How-to Guide **CUSTOMER**

SAP Business One 9.3 PL02 and higher, and SAP Business One 9.3 PL02, version for SAP HANA and higher

Document Version: 4.1 – 2018-03-08

How to Work with Resources and Production in SAP Business One 9.3

Typographic Conventions

Type Style	Description
Example	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.
Example	Emphasized words or expressions.
`EXAMPLE`	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
`Example`	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
`Example`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
`EXAMPLE`	Keys on the keyboard, for example, `F2` or `ENTER`.

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Document History

Version	Date	Change
1.0	2014-09-10	First version
2.0	2015-04-13	Minor changes
3.0	2016-12-22	Minor changes
4.0	2017-09-21	• Introduced the concept of Single Run Capacity in Resource Master Data and Resource Capacity. • Added production routing related fields in BOM and Production Orders. • Added batch change production order status functionality in Production Orders. • Added linking resources to non-inventory items functionality.
4.1	2018-03-08	• Updated Bill of Materials - Component Management as follows: o Added a new task - Change BOM Header o Existing management tasks are enhanced to support Bill of Materials with Route Stages. • Added a new column Status to the Production Order Components grid. • Added a new Chapter 7.5 Recalculate Route Stage Dates

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1 Introduction

The Production module together with the existing resource functionality provides a base platform for managing light manufacturing processes in SAP Business One.

A resource is defined as a commodity, machine, labor, or other asset used to produce goods and services. As opposed to items, resources have capacity available throughout a period of time which can be consumed in a production process. Resources (resource capacity) can therefore be assigned to production orders. Resource capacity is always viewed within a period of time called "capacity period".

Consumption of resources in a production process contributes to the overall production costs and can be split into underlying cost elements for further accounting purposes.

Using the resources functionality, you can perform the following key business functions:

- Manage basic production capacity
- Analyze real production variances
- Simplify BOM management
- Use production order more flexibly

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2 Initial Settings

2.1 Defining Primary G/L Accounts

Define G/L accounts to be used for resources. Postings behind transactions are made to these accounts directly unless you create advanced G/L account determination rules for resources and specify other accounts for certain transactions.

Example

You may have different resource groups which should use different standard cost expense accounts. If you name Standard Cost Expense 1 differently for two different groups, the system posts costs for both resource groups to the account defined for the Standard Cost Expense 1 in the *G/L Account Determination* window. To enable posting values for Standard Cost Expense 1 to different accounts depending on the resource group, you can define advanced G/L account determination rules, according to which the system will post cost expenses to the accounts determined by each resource group separately. For more information, see 2.2 Advanced G/L Account Determination.

Procedure

From the SAP Business One *Main Menu*, choose *Administration* → *Setup* → *Financials* → *G/L Account Determination* → *G/L Account Determination* → *Resources* tab.

Account	Description
Std. Cost Expense 1 ... 10	Note These fields are available only if you are using a perpetual inventory system. Define accounts for up to ten standard cost expense components. Each of the standard cost components is posted when the resource is consumed through the production order, that is, when a user creates the issue for production document with resource lines. When issuing to production, each separate standard cost component numbered from 1 to 10 is credited according to the quantity consumed to the corresponding standard cost expense account and debited to the related WIP account.
Resource WIP Account	Note This field is available only if you are using a perpetual inventory system. This account maintains the value of resources that are included in the work process, that is, the period between the start of production and the completion of the final product. The value from this field is copied to the Account Code field for resource lines in the issue for production document if the following applies: • The Component WIP Account radio button is selected for the production order document in the Document Settings window. For more information, see 7.6 Document Settings and WIP Account.
	• You have not defined the Account Code field for a resource line in the Production Order window. If you defined the Account Code field for a resource line in the production order manually, or if the value has been copied from the Bill of Materials window, then that

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Account	Description
	code is used as the Resource WIP account in the issue for production for the resource in question.
Offset accounts	**Note** The offset accounts are available only if you are managing accounting with Balance Sheet accounts and Profit and Loss accounts. To manage accounting with these accounts, from the SAP Business One Main Menu, choose Administration → System Initialization → Document Settings → Per Document tab, in the Document field, select Production Order. In the Posting Schemas for Manufacturing area, select the Accounting with Balance Sheet Accounts and Profit & Loss Accounts radio button. Postings for resources related to issues for production, receipts from production and production order closure impact these accounts. That is, the offset accounts appear in any posting in which the WIP account and the Std Cost Expense accounts are used. The offset postings are dependent on the definition in the Document Settings window for the production order of whether to use component or parent item WIP accounts for component transactions. For more information, see 7.6 Document Settings and WIP Account.
WIP Offset P&L Account	This account is used to offset the WIP resource account posting.
Resource Offset P&L Account	This account is used to offset all of the Std Cost Expense accounts that are in use. This offset account selects component related account irrespective of the document settings option for parent or component WIP accounts.

2.2 Advanced G/L Account Determination

You can manage resource G/L account determination according to a flexible and centralized method. By setting a hierarchy of rules, you can assign resource G/L accounts by the following determination criteria:

- Resource groups
- Resources
- Warehouses
- Various combinations of all the above criteria

If defined, the advanced G/L account determination rules have priority over the settings in the *G/L Account Determination* window. However, there are exceptions, for example, if you define the *WIP Account* field in the *Bill of Materials* or the *Production Order* window manually, that account will be used as the WIP account regardless of the criteria you defined in the Advanced G/L Account Determination window. For more information on this functionality, see the *How To Set Up and Work with Advanced G/L Account Determination* guide in the documentation resource center.

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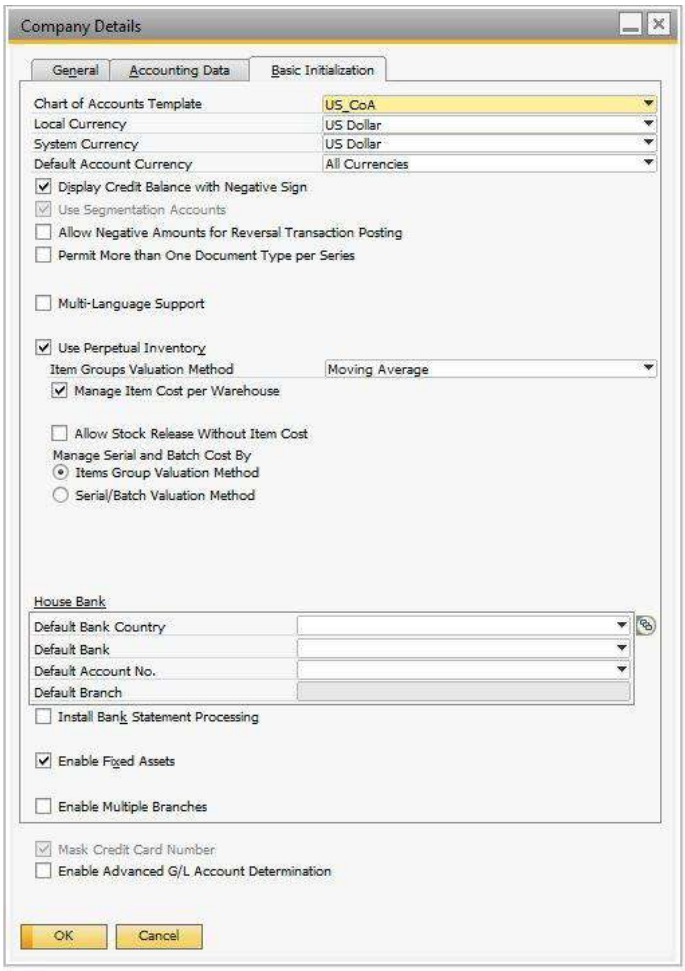
2.3 Enabling Fixed Assets Functionality

If you want to associate some resources with fixed assets, you need to enable the fixed assets functionality.

Procedure

1. From the SAP Business One *Main Menu*, choose *Administration → System Initialization → Company Details → Basic Initialization* tab.
2. Select the *Enable Fixed Assets* checkbox.



   A system message appears informing you that enabling this functionality is an irreversible process. Choose *Yes*.

3. On the *Basic Initialization* tab, in the *Calculate Depreciation By* field, select one of the following options:
   - *Month*
   - *Day*
4. Choose *Update*.

For more information on how to use the fixed assets functionality, see the online help for SAP Business One.

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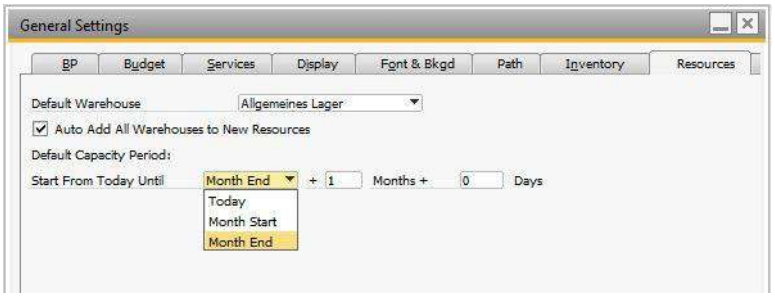
2.4 Defining Resource Defaults

To define default settings for resources at the company level, proceed as follows:

1. From the SAP Business One *Main Menu*, choose *Administration → System Initialization → General Settings → Resources* tab.
2. Define the following fields:

Field/Checkbox	Activity/Description
Default Warehouse	Select a default warehouse. This warehouse will be used for resources in production orders. **Note** You can also set a default warehouse at the resource level and at the user level. For more information, see *Defining a Default Warehouse*.
Auto Add All Warehouses to New Resources	If you select this checkbox, when adding a new resource master data record, all warehouses appear in the Warehouse table on the *Capacity Data* tab. If you deselect this checkbox, when adding a new resource master data record, only the default warehouse appears in the Warehouse table on the *Capacity Data* tab.
Default Capacity Period	Determines the default capacity period displayed upon opening any of the windows that contain the *Capacity Period From...To* fields. **Note** Upon opening windows and tabs which contain the *Capacity Period* field, the *From* date is always the current system date. The *To* date is calculated by the settings for resources in the *General Settings* window. You can shift between periods using the arrow buttons; the buttons move the capacity period backwards and forwards by the same number of days as displayed upon opening the window. 1. In the *Start From Today Until* field, specify the default end date for capacity period calculation: • *Today* - The current system date is taken as a start date for calculation. • *Month Start* - The first day of the month of the current system date is taken as a start date for calculation. • *Month End* - The last day of the month of the current system date is taken as a start date for calculation.  2. In the *Months* and *Days* fields, specify the number of months and days from the start date. Both positive and negative numbers are allowed.

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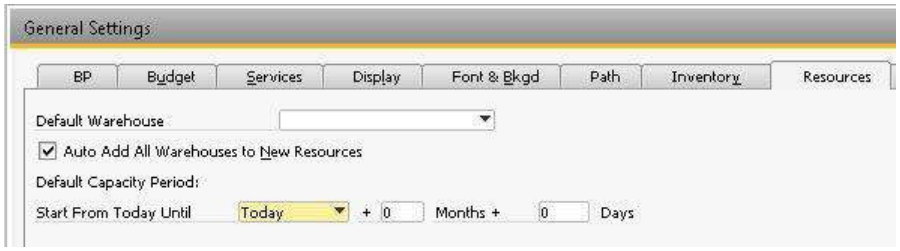
Example 1

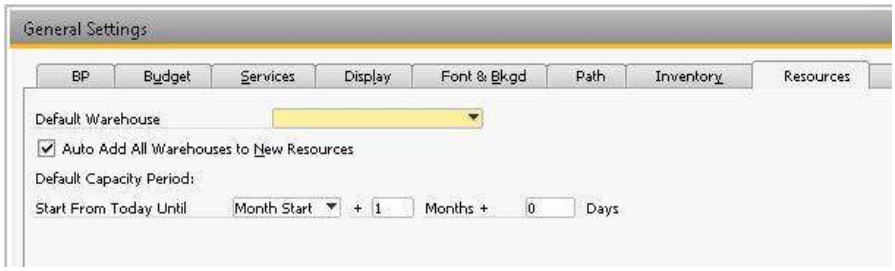
You have defined the default capacity period as displayed below.



Upon opening the *Capacity Data* tab of the *Resource Master Data* window, the *Capacity Period From* field is always the current date, for example, September 23, 2017. Since the end date of the capacity period is Today, the To field is September 23, 2017. The forward and backward arrows move the capacity period by one day.

Example 2

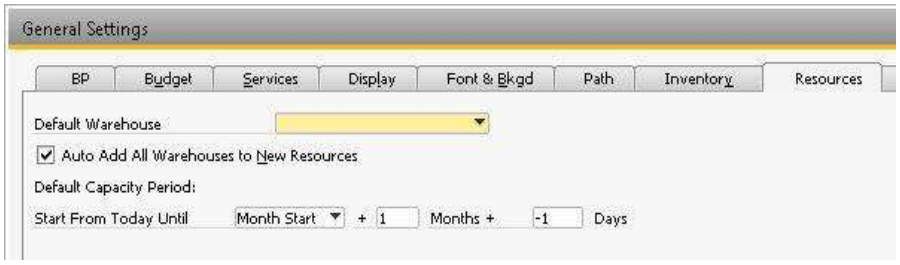
You have defined the default capacity period as displayed below.



Upon opening the *Capacity Data* tab of the *Resource Master Data* window, the *Capacity Period From* field is the current system date, for example, September 23, 2017. The *To* field is October 1st, 2017. The forward arrow moves the capacity period by the same number of days, hence the From date is October 2 and the To date is October 10.

Example 3

You have defined the default capacity period as displayed below.



Upon opening the *Capacity Data* tab of the *Resource Master Data* window, the *Capacity Period From* field is the current date, for example, September 23, 2017. The *To* field is September 30, 2017 (calculated from October 1, the month start). The forward arrow moves the capacity period by the same number of days, hence the From date is October 1 and the To date is October 8.

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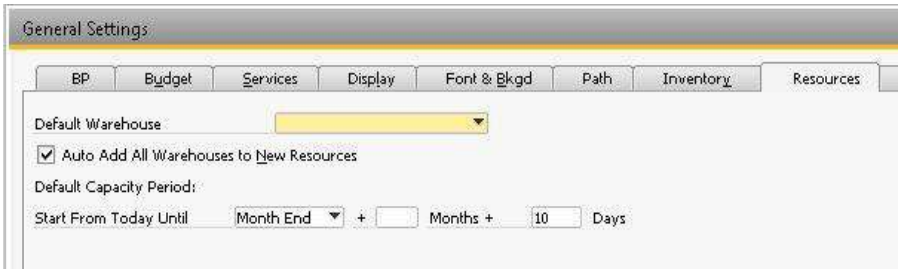
Field/Checkbox	Activity/Description
	Example 4 You have defined the default capacity period as displayed below.  Upon opening the *Capacity Data* tab of the *Resource Master Data* window, the *Capacity Period From* field is the current date, for example, September 23, 2017. The *To* field is October 10, 2017 (calculated from September 30, the month end). The forward arrow moves the capacity period by the same number of days, hence the From date is October 11 and the To date is October 28. **Note** If upon opening the *Capacity Data* tab (or any other window containing the *Capacity Period From... To* fields) the current date is later than the *To* date by the set calculation, the capacity period displays results for the current date only.

3. To save the changes, choose *OK*.

2.5 Defining a Default Warehouse

You can set a default warehouse for a resource at three levels:

- Resource level - in the *Resource Master Data* window
- User level - in the *User Defaults* window
- Company level - in the *General Settings* window (*Administration → System Initialization → General Settings → Resources* tab)

The system takes the default warehouse according to the priority order above; for a new transaction, the system takes the default warehouse from the resource level. If a resource does not have a defined default warehouse at the resource level, it takes the default warehouse from the user level. If there is no default warehouse defined at the user level, it takes the default warehouse defined in the general settings.

2.6 Defining Resource Properties

You can define resource properties and use them for filtering purposes, for example, in reports.

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Procedure

To define resource properties, proceed as follows:

1. From the SAP Business One *Main Menu*, choose *Administration → Setup → Resources → Resource Properties*. The *Resource Properties - Setup* window appears.

   By default, the fields are named *Resource Master Data Property 1... 64*.
2. To change the name field, click the line and enter a desired property name.
3. Choose *Update*.

