular capacity. To create these requirements for the materials' SOP orders, set up a [macro to run in the background \[Ext.\]](#). Define this macro so that it changes the production line of the materials (for example, "production - 1, production + 1"). Where rough-cut planning profiles or routings exist for the materials, the system computes their capacity requirements and records them for their internal SOP orders.

How capacities are scheduled depends on whether the *Scheduling* indicator has been set and, in detailed planning, on which *Scheduling type* has been set (in Customizing for Sales & Operations Planning under *Configure scheduling parameters*).

Use: Resource Leveling for Materials, Production Resources/Tools, and Costs

You display the requirements for materials and production resources/tools or costs in a standard analysis. From here, you can drill down to further levels of detail on an item. For example, you can find out the amount of each material and production resource/tool required in a particular plant, or all the cost elements in a controlling area that will be affected by this consumption of resources.

You maintain requirements for materials, production resources/tools, and costs in a [rough-cut planning profile \[Page 7\]](#).

You can also create the planned availability of a material in a particular plant with *Planning* → *Material availability*. The availability of the material is then displayed in the standard analysis next to its planned requirements. You create the availability of a material with reference to a planning version. Different available quantities are possible in different planning versions. You can therefore simulate the effects of different availability situations in different planning versions.

You can save the results of a standard analysis as a version of information structure S093 (materials and production resources/tools) or S092 (costs).

For more information on standard analyses, see *LO Logistics Information System*.

See also:

[How to Carry Out Resource Leveling \[Ext.\]](#)

[Rough-Cut Planning Profiles \[Page 7\]](#)

[Carrying Out Resource Leveling \[Ext.\]](#)

Carrying Out Capacity Leveling in PP-SOP and LO-LIS-PLN

Prerequisites

- Create a PP task list (a routing, a rate routing, or a rough-cut planning profile) for the material, product group, or characteristic values combination whose resources you want to plan.
- Configure resources planning in Customizing for Sales & Operations Planning.
- If you use routings or rate routings to do resource leveling, define the key figure to which the resources are tied. You carry out this step in Customizing for Sales & Operations Planning under “Set parameters for info structures and key figures”.
- Define the planning plant of any information structure whose plant is not uniquely identifiable (that is, either your information structure does not contain the characteristic “plant” or your rough-cut planning profile covers more than one plant). You execute this step in Customizing for Sales & Operations Planning under “Set parameters for info structures and key figures”.
- Set the default SOP plant for Sales & Operations Planning. You carry out this step in Customizing for Sales & Operations Planning under “Set planning plant for SOP”.

Procedure

1. From a **single-level** planning screen in the planning table, choose *Views* → *Capacity situation* and either *Detailed planning*, *Rate-based planning*, or *Rough-cut planning* → *Show*.

The split planning table appears. In the lower section of the screen, you see the available capacity, capacity requirements, and capacity load for each work center used in production and each capacity category.



In the event of an error, check that the prerequisites for capacity leveling have been fulfilled (see above).

2. Adjust the planning data in the upper section of the screen until you arrive at a plan which is also acceptable from the point of view of capacity.
3. To view the source of the capacity requirements in a period, place your cursor on them and choose *Views* *Capacity situation* *Pegged requirements*.
4. If necessary branch to a standard analysis of other resources. To do this choose *Views* *Capacity situation* *Rough-cut planning* and then either *Material/PRT* or *Costs*.

See also:

[Capacity leveling in PP-SOP and LO-LIS-PLN \[Ext.\]](#)

[Rough-Cut Planning Profiles \[Page 7\]](#)

[Maintaining Rough-Cut Planning Profiles \[Page 9\]](#)

[Resource Leveling \[Page 11\]](#)

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