2.7 Defining Resource Groups

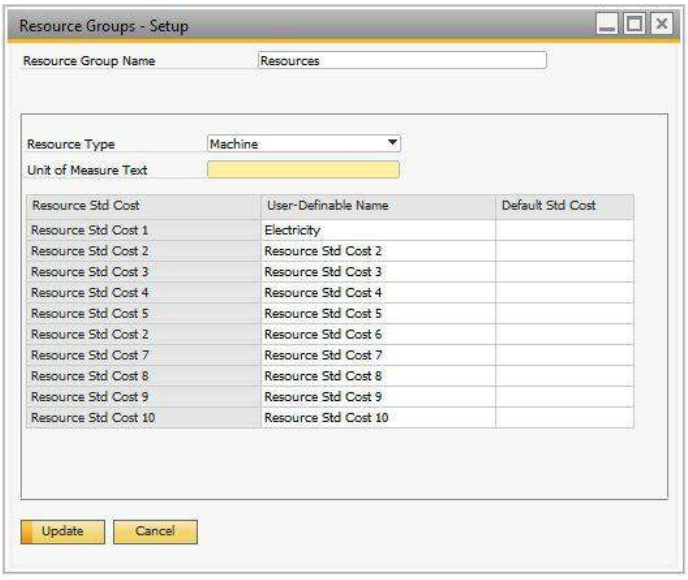
Whenever you create a resource, it belongs to a group. The default resource group is *Resources*. You can create more groups to classify your resources. Upon creation, a resource obtains setting defaults from its group. You can change these settings at the resource level in the *Resource Master Data* window.

Use the groups for analysis purposes, reports, evaluations, and to process resources together as a group.

Procedure

To create a resource group, proceed as follows:

1. From the SAP Business One *Main Menu*, choose *Administration → Setup → Resources → Resource Groups*. The *Resource Groups - Setup* window appears.



2. In the *Resource Group Name* field, enter the name of the group you want to create.
3. In the *Resource Type* field, select one of the following options:

- Machine - This type of resource can be linked to fixed assets.
- Labor - This type of resource can be linked to employees.
- Other - This type of resource cannot be linked to fixed assets or employees.

  The default option is *Machine*.

4. In the field *Unit of Measure Text*, enter the unit of measure used for this resource group.

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5. In the *Resource Std Cost* table, you can define up to 10 components of the resource standard cost per the defined unit of measure.

   In the column, *User-Definable Name*, enter the desired name of the cost component, for example, "Electricity".

   In the column *Default Std Cost*, enter costs charged for one defined unit of measure.

   The names and default standard cost values will be copied into the resource master data if the resource belongs to this group.
6. Choose *Update*.

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3 Working with Resource Master Data

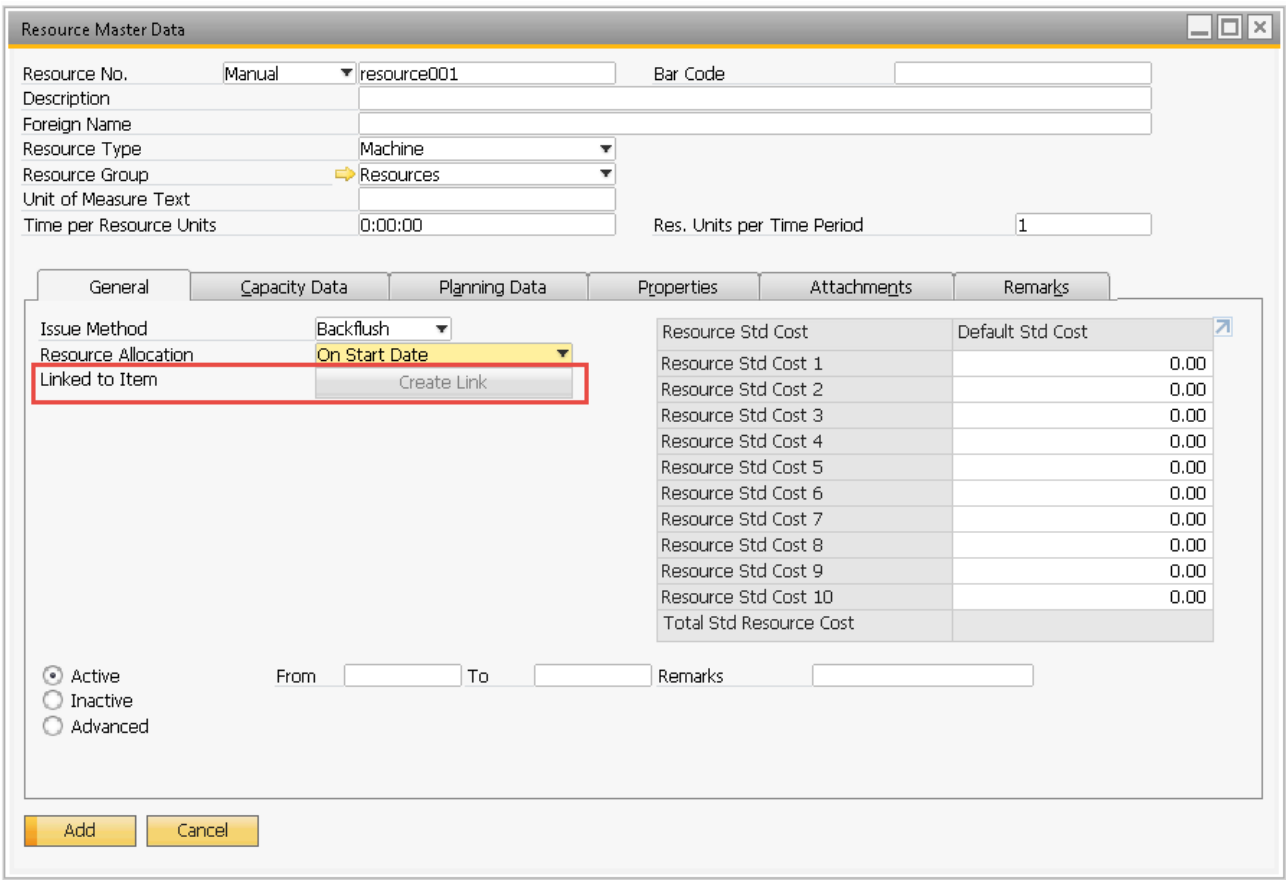
Use the resource master data to add, update, search and maintain resource data.

3.1 Creating Master Data Records

Procedure

From the SAP Business One *Main Menu*, choose *Resources → Resource Master Data*.

1. The window appears in *Find* mode. Switch to *Add* mode.



2. Define the fields in the header area and on the tabs as described below and choose *Add*.

General Area (Header)

In the general area, define the following fields:

> **Note**
>
> Fields that are self-explanatory are not described in the table below:

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Field/Checkbox	Activity/Description	Comments
Resource No.	Define a number (code) for the resource. The value of this field must be unique; other resources or items cannot have the same code.	
Bar Code	Enter a bar code for the resource. You can only enter one bar code per resource.	
Resource Type	From the dropdown list, select one of the following resource types: • *Machine* • *Labor* • *Other* The default value is defined by the selected resource group.	
Resource Group	Select the group to which you want to assign the resource. **Note** The resource draws default values from the resource group as described in Defining Resource Groups. You can update them at the resource level in this window.	
Unit of Measure Text	Enter a unit of measure for expressing resource capacity. For example, machine cycle, hour, or minute.	
Time per Resource Units	Enter the time per resource units in the `<hours:minutes:seconds>` format. This field is related to the *Res. Units per Time Period* field. **Note** Resource capacity is always expressed in quantity of units of measure; capacity time in this field is used to translate the capacity quantity into capacity time for reporting purposes only.	**Example** You have a machine that works in cycles. Each cycle takes 15 minutes and it can process 3 items in 1 cycle (3 capacity units within 15 minutes.) In *Time per Resource Units* enter 00:15:00, and in *Res. Units per Time Period* enter 3. Alternatively, you can define *Time per Resource Unit* as 00:05:00, and *Res. Units per Time Period* as 1. **Note** These definitions are used to calculate the
Res. Units per Time Period	Enter the number of resource units to which the *Time per Resource Units* field relates. The default value is *1*. **Example** The resource is a circular saw. The unit of measure is a saw cycle. The time per resource units is 00:00:30, and the resource units per time period is 300. This means that in 30 seconds, the circular saw processes 300 items. For calculation purposes, the system then	

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Field/Checkbox	Activity/Description	Comments
	divides the resource units per time period with the time per resource units.	*Run Time* value for resources included in a production order. You can leave these fields blank.

General Tab

On the *General* tab, view or define the following fields:

> **Note**
>
> Fields that are self-explanatory are not described in the table below:

Field/Checkbox	Activity/Description
Issue Method	Select one of the following issue methods: • *Backflush* - Upon receiving finished items on a production order, the resource capacity is automatically consumed, that is, the issue to production is then automatically issued. • *Manual* - Receipt of finished items on a production order does not impact the capacity of the resource. Resource consumption (issue to production) must be issued manually. The default option is *Backflush*.
Resource Allocation	From the dropdown list, choose one of the following options: • *On Start Date* - All the capacity of the resource is allocated to the start date of the production order. • *On End Date* - All the capacity of the resource is allocated to the end date of the production order regardless of the quantity of the *Internal* and *Available* capacities on that day. • *Start Date Forwards* - The capacity of the resource is allocated to the start date of the production order; however, if the *Planned Qty* of the production order is greater than the *Single Run Capacity* for the start date, the system allocates only as much capacity as there is *Single Run Capacity* defined for the start date and continues to allocate the remaining capacity to the day after the start date. The process continues forwards for each day until it allocates all the remaining *Planned Qty*. • *End Date Backwards* - The capacity of the resource is allocated to the end date of the production order; however, if the *Planned Qty* of the production order is greater than the *Single Run Capacity* for the end date, the system allocates only as much capacity as there is *Single Run Capacity* defined for the end date, and continues to allocate the remaining capacity to the day before the end date. The process continues backwards for each day until it reaches the current system date and allocates all the remaining *Planned Qty* to the current system date, regardless of how much *Single Run Capacity* is defined for that day. The default value is *On Start Date*. This field is later copied to the production order.
Create Link (button)	Choose *Create Link* when you need to link a resource to a non-inventory item. In doing so, you are allowed to purchase or sell resources as non-inventory items (for example, when your businesses are service based).

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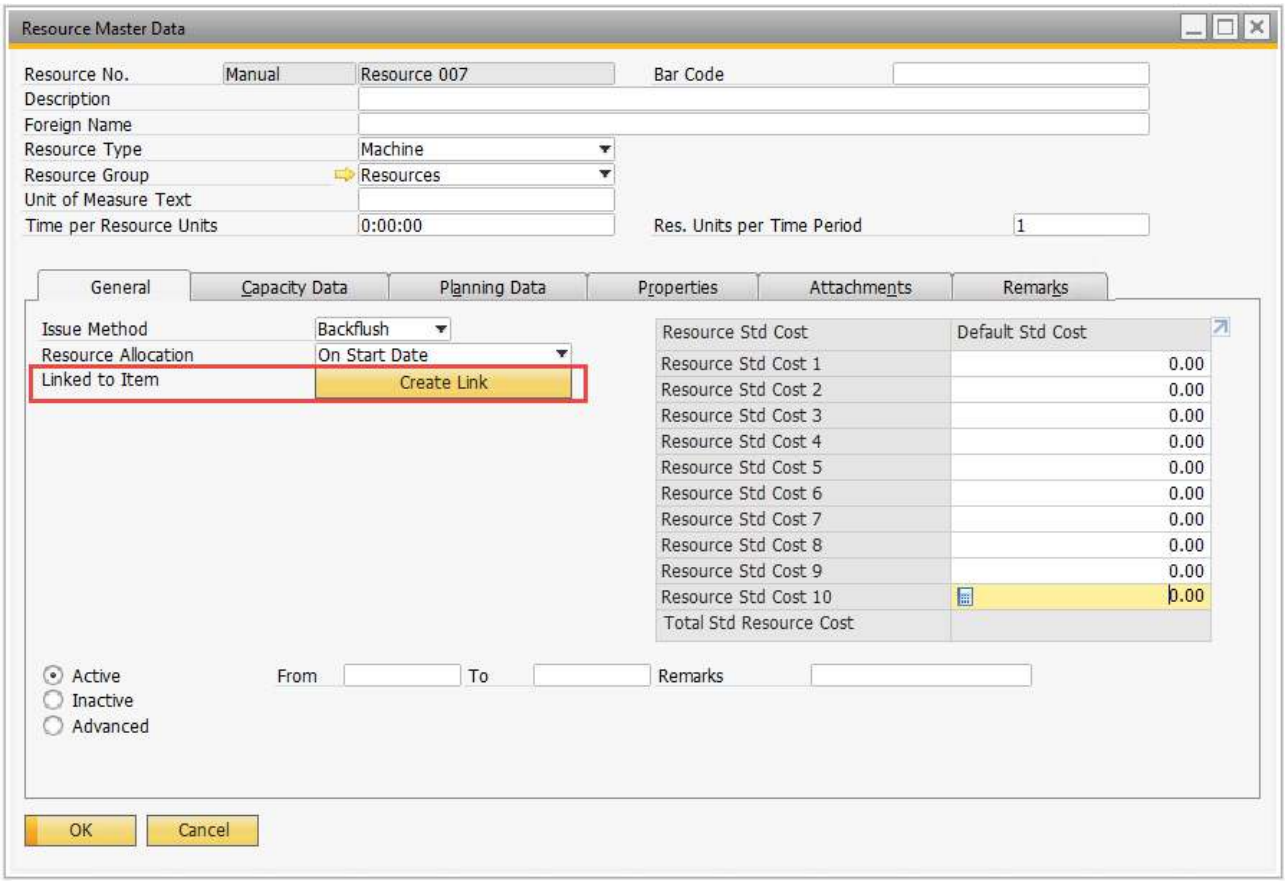
Field/Checkbox	Activity/Description
	On creating a new resource, the *Create Link* button is displayed. Choose the button, and a non-inventory item is automatically created and linked to the newly created resource. For more about the properties of the linked non-inventory item, see *3.4 Linking Resources to Non-Inventory Items.*
Linked to Item	Displays the non-inventory item that is linked to this resource. The item code of the non-inventory item is the same as the resource code of the linked resource. To delete the link, delete the non-inventory item on the *Item Mater Data* screen (*Data → Remove*). You cannot delete the link from the *Resource Master Data* screen.
Resource Std. Cost	The field names and default values of each cost component are defined by the selected resource group. To change the values for this resource, enter them in the *Default Std. Cost* column. Consumption of resources on a production order automatically adds these separate resource costs to separate WIP and expense accrual accounts.
Active	Enter the range of dates to determine a validity period for the resource.
Inactive	Enter the range of dates to indicate the period for which you freeze the resource.
Advanced	Enter the range of dates to determine the following: • Active Range - a validity period for the resource • Inactive Range - the period for which you freeze the resource



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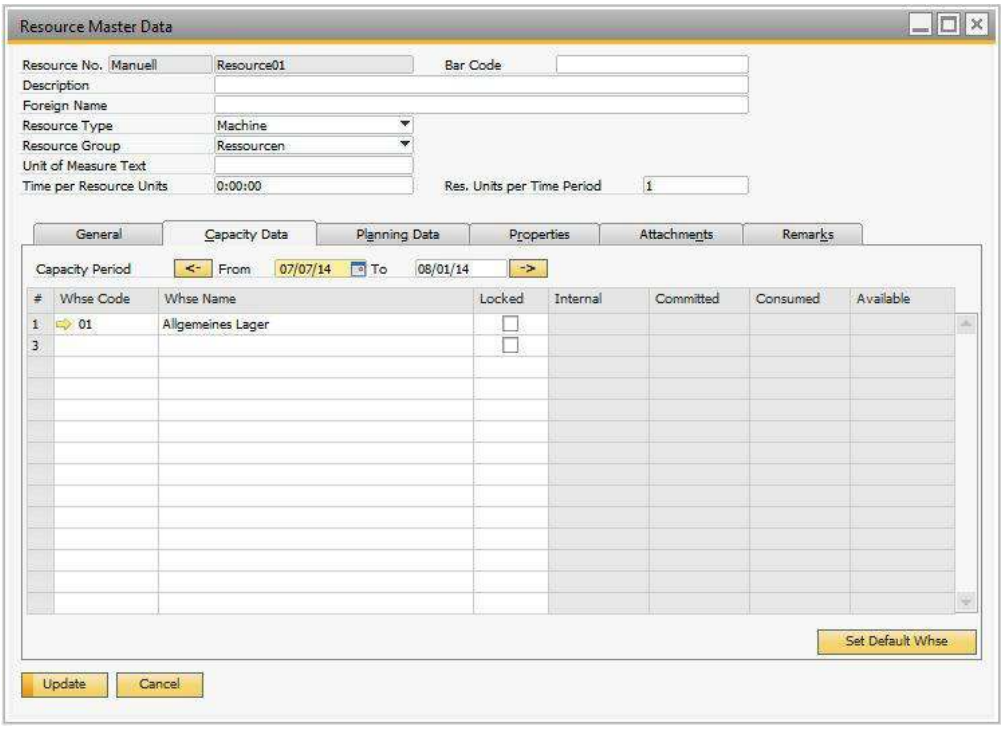
Capacity Data Tab

On the *Capacity Data* tab, you can view resource capacity for a desired period per warehouse.

1. Upon opening the window, the *From* date is always the current system date and the *To* date is defined by the default capacity period defined in the *Resources* tab of the *General Settings* window. Use the arrow buttons to shift between capacity periods.

   To view the capacity data for a different date range, enter the desired date range in the *Capacity Period* field and click anywhere in the table.

   > **Note**
   >
   > The capacity period is restricted to a maximum of one year.



2. View or define the following fields in the warehouse table:

Field/Checkbox	Activity/Description
Whse Code	To define an additional warehouse for the resource, select one from the choose from list in this field.
Locked	Selecting this checkbox locks the warehouse for the resource and prevents you from adding the resource from this warehouse to production orders. **Note** The setting of this field has no impact on the ability to enter or update capacity data.
Internal	The capacity that you set for a resource available in your warehouses or production areas. The capacity applies to the period specified on this tab. For more information, see 4.1 Setting Internal Resource Capacity.
Committed	The capacity that has not yet been issued and that is assigned to production orders of either *Planned* or *Released* status, and which has been allocated within the capacity period defined on this tab.

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Field/Checkbox	Activity/Description
Available	This capacity is defined per warehouse within the specified capacity period as follows: *Internal Capacity - Committed Capacity - Consumed Capacity*
Set Default Whse	To set a default warehouse at the resource level, select the desired row and choose this button.

Note

Capacity data in the warehouse table are rounded according to the settings in SAP Business One *Main Menu → Administration → System Initialization → General Settings → Display* tab → *Quantities* field.

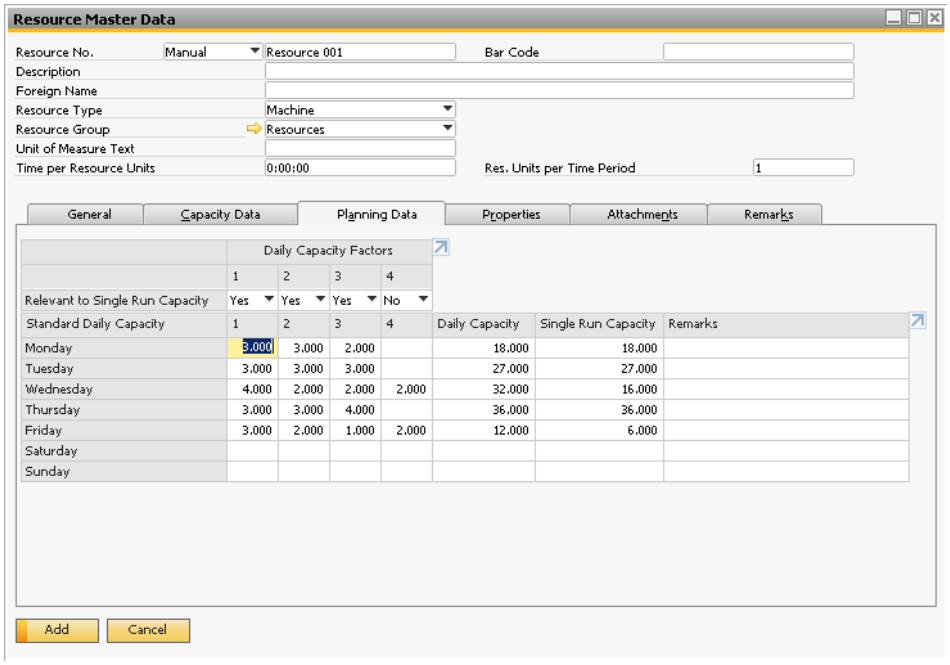
Note

To delete a row, right-click in the row and choose *Delete Row*. You can only delete a row which has zero capacity set from today into the future.

Planning Data Tab

On the *Planning Data* tab, you can plan daily internal capacity which you can later set as default values in the *Resources - Set Daily Internal Capacity* window.

1. For every day in the table, enter up to four daily capacity factors in numbers that determine the overall daily capacity of the resource. The total daily standard capacity is automatically calculated in the *Daily Capacity* field by multiplying the factors. Instead of entering daily factors, you can enter the daily capacity directly in the *Daily Capacity* field.



Example

The resource is a wood cutting machine and the unit of measure is machine hour. You have three wood cutting machines which can be operated eight hours a day. In the *Daily Capacity Factors* fields, enter numbers 3 and 8. In the *Daily Capacity* field, the total daily capacity of 24 hours is displayed.

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2. *Single Run Capacity* is introduced on the assumption that a single production order will only be able to be produced on a single machine. It reflects the number of capacity hours a production order can consume on each working day.
3. Select *Yes* or *No* in *Relevant to Single Run Capacity* field to identify whether the factor is relevant to the calculation of *Single Run Capacity* which is automatically calculated by multiplying all relevant factors.

   Example

   The first daily capacity factor represents hours per shift, and the second factor represents shifts per day. The third factor may represent number of machines. The first two factors are tagged *Yes* in *Relevant to Single Run Capacity*. The calculation of *Single Run Capacity* on any one day would therefore be the multiplication the first and second factors.

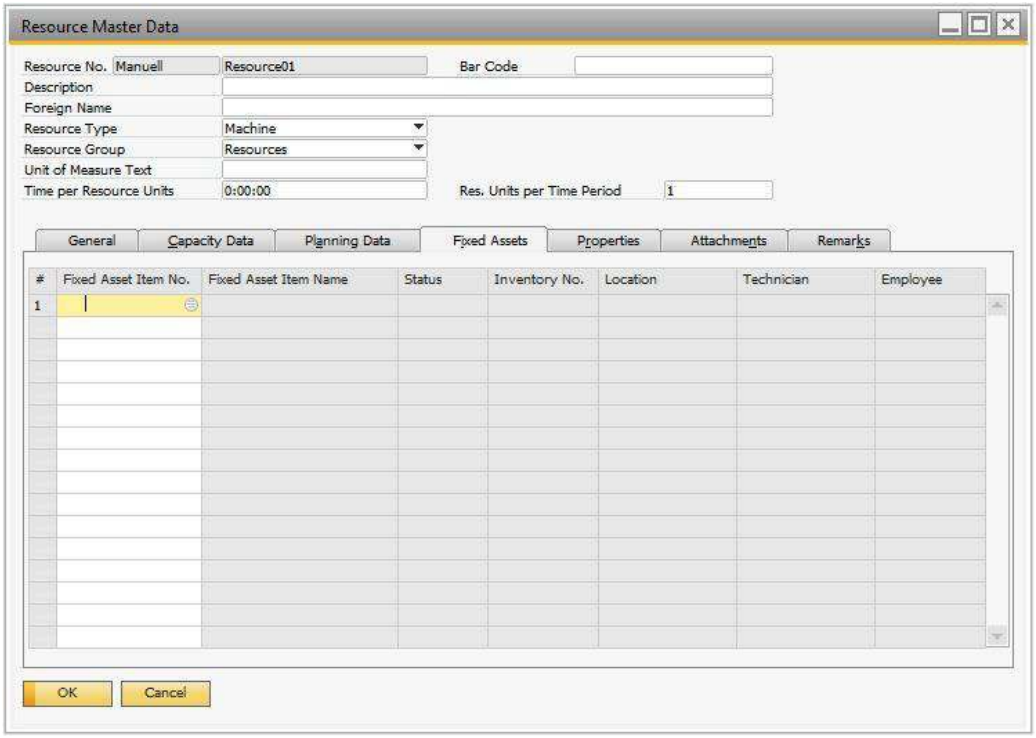
4. You can enter comments and remarks in the *Remarks* field.

Fixed Assets

Depending on the resource type you have defined, you can associate it with fixed assets or employees.

If the resource type is *Machine*, on the *Fixed Assets* tab, you can associate fixed assets with the resource.

To do so, in the *Fixed Asset Item No* field, select a fixed asset from the choose from list. The remaining fields are then filled with the values from the relevant fields in the *Asset Master Data* window.



Note

- This tab is available only if the *Enable Fixed Assets* checkbox is selected, as described in *Enabling Fixed Assets Functionality*.
- One resource can be associated with multiple fixed assets, but one fixed asset can be associated with one resource only.

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To delete a row, proceed as follows:

1. Select the desired row.
2. In the menu bar, choose *Data → Remove*.
3. A message appears informing you about the removal process. Choose *Yes*.

Properties Tab

On the *Properties* tab, you can assign properties to the resource.

Remarks Tab

On the *Remarks* tab, you can add text or an image to further describe the resource.

Attachments Tab

On the *Attachments* tab, you can add files related to the resource. Document formats include Word, Excel, .bmp files and other file extensions.

3.2 Updating Master Data Records

Procedure

1. From the SAP Business One *Main Menu*, choose *Resources → Resource Master Data*.
2. In the *Resource No.* field, enter the complete or partial resource number and choose *Find*.
3. Modify the necessary fields and choose *Update*.
4. Choose *Update* to save the changes.

3.3 Deleting Master Data Records

Caution

You can remove a resource only if all of the following apply:

- It is not assigned to a document or a draft document.
- It is not assigned to any open sales, purchasing or production documents.
- The internal capacity of the resource for the current system date and later is zero.

Procedure

1. From the SAP Business One *Main Menu*, choose *Resources → Resource Master Data*.
2. In the *Resource No.* field, enter the complete or partial resource number and choose *Find*.
3. In the SAP Business One menu bar, choose *Data → Remove*.

   A system message appears informing you that this process is irreversible.
4. Choose *Yes*.

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3.4 Linking Resources to Non-Inventory Items

By linking resources to non-inventory items, you can purchase and sell these resources in AP/AR order documents (via the existing non-inventory item functionality). This is especially helpful for service-based businesses.

Note that you first need to create a resource to link to a non-inventory item. To link a resource to a non-inventory item, follow the steps below:

1. Go to the *Resource Master Data* screen and switch to *Add* mode; then enter the necessary information for the new resource.
2. Choose the *Add* button.
3. Find the newly created resource. The *General* tab displays the *Create Link* button beside the *Linked to Item* label.
4. Choose the *Create Link* button, and in the confirmation box, choose *Yes* to create a non-inventory item that will be linked to the resource.

   A linked item is created.

The linked non-inventory item is automatically created with the following properties:

- The *Inventory Item* checkbox on the *Item Master Data* is automatically deselected, since it is a non-inventory item that is created.
- The *Item Code* will be the same as the *Resource Code*.

  > **Note**
  >
  > Currently it is not allowed to create a *Resource Code* with the same name as an existing *Item Code*. There is, therefore, no possibility that this *Item Code* already exists.

- The *Item Description* will be the same as the *Resource Description*. However, it can be manually changed when necessary.
- All warehouses (including dropship warehouses) associated with the resource will be automatically associated with both the non-inventory item and the resource. And any change to warehouse details, in either the item or the resource, will be updated in both places.
- The *Valuation Method* field for the item (on the *Inventory Data* tab) will be automatically set to *Standard* and also to read only.
- The *Item Cost* field for the item (on the *Inventory Data* tab) will be automatically updated with the *Total Std Resource Cost* field value of the linked resource (on the *General* tab of the *Resource Master Data* screen).
- The non-inventory item cannot be selected in the MRV document (just like all non-inventory items).

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4 Working with Resource Capacity

4.1 Setting Internal Resource Capacity

You need to set the internal resource capacity for resources, so that the exact available capacity can be used as a measure against resource requirements in open production orders. Use the following options:

- To set or update daily internal capacity in a batch for a selected range of resources within a period of time, use the *Resources - Set Daily Internal Capacities* window, as described in section *4.1.1 Setting Internal Resource Capacities in a Batch (Set Daily Internal Capacities Window)*.
- To set or update internal capacity manually for one or more resources for specific days, use the *Resource Capacity* window, as described in section *4.1.2 Setting Daily Internal Resource Capacity for Specific Days Manually (Resource Capacity Window)*.

You can also use this window to view all types of capacities per a period of time (*Internal*, *Committed*, *Consumed*, or *Available*).

4.1.1 Setting Internal Resource Capacities in a Batch (Set Daily Internal Capacities Window)

Procedure

1. From the SAP Business One *Main Menu*, choose *Resources → Set Daily Internal Capacities*.

   Note

   You can access this window from the *Resource Capacity* window by choosing the *Set Daily Internal Capacities* button. In this case, all the selection criteria fields inherit the values from the *Resource Capacity* window

2. The *Capacity Period* fields are defined by the initial settings for the default capacity period.

   Upon opening the window, the *From* date is always the current system date. The *To* date is defined by the default capacity period. Use the arrow buttons to shift between capacity periods. To define a different capacity period, enter the desired date range in the *Capacity Period* field and click outside the fields.
3. Define the range of the remaining selection criteria in the header area:
   - *Warehouse Code*
   - *Resource No.*
   - *Resource Group*
   - *Resource Type*
   - *Resource Properties*

   Note

   If you leave any of the fields above blank, the system selects all data from the category.
4. In the *Set Daily Capacity Basis Using* field, select one of the following options:

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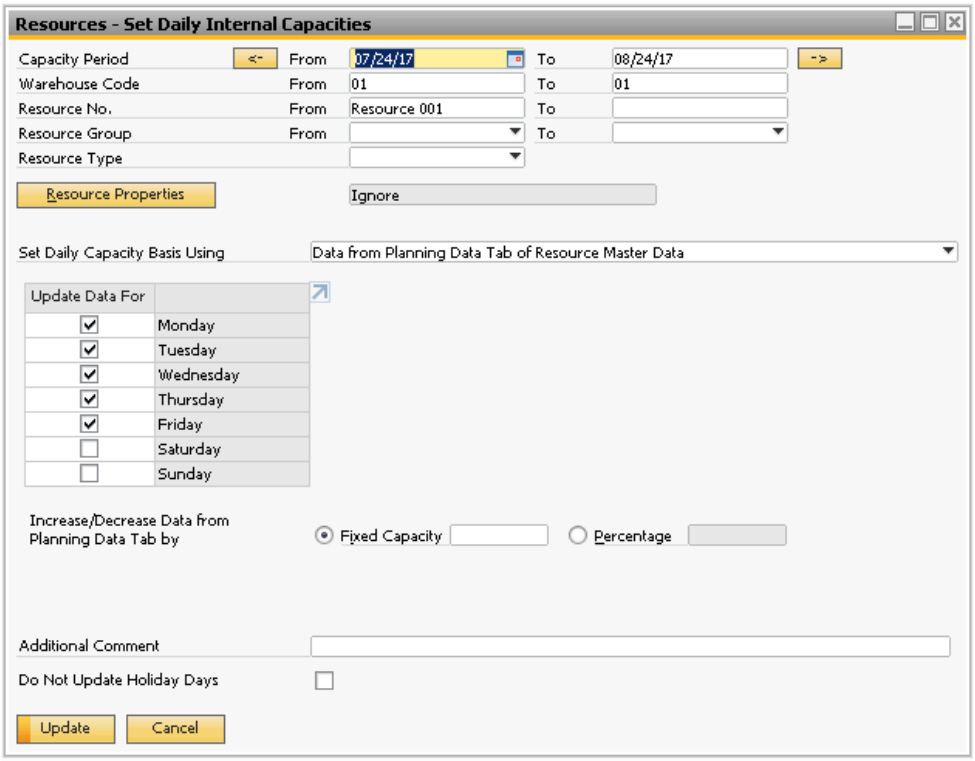
> **Note**
>
> Depending on this selection, different fields in the window are enabled.

- Data from *Planning Data Tab of Resource Master Data* - Sets the internal capacity for the selected range of resources using the values specified on the *Planning Data* tab of the relevant resource master data record.



1. In the table area, in the *Update Data For* column, select the checkboxes for the days for which you want to update the internal capacity.
2. To modify the data from the *Planning Data* tab, in the *Increase/Decrease Data from Planning Data Tab By* field, select one of the following:
   - *Fixed Amount* - Enter the amount of resource units, positive or negative, by which you want to increase or decrease the data.
   - *Percentage* - Enter the percentage, positive or negative, by which you want to increase or decrease the data.

- *Manual Data as Entered Below for Each Weekday* - Sets the internal capacity for the selection of resources according to the data entered manually in this window.

1. In the table area, in the *Update Data For* column, select the checkboxes for the days for which you want to update internal capacity.
2. In the *Daily Capacity Factors* fields, enter up to four daily capacity factors in numbers that determine the overall daily capacity of the resource. The total daily standard capacity is automatically calculated in the *Daily Capacity* field by multiplying the factors. Instead of entering daily factors, you can enter the daily capacity directly in the *Daily Capacity* field.

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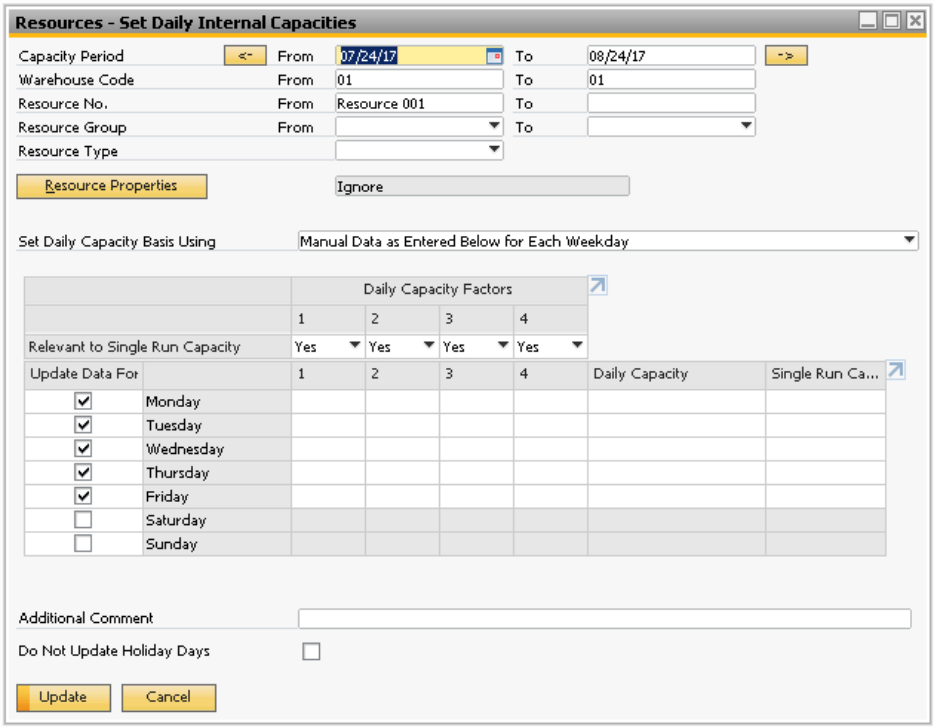

3. In the *Additional Comment* field, you can enter text which will be accessible from the *Resource Capacity* window. In the mentioned window, the data associated with this comment are displayed in blue.
4. If you do not want the capacity data to be applied to holiday days, select the *Do Not Update Holiday Days* checkbox.
5. Choose *Update*.

> **Note**
>
> To view capacity for a resource that you have defined here, use the *Resource Capacity* window. There you can update resource capacity for specific days manually.
>
> When you access this window from the *Main Menu*, the *Capacity Period From...To* values appear according to the rules defined in the *General Settings* window, and the remaining criteria are inherited from the last execution view

- Update Single Run Capacity with Internal Capacity

  When this option is selected and the *Update* button is pressed, the data held in the *Single Run Capacity* fields in the *Resource Capacity* screen will be overridden with the values from the *Internal Capacity* fields, for the corresponding dates and the range of data selected in this screen.

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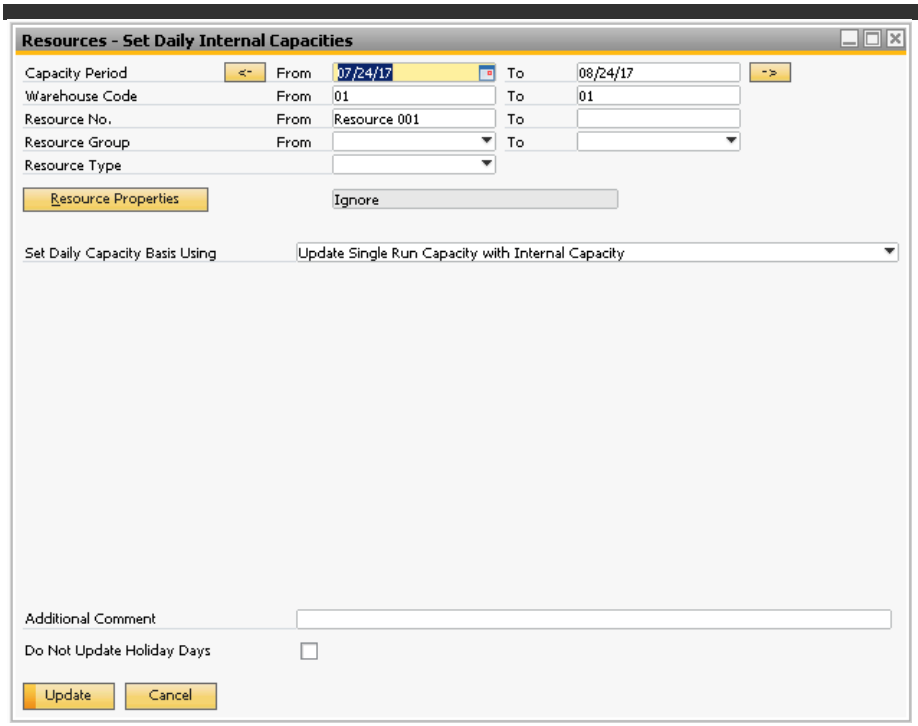
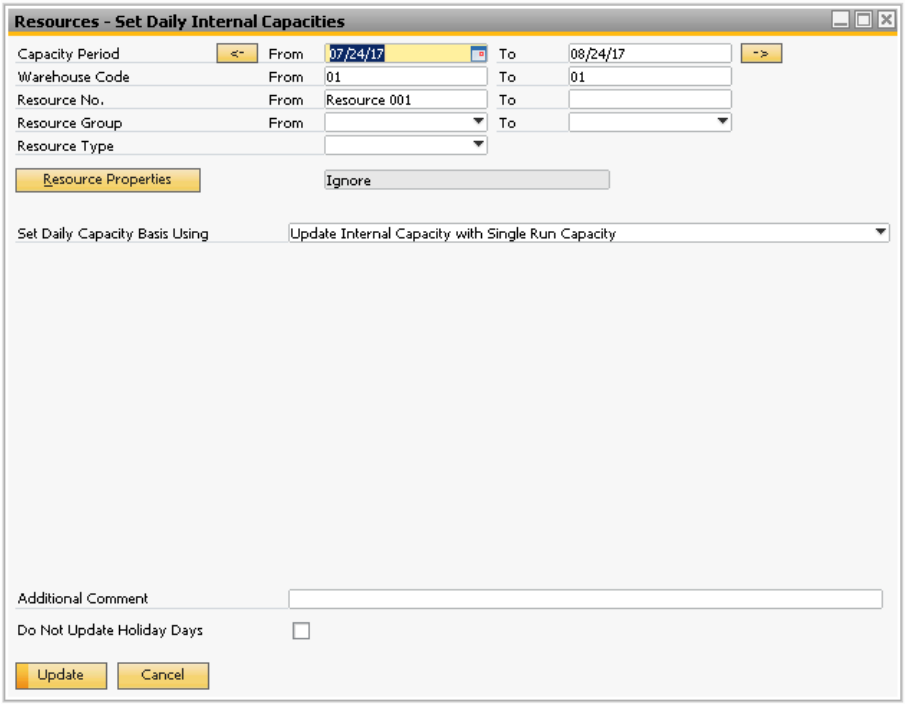


- Update Internal Capacity with Single Run Capacity

  When this option is selected and the *Update* button is pressed, the data held in the *Internal Capacity* fields in the *Resource Capacity* screen will be overridden with the values from the *Single Run Capacity* fields, for the corresponding dates and the range of data selected in this screen.



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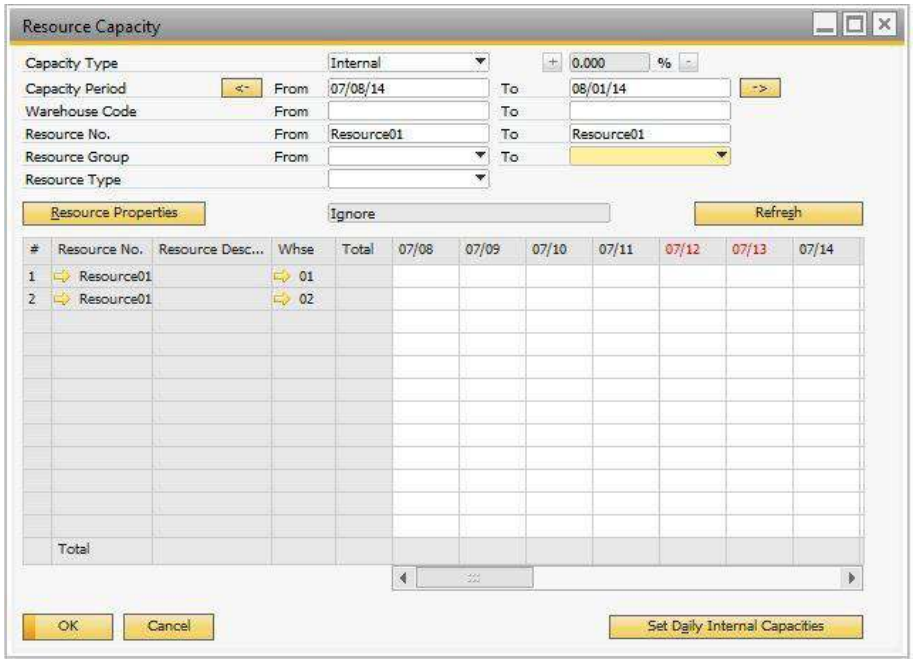
4.1.2 Setting Daily Internal Resource Capacity for Specific Days Manually (Resource Capacity Window)

Procedure

1. From the SAP Business One *Main Menu*, choose *Resources → Resource Capacity*. The *Resource Capacity* window appears.

> **Note**
>
> If you access this window from the *Resource Master Data* window, the selection criteria from the *Resource Capacity* window are copied to the *Resource Capacity* window and internal resource capacity data *for All Warehouses* is displayed.



2. In the *Capacity Type* field, select Internal.
3. The *Period Capacity From* and *To* fields are determined by the defined default capacity period. To shift between capacity periods, use the arrow buttons. To change the capacity period, enter the desired date range and choose Refresh.

> **Note**
>
> The defined capacity period cannot be longer than one year.

4. Define the range of the remaining selection criteria in the general area, then choose *Refresh*:
   - *Warehouse Code*
   - *Resource No.*
   - *Resource Group*
   - *Resource Type*
   - *Resource Properties*
   - *Resource Properties Status*

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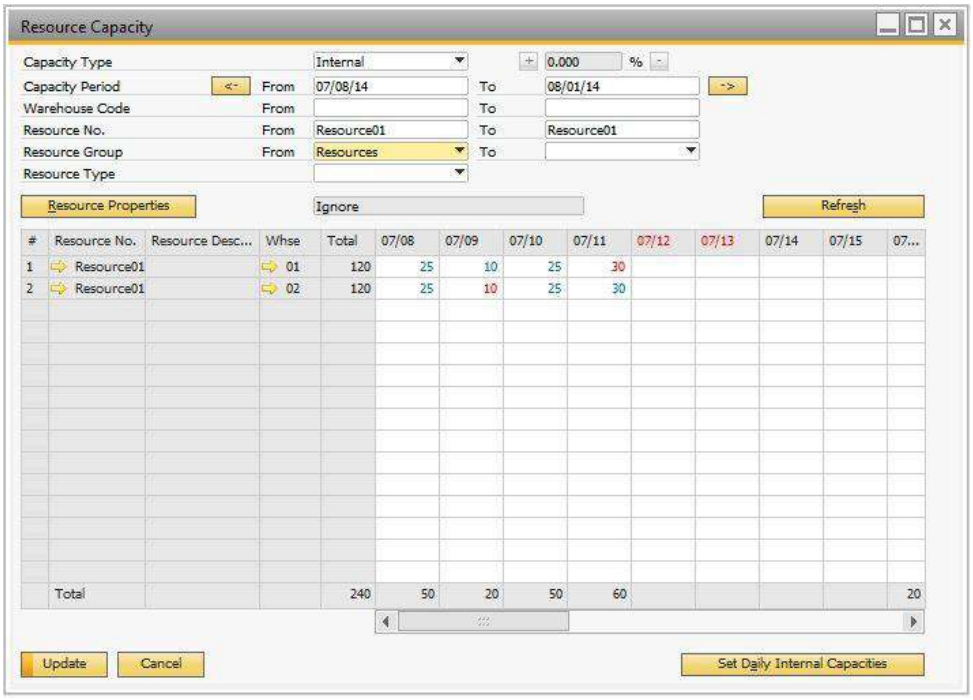
Note

- If you leave any of the fields above blank, the system selects all data from the category.
- If there is already any internal capacity defined for this period, it is displayed in the table area.

To view data for each day in the table, scroll over the date fields, as displayed below:



5. In the desired date field, enter capacity for a resource. You can enter decimal values, too.

   You can repeat this for as many dates and resources as you need.

   ### Note

   Dates related to holiday days are displayed in red.

To decrease or increase values by 5%, press CTRL and select the desired rows in the table, then choose the *Decrease/Increase Percentage* buttons or enter a desired percentage value in the field (positive or negative).

6. To enter a comment, double-click a desired cell in the table and choose *Edit Comment*. Enter the comment and choose *OK*.

   Fields with comments added from the *Resource Capacity* window are displayed in red.

   Fields with comments added from the *Resources - Set Daily Internal Capacity* window are displayed in blue. You can edit those comments in this window, as well. In that case, the fields are no longer displayed in blue, but in red.

7. The following internal capacity totals related to the selection criteria are displayed in the table:
   - At the bottom of each column - displays the total internal capacity of the displayed items per date.
   - In the *Total* column - for each item, displays the total internal capacity for the defined capacity period.

   At the bottom of the *Total* column, the value of the summed totals is displayed.

8. To save the data, choose *Update*.

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Note

If you access this window from the *Main Menu*, all selection criteria are inherited from the last execution view except the *Capacity Period From... To* field, which appears according to the definitions in the *General Settings* window. Choose *Refresh* to display the capacity data in the table.

4.1.2.1 Accessing Resource Capacity Window from Resource Master Data

If you access the *Resource Capacity* window from the *Capacity Data* tab of the *Resource Master Data* window, the selection criteria from the *Capacity Data* tab are copied to the *Resource Capacity* window. To access the *Resource Capacity* window from *Resource Master Data*, proceed as follows:

On the *Capacity Data* tab, right-click anywhere in the window and choose *Internal Resource Capacity*.

The *Resource Capacity* window opens with the following selection criteria copied from the *Capacity Data* tab:

All Warehouses, *Capacity Period*, and *Resource No*.

4.1.2.2 Accessing Resource Capacity Window from Production Order Window

You can access the *Resource Capacity* window from the *Production Order* window. To do so, in the resource line, click (Link Arrow) in the *Available* column. The *Resource Capacity* window opens with the following criteria:

- *Capacity Type*: All
- *Capacity Period*: Not defined
- *Warehouse Code*: Copied from the resource line of the production order

4.2 Viewing Resource Capacity

To view data for all capacity types for a resource within a desired capacity period, use the *Capacity Data* tab in the *Resource Master Data* window.

To view daily data for all capacity types for a selected range of resources within a desired capacity period, use the *Resource Capacity* window as described below.

4.2.1 Viewing Resource Capacity from Resource Capacity Window

Note

If you access this window from the *Main Menu*, all selection criteria are inherited from the last execution view except the *Capacity Period From... To* field, which appears according to the definitions in the *General Settings* window. Choose *Refresh* to display the capacity data in the table.

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Procedure

1. From the SAP Business One *Main Menu*, choose *Resources → Resource Capacity*.
2. From the dropdown list in the *Capacity Type* field, select the desired option:
   - *Internal* - If you select this, you can also manually update the *Internal* capacity data.
   - *Ordered* - Ordered capacity displays the total quantity of the *Qty (Inventory UoM)* grid line field for the non-inventory item linked to this resource. (For more about resources linked to non-inventory items, see *3.4 Linking Resources to Non-Inventory Items*), from the following documents:
     - Purchase orders with a document grid line field of *Del. Date,* which falls within the *From-To* period specified in the *Capacity Period* field.

       Note

       When the purchase order is copied to a GRPO or purchase invoice, the ordered capacity from the purchase order will be reduced by the drawn quantity. Meanwhile, the ordered capacity from the GRPO or purchase invoice will be increased by the drawn quantity.
     - GRPOs with a document grid line field of *Actual Del. Date* which falls within the *From- To* period specified in the *Capacity Period* field.

       Note

       When the GRPO is copied to a purchase invoice, the ordered capacity from the GRPO will remain unchanged. However, when the GRPO is copied to an A/P Return, the ordered capacity from the GRPO will be reduced by the drawn quantity.

       Non-based purchase invoices (and purchase invoices generated based on purchase quotations) with a document grid line field of *Actual Del. Date* which falls within the *From-To* period specified in the *Capacity Period* field.

       Note

       When the non-based purchase invoice is copied to an A/P Credit Memo, the ordered capacity from the purchase invoice will be reduced by the drawn quantity.
   - *Committed*

     Generally, this field displays the resource capacities that are committed to production orders. However, if there are resources linked to non-inventory items, it may also contain the total quantity of the *Qty (Inventory UoM)* grid line field for the non-inventory item linked to this resource, from open Sales Orders.

     (For more about resources linked to non-inventory items, see *3.4 Linking Resources to Non-Inventory Items.*)

     Note

     When the sales order is copied to a sales delivery or A/R invoice, the committed capacity from the sales order will be reduced by the drawn quantity. Meanwhile, the consumed capacity will be increased for delivery and A/R invoice.
   - *Consumed*

     Generally, this field displays the resource capacities that are consumed by production orders. However, if there are resources linked to non-inventory items, it may also contain the total quantity of the *Qty (Inventory UoM)* grid line field for the non-inventory item linked to this resource, from the following documents:
     - A/R deliveries with a document grid line field of *Actual Del. Date,* which falls within the *From-To* period specified in the *Capacity Period* field.

       (For more about resources linked to non-inventory items, see *3.4 Linking Resources to Non-Inventory Items*)

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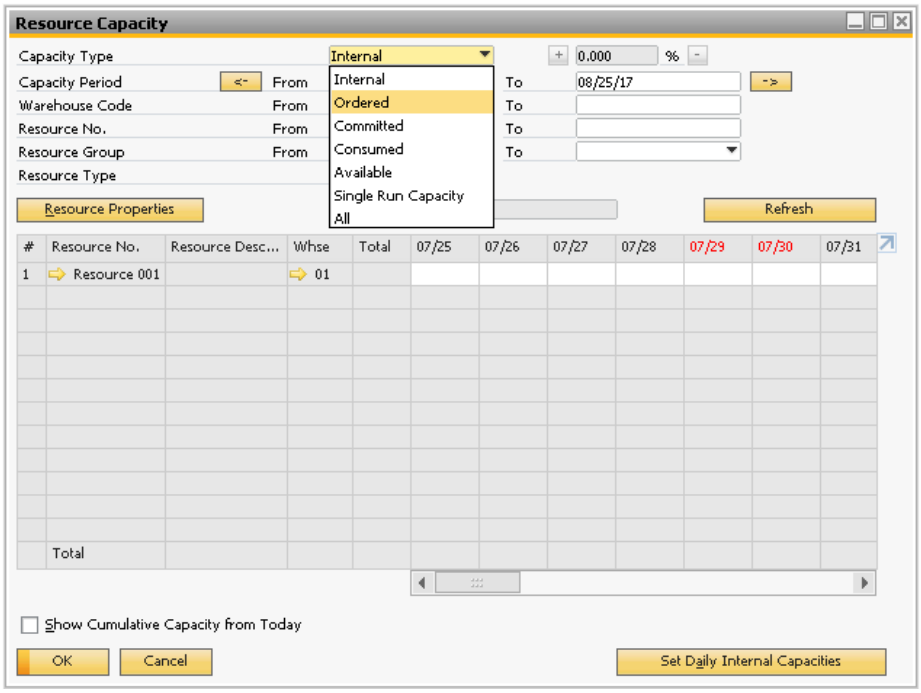
> **Note**
>
> When the A/R delivery is copied to an A/R invoice, the consumed capacity remains unchanged. However, if the delivery is copied to a Return, the consumed capacity is reduced by the drawn quantity.

- Non-based A/R invoices (including A/R invoices copied from sales quotations) with a document grid line field of *Actual Del. Date* which falls within the *From-To* period specified in the *Capacity Period* field.

> **Note**
>
> When the non-based A/R invoice is copied to an A/R credit memo, the consumed capacity is reduced by the drawn quantity.

- *Available*
- *Single Run Capacity - If you* select this, you can also manually update the *Single Run Capacity data.*
- *All* - If you select this, all these capacity types are displayed simultaneously. In the collapsed view, only the *Internal* capacity is visible. In the expanded view, all these capacity types are visible, and the *Internal* capacity and *Single Run Capacity* can be both manually updated.



3. The *Period Capacity From* and *To* fields are determined by the defined default capacity period. Upon opening the window, the *From* date is the current system date. To shift between capacity periods, use the arrow buttons. To change the capacity period, enter the desired date range and choose *Refresh*.
4. Define the range of the remaining selection criteria in the header area:
   - *Warehouse Code*
   - *Resource No.*
   - *Resource Group*
   - *Resource Type*
   - *Resource Properties*

   > **Note**
   >
   > If you leave any of the fields above blank, the system selects all data from the category.

   Choose *Refresh*.

   The capacity data for the defined selection criteria are displayed in the table area.

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5. To view data for each day in the table, scroll to the right over the date columns.

   ### Note

   For Internal resource capacity type, the following applies:

   - Capacity data with comments added from the *Resource Capacity* window are displayed in blue.
   - Capacity data with comments added from the *Resources - Set Daily Internal Resource Capacity* window are displayed in red.

   To view the comments, hover over the field.

6. To view cumulative quantities of the selected capacity type, select the *Show Cumulative Capacity from Today* checkbox. The capacity quantities accumulate with each day starting from the current system date, regardless of the *Capacity Period* you are viewing. Data for days prior to the current system date are in this case blank.

   ### Note

   If you are viewing the *Internal* capacity type, the fields in the table are read-only; you cannot update the internal capacity if the *Show Cumulative Capacity from Today* checkbox is selected.

   ### Example 1 - Show Cumulative Capacity from Today

   - You are viewing *Available* capacity for a resource for a period of 5 days. The *From* date is the current system date, July 12. The following information is displayed in the table when the *Show Cumulative Capacity from Today* checkbox is deselected.

Capacity Type	July 12	July 13	July 14	July 15	July 16
Available	5	5	7	5	6

   - You are viewing *Available* capacity for the same resource, for the same period. However, now the *Show Cumulative Capacity from Today* checkbox is selected.

Capacity Type	July 12	July 13	July 14	July 15	July 16
Available	5	10 (5+5)	17 (5 + 5 + 7)	22 (5 + 5 + 7 + 5)	28 (5 + 5 + 7 + 5 + 6)

   ### Example 2 - Show Cumulative Capacity from Today

   You are viewing *Available* capacity for a resource for a period of 7 days. The *From* date is July 10, the current date is the current system date, July 12. The following information is displayed in the table when the *Show Cumulative Capacity from Today* checkbox is selected.

Capacity Type	July 10	July 11	July 12	July 13	July 14	July 15	July 16
Available			5	10 (5+5)	17 (5 + 5 + 7)	22 (5 + 5 + 7 + 5)	28 (5 + 5 + 7 + 5 + 6)

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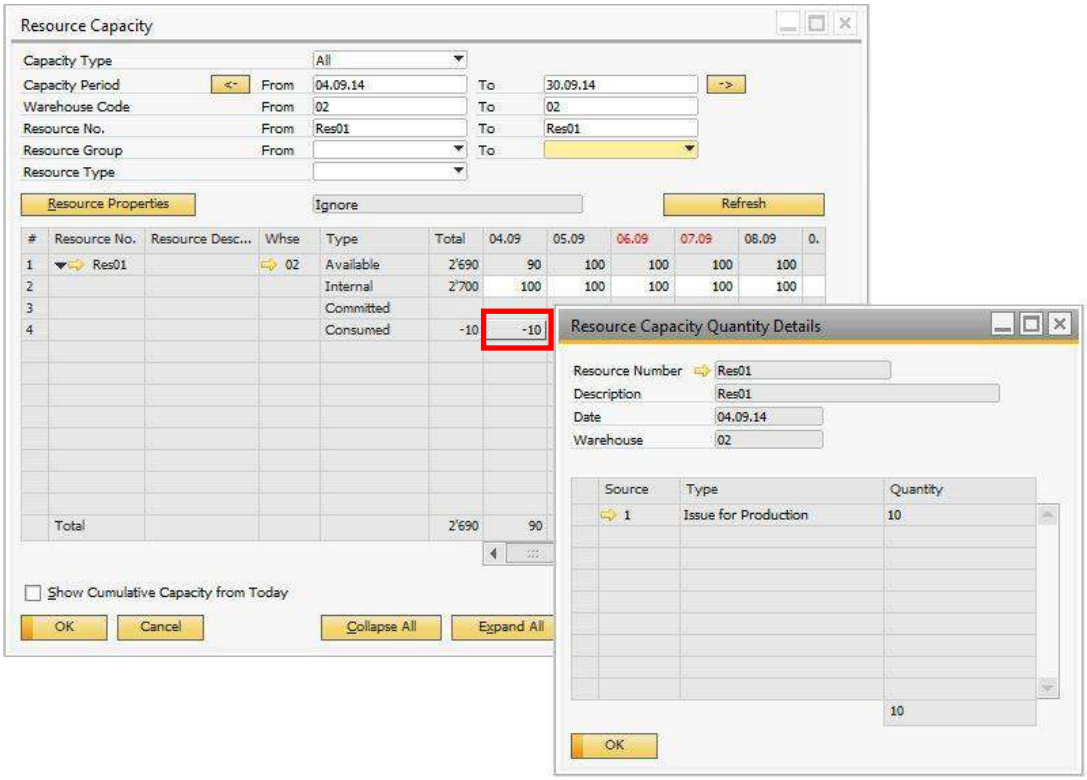
Example 3 - Show Cumulative Capacity from Today

You are viewing *Available* capacity for a resource for a period of 3 days. The From date is July 14, the current date is the current system date, July 12. The following information is displayed in the table when the *Show Cumulative Capacity from Today* checkbox is selected.

Capacity Type	July 14	July 15	July 16
Available	17 (5 + 5 + 7)	22 (5 + 5 + 7 + 5)	28 (5 + 5 + 7 + 5 + 6)

7. If you are viewing *All* capacity types in collapsed view, the quantities in resource rows display the Available capacity type. Choose the *Expand All* button, to switch to the expanded view and display all capacity type rows.
   - In the *Internal* capacity type row, if you have defined internal capacities for the defined period, the relevant quantities are displayed. You can update the internal capacity for any of the dates displayed, and view or add comments.
   - In the *Ordered, Committed* and *Consumed* capacity type rows, the cells which contain values appear as push buttons. Click them to see the relevant source documents related to the committed or the consumed quantity of the resource.



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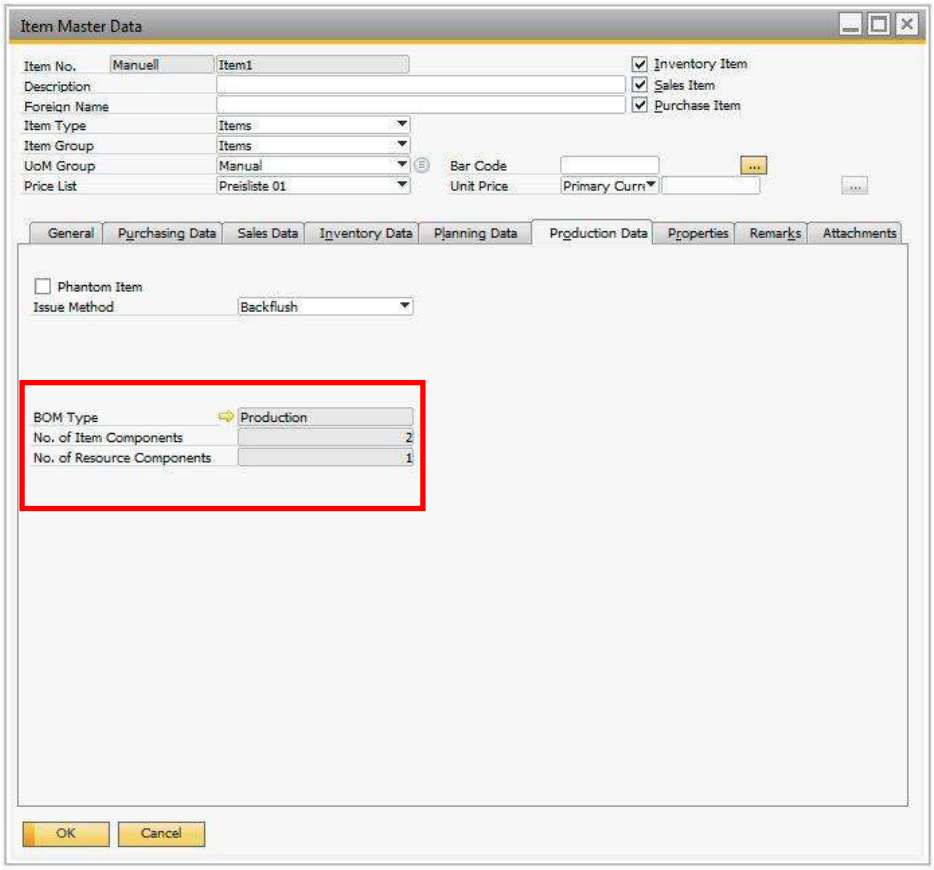
5 Defining Production Data in Item Master Data

The *Production Data* tab is available on the *Item Master Data* window to help streamline BOM and resource management.



To access this tab, from the SAP Business One *Main Menu*, choose *Inventory → Item Master Data → Production* tab.

View or define the following:

Field/Checkbox	Description/Activity
Phantom Item	**Note** This checkbox has been moved from the General tab to the Production Data tab. Defines the item as a phantom; a phantom item is an item type in BOM that has an engineering or structure function only. Phantom items do not represent a physical component or a subassembly, thus they are defined as non-inventory items.
Issue Method	**Note** This checkbox has been moved from the *General* tab to the *Production Data* tab.

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	Select one of the following issue methods: • *Backflush* - after you report the completion of the parent item, the components are automatically issued to the production order. • *Manual* - the components are manually issued to the production order, regardless of the issue of the product. **Note** You cannot use the *Backflush* method for items managed by serials or batches.
BOM Type	This field indicates if the item is associated with a BOM as a parent item. The field is blank if the item is not associated with any BOM. Otherwise, the following values are possible: • *Assembly* - The item is associated with an assembly BOM. • *Sales* - The item is associated with a sales BOM. • *Production* - The item is associated with a production order. To open the related BOM, click  (*Link Arrow*).
No. of Item Components	Displays the number of item components that are currently included in this item's BOM.
No. of Resource Components	Shows the number of resource components that are currently included in this item's BOM.

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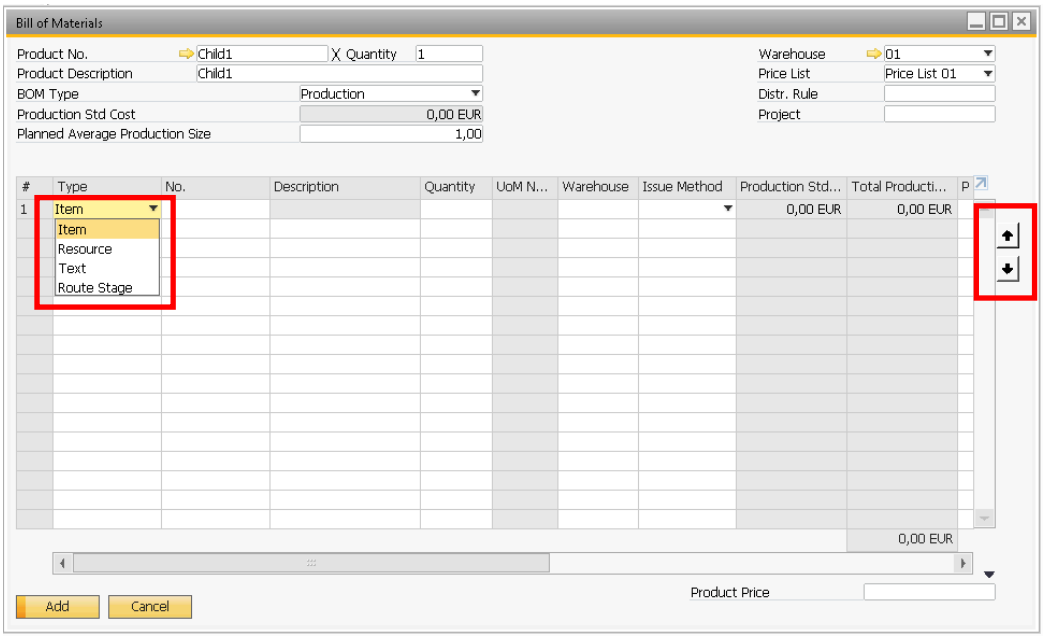
6 Bill of Materials Handling

6.1 Bill of Materials Window

The BOM has a hierarchical arrangement of components. Enter all the child items, raw materials, resources, or even route stages required to assemble and produce the finished product.

In the *Bill of Materials* window, *Route Stage* can be selected in the *Type* table field, to allow route stage association of BoM lines. The *Route Sequence* field will then be displayed in the table to indicate the order by which the route states will be performed.

1. From the SAP Business One *Main Menu*, choose *Production → Bill of Materials*.



2. View or define the fields in the *Bill of Materials* grid:

Field	Activity/Description
Type	From the dropdown menu, select one of the following options: • *Item* - Select this to define an item component. • *Resource* - Select this to define a resource component. • *Text* - Select this to enter text. With this option, all the remaining fields in the line are disabled. • *Route Stage* - To add a route stage line. With a *Route Stage* type line, a route stage code would be entered in the *No.* field of this line.
No.	From the choose from list, select an item for the *Item* type line, or a resource for the *Resource* type line. Values from relevant fields in the item master data or resource master data records are copied into the remaining fields in the line.

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Field	Activity/Description
Route Sequence	Displays the sequence number that is assigned to each route stage. The sequence indicates the precise order in which the routing stages must be performed during the production process. This field will not be visible by default. The value of this field is automatically populated by the system upon the creation of lines with a line *Type* set to *Route Stage*. The pull-down list will contain a list of all the other route sequence numbers that currently exist in this *Bill of Materials* grid. No other numbers can be entered. The selection of another *Route Sequence* number in this field will switch all the lines associated with the current route sequence with all the lines associated with the selected route sequence. **Example** There are 5 grid lines with *Route Sequence* 1, and 8 grid lines with *Route Sequence* 3. If you switch the *Route Sequence* of the 8 grid lines from 3 to 1, then all 8 grid lines will have *Route Sequence* 1, and will appear at the top of the grid. In addition, the 5 grid lines of the original Route Sequence 1 will then have *Route Sequence* 3, and will appear between the lines with Route Sequence 4 and 6.
Quantity	Enter the quantity of the item or resource component required to produce the quantity (defined in the *Bill of Materials* header field) of the parent item. **Note** For resource components, the value cannot be negative.
Additional Quantity	Enter additional quantity for an item or a resource component. The value from this field is then copied into the *Additional Quantity* field in the production order document. The quantity is added to the total planned quantity of items and resources and the total planned time in the production order, regardless of the quantity of the parent item produced. **Example** *Planned Qty* of the parent (in the production order header) = 2 *Base Qty* of the resource = 4 *Additional Quantity* of the resource = 1 *Planned Qty* of the resource = 2*4+1 **Note** o The system allows items or resources with a Manual issue method to have the *Base Qty* of zero and the *Additional Quantity* of a number greater than zero. o With resources and items with a Backflush issue method, the entire additional quantity is consumed upon the completion of the first parent item. For example, if in one production order you plan to produce 10 parent items, the additional quantity is consumed upon the completion of the first parent item. o The *Additional Quantity* for by-product lines is always zero.

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Field	Activity/Description
WIP Account	This account is used to post the value of resource and item components that are in the process of production. In the choose from list, select an account from the list of accounts. When the BOM is used in a production order, the value from this field is copied into the *WIP Account* field of the production order and is later used in the *Account Code* field in the issue from production document. However, if this field is left blank for item or resource component lines, the *Account Code* field in the issue for production document defaults to the WIP Account associated through the document settings options. For more information, see section *7.6 Document Settings and WIP Account*.
Waiting Days	Displays the period of time, presented in days, to wait after the completion of the route stage. This field will not be visible by default. As soon as a Route Stage type line is created, you can manually enter the number of waiting days.
Up/Down Arrows	You can change the presentation sequence of the component lines. To do so, select the desired component line and click  or  to move it up or down.

Note

Some fields are not displayed by default. To define which fields should be displayed, click  (*Form Settings*) in the toolbar.

Note

A resource can be a component of a phantom item.

Note

You can choose to filter and view specific types of lines in the grid. To view only resource and route stage type lines, right-click on the Bill of Materials, and select *Display Route Stages* and *Display Resources*. The following options are all selected by default, and you can deselect them according to your needs:

- *Display Route Stages*
- *Display Items*
- *Display Resources*
- *Display Texts*

In addition, you can also choose to filter type lines by pressing the following shortcut keys:

- Press Ctrl + Shift + 1, and route stages lines will be hidden.
- Press Ctrl + Shift + 2, and item lines will be hidden.
- Press Ctrl + Shift + 3, and resource lines will be hidden.
- Press Ctrl + Shift + 4, and text lines will be hidden.

6.2 Managing Bill of Material (BOM) Components

Using the component management functionality, you can replace, add or delete components of all types from BOMs in a batch.

Note

If an error occurs during the execution of replacing, adding, or deleting components, none of the selected BOMs are updated.

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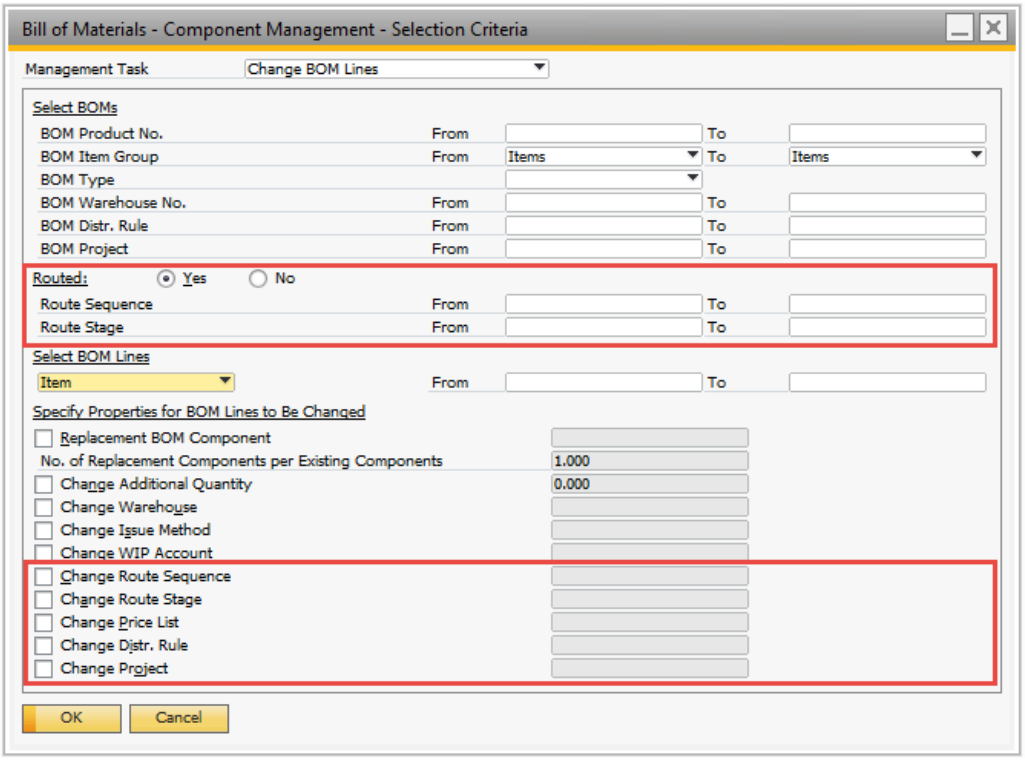
6.2.1 Changing BOM Components

You can replace component lines of a BOM with different components or update the existing ones, for example, the quantity, issue method, and so on.

Procedure

1. From the SAP Business One *Main Menu*, choose *Production → Bill of Materials - Component Management*. The *Bill of Materials - Component Management* window appears.



2. From the *Management Task* dropdown list, select *Change BOM Lines*.
3. In the *Select BOMs* section, define the range of selection criteria for BOMs in which you want to replace or change components.
4. In the *Routed* section, proceed as follows:
   - Select *Yes* if you want to change components for Bill of Materials that contain at least one Route Stage.
   - Select No if you want to change components for Bill of Materials that do not contain any Route Stage.
5. In the *Select BOM Lines* section, select one of the following:
   - *Item* - In the *From* and *To* fields, define the range of the item components in the selected BOMs you want to change or replace.
   - *Resource* - In the *From* and *To* fields, define the range of the resource components in the selected BOMs you want to change or replace.
   - *Text* - Enter at least part of the text which you want to replace. In the *Replacement Text* field enter the new text and move to Step 6, as the fields relevant to items and resources in the BOMs are not available in the window.
   - Route Stage - Select this checkbox, and then in Specify Properties for BOM Lines to Be Changed section, enter in Rouge Stage the route stage code. All selected route stages will be updated with the newly-entered route stage code.

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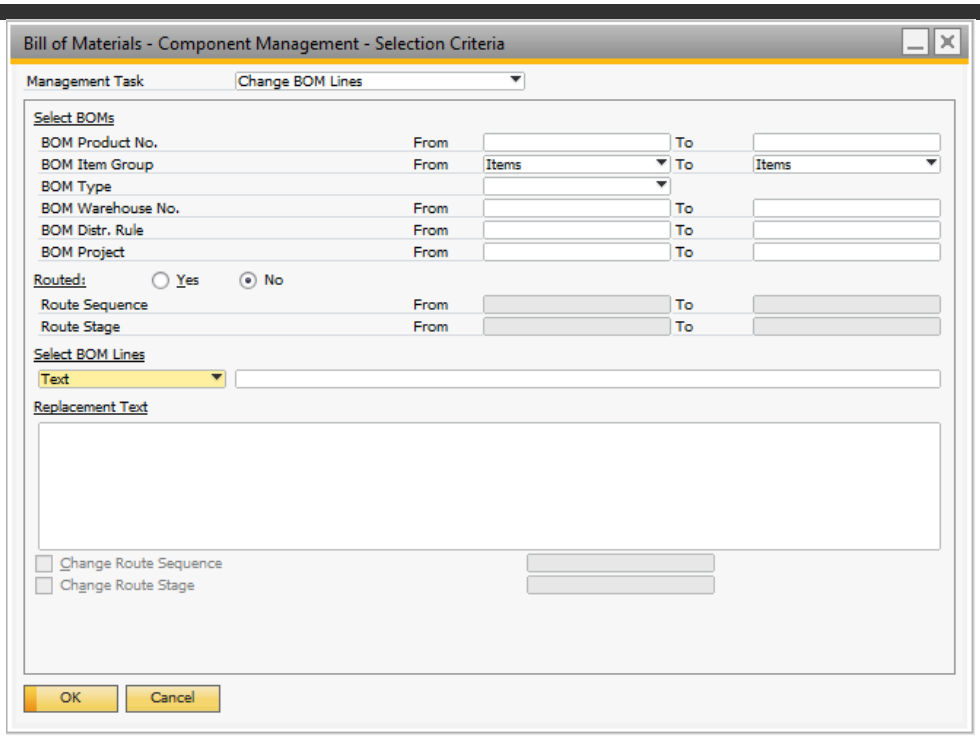

6. In the *Specify Properties for BOM Lines to Be Changed* section, proceed as follows:
   - If you want to replace the selected components with a different one, select the *Replacement BOM Component* checkbox. In the choose from list, define the replacement component and define the number of replacement components per existing components.

     ### Example

     You defined a range of BOMs in which you want to replace every Resource A and every Resource B with two units of Resource C. In each BOM, the system will replace every unit of Resource A with two units of Resource C. It will also replace every unit of Resource B with two units of Resource C.
   - If you want to change parameters for the selected components or for the replacement component, select one or more of the following checkboxes and specify the desired values:
     - *Change Additional Quantity*
     - *Change Warehouse*
     - *Change Issue Method*
     - *Change WIP Account*
     - *Change Route Sequence*
     - Change Route Stage
     - Change Price List
     - Change Distr. Rule
     - Change Project
7. Choose *OK*.

   The *Bill of Materials - Component Management - Change Preview* window appears.

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8. The *Selected* checkbox is selected for each BOM in which the system is about to change the component. If you do not want to change the component in a BOM, deselect this checkbox.

   Each parameter displays a column with the existing value and a column with the replacement value.
9. To execute the task, choose *OK*.

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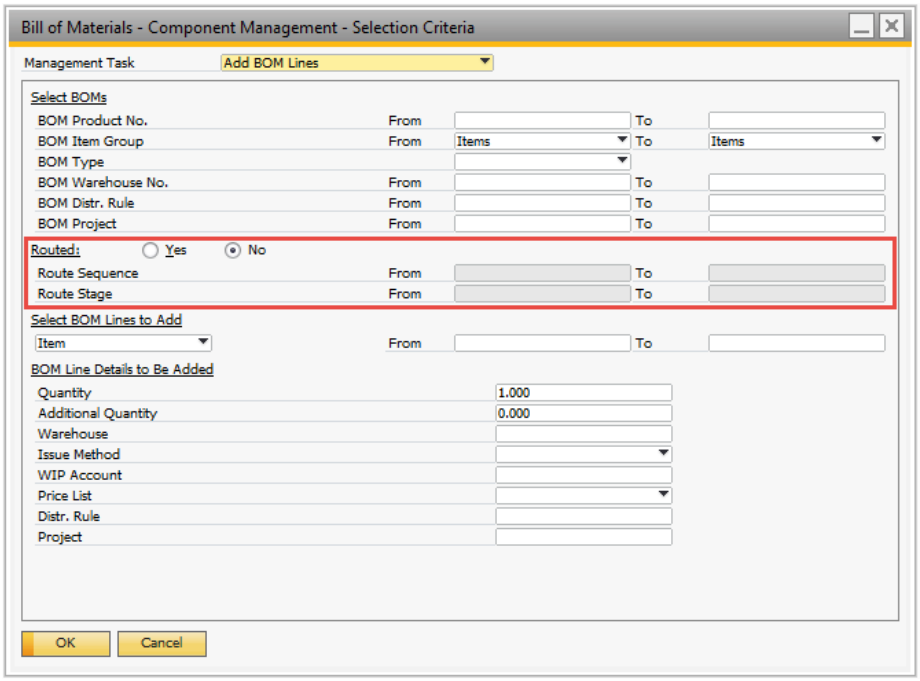
6.2.2 Adding BOM Components

You can add components of all three types to a desired range of BOMs.

Procedure

1. From the SAP Business One *Main Menu*, choose *Production → Bill of Materials - Component Management*. The *Bill of Materials - Component Management* window appears.



2. From the *Management Task* dropdown list, select *Add BOM Lines*.
3. In the *Select BOMs* section, define the range of selection criteria for BOMs to which you want to add a component.
4. In the *Routed* section, proceed as follows:
   - Select *Yes* if you want to change components for Bill of Materials that contain at least one Route Stage.
   - Select No if you want to change components for Bill of Materials that do not contain any Route Stage.
5. In the *Select BOM Lines to Add* section, select one of the following:
   - *Item* - In the *From* and *To* fields, define the range of the item components you want to add to the selected BOMs.
   - *Resource* - In the *From* and *To* fields, define the range of the resource components you want to add to the selected BOMs.
   - *Text* - Enter text in the *Text to Be Added* section and move to Step 6, as the fields relevant to items and resources in the BOMs are not available in the window.
6. In the *BOM Line Details to Be Added* section, define the following fields:
   - *Quantity*
   - *Additional Quantity*
   - *Warehouse*
   - *Issue Method*

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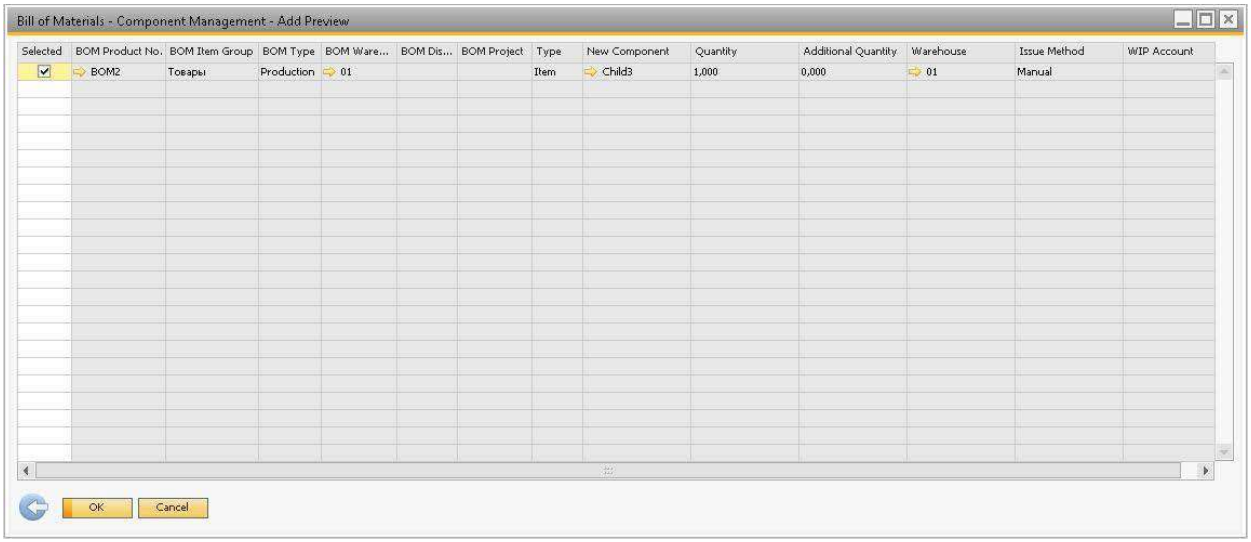
- *WIP Account*
- *Price List*
- *Distr. Rule*
- *Project*

7. Choose *OK*. The *Bill of Materials - Component Management - Add Preview* window appears.



8. The *Selected* checkbox is selected for each BOM to which the system is about to add the component. If you do not want to add the component to a BOM, deselect this checkbox.
9. To execute the task, choose *OK*.

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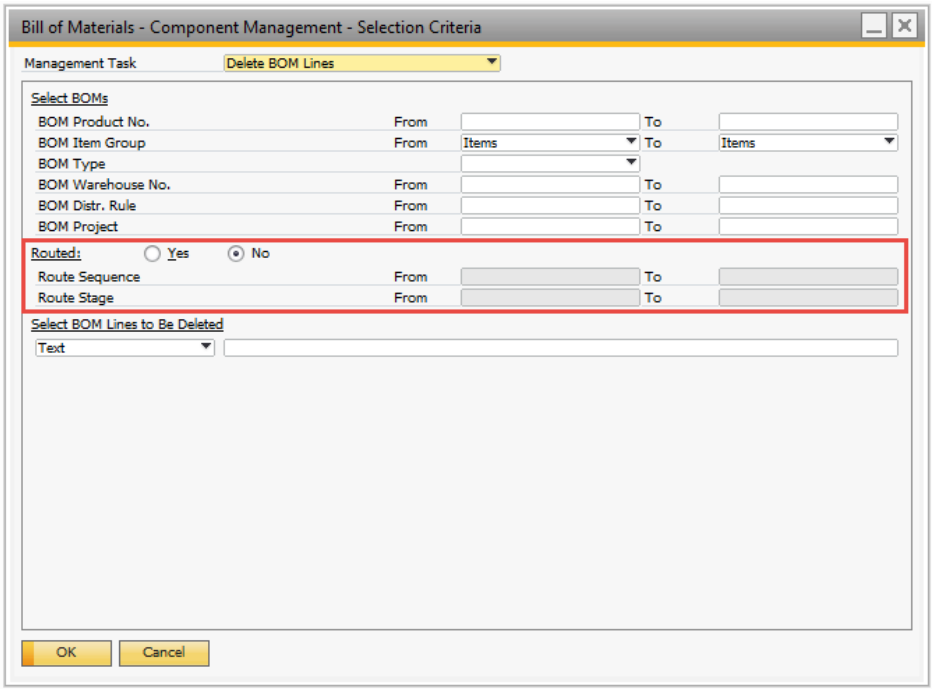
6.2.3 Deleting BOM Components

Procedure

1. From the SAP Business One *Main Menu*, choose *Production → Bill of Materials - Component Management*. The *Bill of Materials - Component Management* window appears.



2. From the Management Task dropdown list, select *Delete BOM Components*.
3. In the *Select BOMs* section, define the range of selection criteria for BOMs from which you want to delete components.
4. In the *Routed* section, proceed as follows:
   - Select *Yes* if you want to change components for Bill of Materials that contain at least one Route Stage.
   - Select No if you want to change components for Bill of Materials that do not contain any Route Stage.
5. In the *Select BOM Lines to Be Deleted* field, select one of the following:
   - *Item* - In the *From* and *To* fields, define the range of the item components you want to delete from the selected BOMs.
   - *Resource* - In the *From* and *To* fields, define the range of the resource components you want to delete from the selected BOMs.
   - *Text* - Enter at least part of the text line you want to delete.
   - *Route Stage* - When this is selected, all lines associated with selected route stages will be deleted.
6. Choose *OK*. The window *Bill of Materials - Component Management - Delete Preview* appears.

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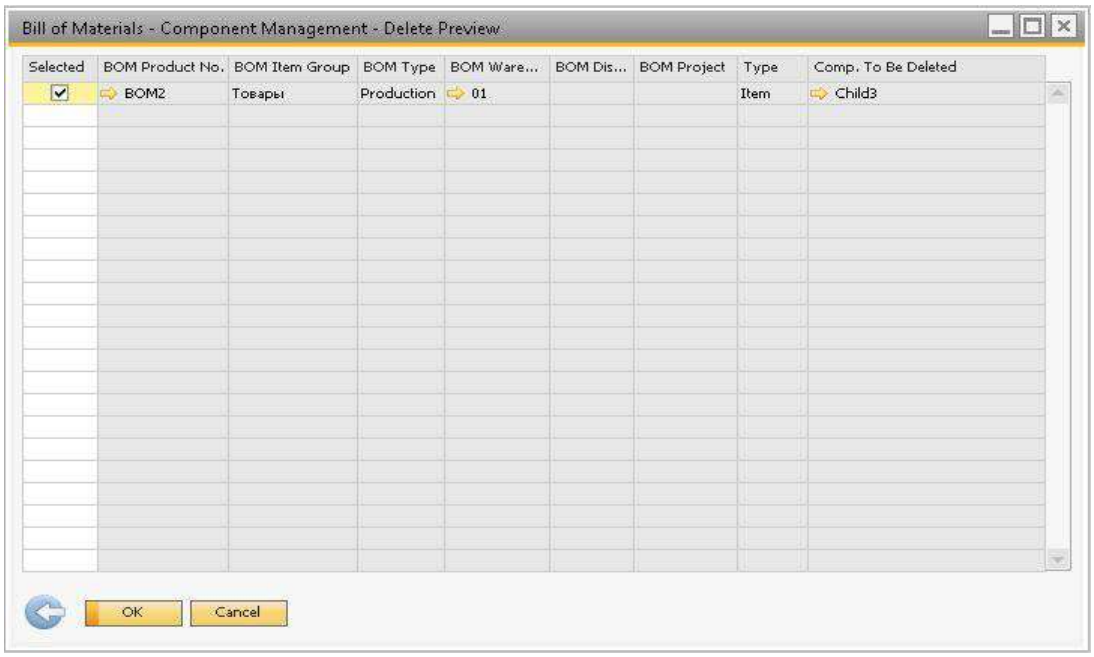

7. The *Selected* checkbox is selected for each BOM in which the system is about to delete the component line. If you do not want to delete the component in a BOM, deselect this checkbox.
8. To execute the task, choose *OK*.

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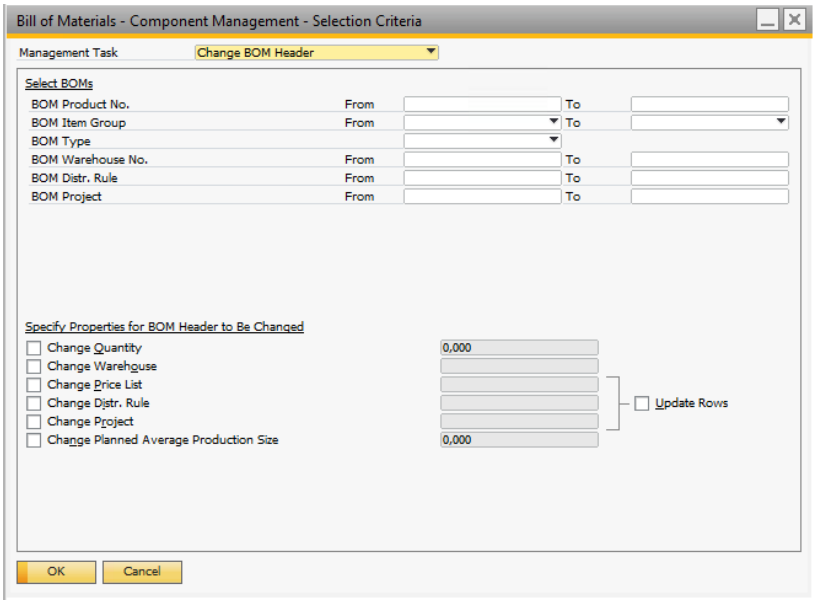
6.2.4 Changing BOM Header

You can mass update the header information of several Bill of Materials all at once. In addition, you have the option to apply to all rows the newly defined header fields such as *Price List*, *Distr. Rule* and *Project*.

Procedure

1. From the SAP Business One Main Menu, choose Production → *Bill of Materials - Component Management*. *The Bill of Materials - Component Management* window appears.



2. From the *Management Task* dropdown list, select *Change BOM Header*.
3. In the *Select BOMs* section, define the range of selection criteria for BOMs in which you update the header data.
4. In the Specify Properties for BOM Header to Be Changed section, select one or more of the following checkboxes, and specify the desired values:
   - *Change Quantity*
   - *Change Warehouse*
   - *Change Price List*
   - *Change Distr. Rule*
   - *Change Project*
   - *Change Planned Average Production Size*
5. If necessary, you can select *Update Rows* to apply the newly defined value of *Price List*, *Distr. Rule*, and *Project* to all rows in the selected *Bill of Materials*.
6. Choose *OK*.
7. The *Bill of Materials - Component Management - Change Header Preview* window appears.

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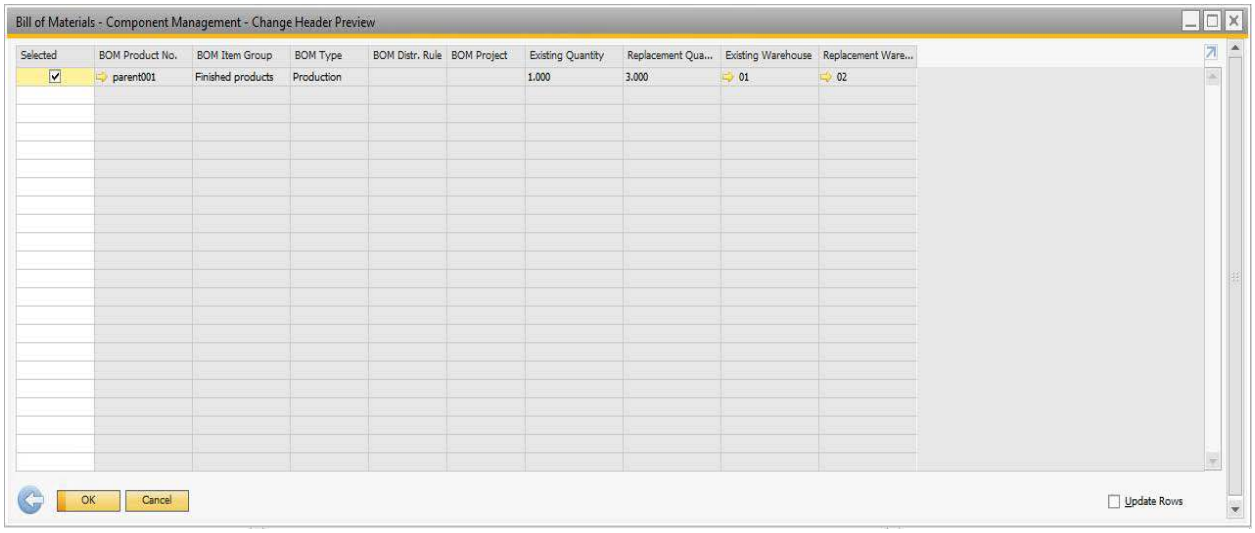

8. The *Selected* checkbox is selected for each BOM in which the system is about to change the header. If you do not want to change the header in a BOM, deselect this checkbox.

   Each parameter displays a column with the existing value and a column with the replacement value.

9. To execute the task, choose *OK*.

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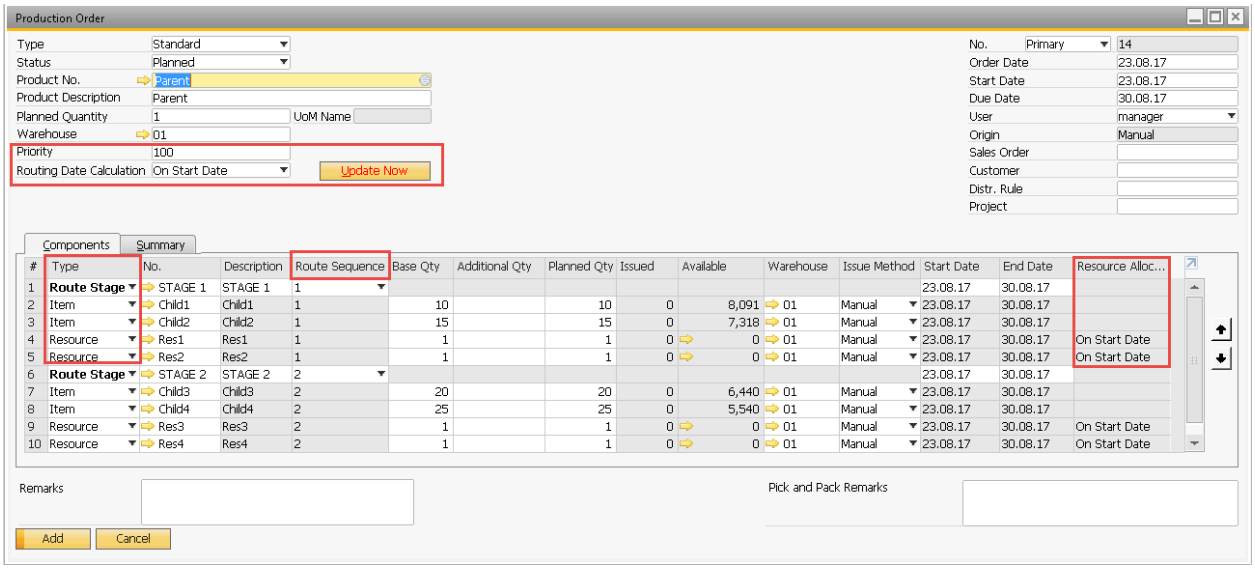
7 Working with Production Orders

As in *Bill of Materials Handling*, the *Route Stage* in the *Type* filed allows route stage association of all production order lines. In addition, it will facilitate a simple filtering ability of any combination of production order line types.

7.1 Production Order Window

Procedure

1. From the SAP Business One *Main Menu*, choose *Production → Production Order*.



2. View or update the following fields in the general area:

> **Note**
>
> Fields that are self-explanatory are not described in the table below.

Field	Activity/Description
Type	Choose one of the following production order types: • *Standard* (default) - to produce a regular production item, using a *Production Bill of Materials* • *Special* - to produce and repair items that could be any inventory item • *Disassembly* - to dismantle a parent item to its components, using a *Production Bill of Materials*
Status	Choose a production order status as follows:

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Field	Activity/Description
	• *Planned* - initial production order status • *Released* - you release the production order to the shop floor for work; status at which receipts and issues are transacted • *Closed*- you close the production order when all transactions have been completed. • *Canceled* - production order is removed from the list before the production process starts
Product No.	Enter the parent item for the *Standard* and *Disassembly* production orders. • Choose to display the parent list of the *Bill of Materials*. • Choose *New* to define a new *Bill of Materials*. For the *Special* production order type, select the item from the items list.
Priority	Displays the degree of importance of a production order, indicated by integer numbers. The default value is 100. You can manually change the number here. The smaller the number, the more important the production order.
Routing Date Calculation	Determines how the resource allocation will occur. This field contains a list of the following options: • *On Start Date* • *On End Date* • *Start Date Forwards* • *End Date Backwards* • For a production order that has at least one route stage, the value of this field will be automatically copied to the *Resource Allocation* field in the grid. In addition, changing values in this field may affect the calculation of *Required Days*, *Start Date* and *End Date* for Resource type lines in the grid. For details about how the calculation is affected, see *7.3 Calculating Required Days and Total Days*, and *7.4 Start Date / End Date Calculation Algorithm*.
Update Now (button)	This button lets you update the resource allocation method that applies to the current production order. For a routed production order that has a *Routing Date Calculation* set to either *Start Date Forwards* or *End Date Backwards*, the button is highlighted in red for you to click when one of the following happens: • You manually change the *Start Date* in the header of the production order. • You manually change the *Due Date* in the header of the production order. • You change the *Routing Date Calculation* field value to either *Start Date Forwards* or *End Date Backwards*. • You change the *Product No.* or *Planned Qty.* of the production order. • You change the *Resource No.* or the *Planned Qty*. • You add or delete a resource type line. • You add or delete a route stage. • You change the sequence of route stages. • The association between the route stage and resources is changed. For example, you move Resource 1 from Route Stage 1 to Route Stage 2.

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Field	Activity/Description
	For more about the results that come with clicking *Update Now*, and how selecting different options may update different fields, see *7.2 Managing Resource Allocation in Production Orders*.
Start Date (header)	Displays the start date of the production. By default, this date is the same as *Order Date*. You can change it manually, which may affect *Due Date*.
Due Date	This date displays the planned completion date of the production, and is, by default, calculated based on *Start Date* and the lead time of the parent item. You can change this date manually.
Origin	Indicates how the production order was created: • *MRP* – a result of the MRP report recommendation • *Manual* – entered by an authorized user • *Sales Order* – created automatically based on a sales order

3. View or update the following fields on the *Components* tab:

   Note

   - Fields that are self-explanatory are not described in the table below.
   - Some of the fields are not visible by default. Use (*Form Settings*) in the toolbar to define which fields you want displayed.

Field	Activity/Description
Type	You can select one of the following options: • *Item* - This is the default option. The remaining fields for the Item option are populated by default from the BOM window associated with the parent item or from the *Item Master Data* window. • *Resource* - When this option is selected, you can select a desired resource from the choose from list in the *No.* field. The remaining fields for the *Resource* option are populated by default from the BOM window associated with the parent item or from the *Resource Master Data* window. • *Text* - Select this option to add text in the line; the remaining fields merge into one. The text is added automatically from the corresponding line in the *Bill of Materials* window associated with the parent item, or you can define it manually in this window. • *Route Stage* - Select this option for a routed production order. The remaining fields for the *Route Stage* option are populated by default from the BOM associated with the parent item, or you can define them manually. With a *Route Stage* line, a route stage code would be entered in the *No.* field of this line.
No. and *Description*	These fields were originally *Item No.* and *Item Description*. If the production order has a *Route Stage* line, then in the *No.* field, the route stage code would be displayed. If necessary, you can manually select another route stage code here.

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Field	Activity/Description
Route Sequence	Displays the sequence number that is assigned to each route stage. The sequence indicates the precise order in which the route stages must be performed during the production process. This field will not be visible by default. It is visible only when there are route stages involved in the production order. The value of this field is automatically populated by the system upon the creation of a *Route Stage* type line. The pull-down list will contain a list of all the other route sequence numbers that currently exist in this Production Order grid. No other numbers can be entered. The selection of another existing route sequence number in this field will switch all the lines associated with the current route sequence with all the lines associated with the selected route sequence.
Base Qty	Quantity of the components necessary to produce the bill of materials for one parent product. The value is copied from the *Bill of Materials* window. You can update this field if necessary. Note The *Base Qty* value of a resource component cannot be less than zero.
Additional Qty	The value is copied from the *Additional Qty* field in the *Bill of Materials* window; however, you can change it manually in the production order. Note Only components of the *Manual* issue method can have zero *Base Qty* and the *Additional Quantity* larger than zero. The additional quantity for by-products is always zero.
Planned Qty	For each component line, the value of this field is calculated according to the following formula: (*Planned Quantity* of the parent * *Base Qty* of the component) + *Additional Qty* of the component
Available	For resources, this field displays the total resource availability for the warehouse populated on the production order line. Click (Link Arrow) to update the internal capacity of the resource for the mentioned warehouse in the *Resource Capacity* window. After you update the internal capacity and return to the production order, the value of this field is refreshed.
WIP Account	If the production order lines are populated with components from a BOM, the account defined in the *WIP Account* field of the BOM for the relevant component populates this field. If the *WIP Account* field for the relevant component is blank in the BOM, this account is blank, too. You can manually update the account in this field before the production order closure. The value of this field is then copied into the *Account Code* field of the issue for production.

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Field	Activity/Description
	If you leave this field blank, the related WIP Account applies according to the definitions in the *Document Settings* window. For more information, see section *7.6 Document Settings and WIP Account.*
Start Date	Displays the earliest date on which the component is needed in the production process. By default, this date is copied from the *Start Date* field on the header. You can change it manually; however, the date cannot be earlier than the start date on the header. As for a production order that has route stages, the *Start Date* for the first *Route Stage* type line (included in the calculation) is set to the production order header *Start Date*. And by default, the *Start Date* for the next *Route Stage* type line is the same as the calculated *End Date* of the previous route stage. You can manually change the *Route Stage* type line *Start Date* to any date that falls between or is equal to the production order header *Start Date* and *Due Date*. For more about how *Start Date* is calculated, see *7.4 Start Date / End Date Calculation Algorithm*.
End Date	Displays the latest date by which a component needs to be used in the production process. By default, this date is the same as *Due Date* on the header of the production order. You can change it manually; however, it cannot be later than the due date on the header. You can manually change the *Route Stage* type line *End Date* to any date that falls between or is equal to the production order header *Start Date* and *Due Date*. For more about how *End Date* is calculated, see *7.4 Start Date / End Date Calculation Algorithm*.
Required Days	Displays the number of days required for a specific Resource to complete the *Planned Qty.* of a particular route stage. This field will be automatically calculated for a production order that has at least one route stage, one resource line, and whose *Routing Date Calculation* field is either *Start Date Forwards* or *End Date Backwards*. The calculation of this field is based on Routing Date Calculation status and Single Run Capacity of the resources. For more details, please see *7.3 Calculating Required Days and Total Days*.
Waiting Days	Displays a period of time, presented in days, to wait after the completion of the route stage. This field will not be visible by default. As soon as a Route Stage type line is created, you can manually enter the number of waiting days.
Total Days	Displays the number of days needed to complete one route stage and start the next route stage. It is the sum of *Required Days* and *Waiting Days*.
Resource Allocation	The value of this field is taken from the relevant *Resource Master Data* window. If needed, you can update it manually.

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Field	Activity/Description
	However, for a production order that has route stages, the value of this field (for all *Resource* type lines) is taken from the *Routing Date Calculation* field in the general area of the production order, and it cannot be edited. The following options are available: • *On Start Date* - The capacity of the resource is allocated to the start date of the production order. This means that the value of the resource capacity in the *Planned Qty* field is counted as *Committed* capacity on the start date of the production order. • *On End Date* - The capacity of the resource is allocated to the end date of the production order. This means that the value of the resource capacity in the *Planned Qty* field is counted as *Committed* capacity on the end date of the production order. • *Start Date Forwards* - The capacity of the resource is allocated to the start date when it is assigned to the production order; however, if the *Planned Qty* is greater than the *Single Run Capacity* for the start date, the system allocates only as much capacity as there is Single Run Capacity defined for the start date and continues to allocate the remaining capacity to the day after the start date. The process continues forwards for each day until it allocates all the remaining *Planned Qty*. • *End Date Backwards* - The capacity of the resource is allocated to the end date when it is assigned to the production order; however, if the *Planned Qty* is greater than the *Single Run Capacity* for the end date, the system allocates only as much capacity as there is *Single Run Capacity* defined for the end date and continues to allocate the remaining capacity to the day before the end date. The process continues backwards for each day until it reaches the current system date and allocates all the remaining *Planned Qty* to the current system date regardless of how much *Single Run Capacity* is defined for that day. Note With resource allocation of *Start Date Forwards* and *End Date Backwards*, the system takes into account the *Single Run Capacity*, not the *Internal* capacity or the *Available* one. This means that if there are more production orders with the same start date or end date, the resource allocation is run against the *Single Run Capacity* for each production separately; it does not take into account whether there are already production orders which might have consumed the *Internal* capacity for that day. Note The triggers for running the resource allocation process are the same as the triggers for clicking the *Update Now* button. For details, see *Update Now (button)* field descriptions above, or *7.2 Managing Resource Allocation in Production Orders*. Updating the internal capacity does not trigger resource allocation, hence, if you have updated the internal capacity and want the system to

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Field	Activity/Description
	run the resource allocation process to update the allocated amounts, you need to update the production order as described above.
Calculation Proportion	Displays the percentage of resource capacity that will be consumed in a particular route stage. The value must be between 0 to 100% (default). • If the *Routing Date Calculation* field value is *Start Date Forwards*, you only need to modify the calculation proportion for the first route stage, if necessary. For other route stages, this field will be automatically calculated. • If the *Routing Date Calculation* field value is *End Date Backwards*, you only need to modify the calculation proportion for the last route stage, if necessary. For other route stages, this field will be automatically calculated. After you have changed the field value in either of the above two scenarios, choose the *Update Now* button to apply it to the calculation of *Start Date* / *End Date* and *Required Days*. If a production order is not routed (i.e., if it does not have any assigned route stages), then *Calculation Proportion* can be set independently for each resource line.
Production Time	Displays the quantity of the resource included in the production order expressed in time. The *Production Time* is calculated according to the following formula: *Base Qty* of the resource * *Planned Qty* of the parent item * (*Time per Resource Unit* / *Resource Units per Time*)
Additional Time	Displays the additional quantity of the resource needed to complete the production order, expressed in time. *Additional Time* is calculated according to the following formula: *Additional Qty* * *Time per Resource Units* / *Resource Units per Time*
Run Time	Displays the total of the *Production Time* and *Additional Time*.
Status	Displays the line status for *Item*, *Resource*, or *Route Stages*, and the column must be enabled via *Form Settings*. There are the following options available for this field: • Planned • In Progress • Complete For production orders without route stages, changing a status may affect below operations: • A line with Complete status is read-only, and cannot be deleted. • You can change the Complete status back to Planned or In Progress, unless the production order is Closed or Canceled. • When the *Issued* quantity is less than the *Planned Qty*., when you change to *Complete* status, you have the option to reduce *Planned Qty.* and update it with *Issued* quantity. For routed production orders, besides the above-mentioned scenarios, changing a status may additionally affect below operations:

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Field	Activity/Description
	• Upon a status change on Route Stage, all components belonging to that route stage will have their Status field automatically set according to the Route Stage status. • When using Routing Date Calculation feature, route stages with *Complete* status are considered to be stages with zero duration, thus not counted in the calculation. However, if there is any open quantity on the Resource row of such route stages, commitment of this resource still occurs.
Up and *Down* arrows	Use the *Up* and *Down* arrows to raise or lower a selected component line similarly as in the *Bill of Materials* window.

> **Note**
>
> You can choose to filter and view specific types of lines in the grid. To view only resource and route stage type lines, right click on the Bill of Material, and select *Display Route Stages* and *Display Resources*. The following options are all checked by default, you can deselect them to your needs:
>
> - *Display Route Stages*
> - *Display Items*
> - *Display Resources*
> - *Display Texts*
>
> In addition, you can also choose to filter type lines by pressing below shortcut keys:
>
> - Press Ctrl + Shift + 1, and route stages lines will be hidden.
> - Press Ctrl + Shift + 2, and item lines will be hidden.
> - Press Ctrl + Shift + 3, and resource lines will be hidden.
> - Press Ctrl + Shift + 4, and text lines will be hidden.

4. View or update the following fields on the *Summary* tab:

Field	Activity/Description
Actual Item Component Cost	Total value of all item components (not including non-inventory components) issued for the production order. **Note** Any item component which has been returned through the return components functionality in the *Receipt from Production* window reduces the *Actual Item Component Cost* value by its cost.
Actual Resource Component Cost	Records the cost of all resource components which have been issued for production. **Note** You cannot return resources in the *Receipt from Production* window.
Actual Additional Cost	The cost of all non-inventory item components which have been issued for production.

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Field	Activity/Description
Actual Product Cost	The cost of all received parent items, including any rejected items but excluding the received by-products.
Actual By-Product Cost	Records the cost of all by-product items which have been received from production, including any rejected by-products. Click (*Link Arrow*) to open the *Inventory Posting List* window and view the relevant cost breakdown for the posted by-products.
Total Variance	Displays the sum of costs of all parent items and by-products reduced by the sum of resource costs and the additional costs. The following formula applies: (*Parent Cost* + *By-Product Cost*) - (*Item Cost* + *Resource Cost* + *Additional Cost*) Click (*Link Arrow*) to open the *Variance Report* window and view the contribution of each production component to the final production variance. The value in the *Variance* column shows the cumulated variance per specific component. The sum of all component variances matches the amount in *Total Variance* field. **Note** o Prerequisites for opening the *Variance Report* are the following: *Use Perpetual Inventory* is selected in *Administration → System Initialization → Company Details → Basic Initialization* tab. o There are at least one *Issue for Production* or *Receipt from Production* transaction.
Total Production Time, Total Additional Time, Total Run Time	Display the corresponding fields on the *Components* tab for the resource with the longest *Total Time*. For a production order with at least one Route Stage type line, the following will be displayed: • *Total Production Time* Displays the sum of all the Production Time values from the production order Route Stage type lines only. • *Total Additional Time* Displays the sum of all the "Additional Time" values from the production order Route Stage type lines only. • *Total Run Time* Displays the sum of *Total Production Time* and *Total Additional Time.*
Total Required Days	Displays the sum of the *Required Days* values from the production order Route Stage type lines.
Total Waiting Days	Displays the sum of the *Waiting Days* values from the production order Route Stage type lines.
Total Days	Displays the sum of *Total Required Days* and *Total Waiting Days.*

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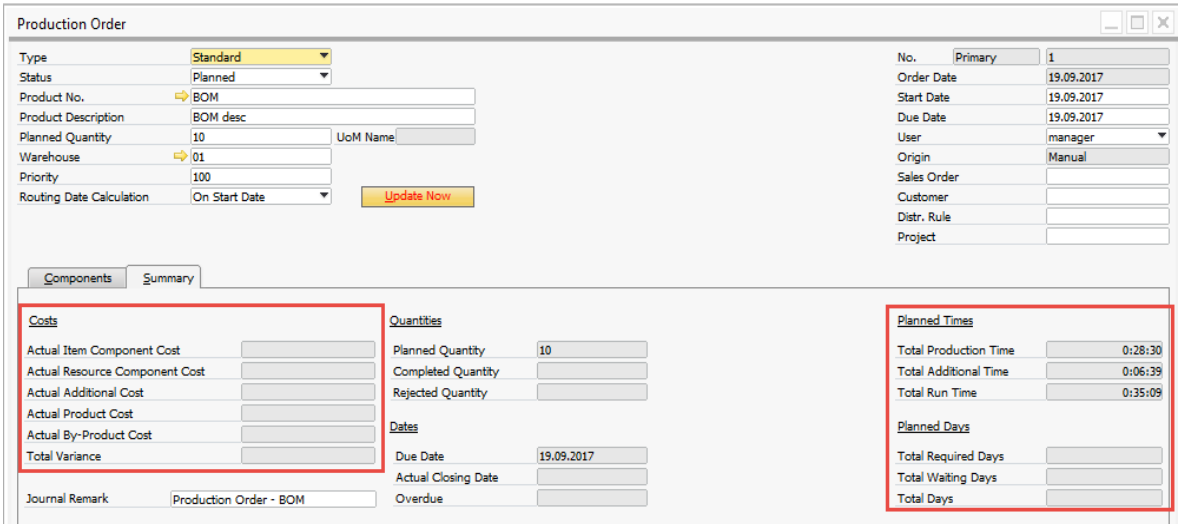

Note

Parent items associated with sales or assembly BOMs cannot be used as a production order component.

Note

Before creating a transfer request, a components transfer, a pick list or an issue for production, you can filter which components will be used in these documents by filling the *Selection Criteria* screen. To do this, right-click the production order and choose one of the following options, according to your needs:

- *Issue Components*
- *Transfer Request*
- *Component Transfer*
- *Generate Pick List*
- *View Pick Lists*

Note that Issue Components will only be displayed once the following conditions have been met:

- The *Status* of the production order is *Released*.
- The *Issue Method* for components is *Manual*.

Note

Instead of clicking (*Link Arrow*), you can additionally right click on a production order to view Inventory Posting List information of below categories in one report:

- *Actual Item Component Cost*
- *Actual Resource Component Cost*
- *Actual Product Cost*
- *Actual By-Product Cost*

Note

Referenced Document functionality (also known as Offline Document Linking) is enhanced to allow linking between a production order and other documents. For more details about Offline Document Linking, you may refer to Note 2273995.

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7.2 Managing Resource Allocation in Production Orders

Resource allocation determines how and when resources will be assigned in order to produce the finished products. You can manually change resource allocation methods in production orders according to your needs.

Generally, your production orders can be classified into the following types:

- Routed production order - a production order with at least one route stage (by default copied from relative Bill of Materials). The finished product can be produced by following certain route stages.
- Non-routed production order - a production order without any route stages. The finished products can be produced without considering the production stages.

Resource allocation for these two types of production orders may differ under different conditions. Usually, for a non-routed production order, the default for the *Resource Allocation* field value for *Resources* type lines are taken from the *Resource Master Data* of the specified resource. While for a routed production order, the value is copied from the *Routing Date Calculation* header field of the production order, and is read only in the grid. However, the *Resource Allocation* field value may change under certain scenarios. The following will focus on describing these scenarios, and how the resource allocation changes.

For the non-routed production order, you may manually change the *Resource Allocation* field when necessary. Besides that, (for example, regarding routed orders) you are able to change the field value if the *Update Now* button beside *Routing Date Calculation* is clicked.

If the *Routing Date Calculation* field is set to *Start Date Forwards* or *End Date Backwards*, the *Update Now* button is highlighted in red when one of the following happens:

- You manually change the *Start Date* in the header of the production order.
- You manually change the *Due Date* in the header of the production order.
- You change the *Routing Date Calculation* field value.
- You change the *Product No.* or *Planned Qty.* of the production order.
- You change the *Resource No.* or the *Planned Qty*.
- You add or delete a resource type line.
- You add or delete a route stage.
- You change the sequence of route stages.
- The association between the route stage and resources is changed. For example, you move Resource 1 from Route Stage 1 to Route Stage 2.

The *Update Now* button lets you update the resource allocation method that applies to the current production order. Upon clicking it, the following will occur:

- For a non-routed production order, once you click *Update Now*, you can choose to update the *Start Date* and *End Date* of *Item* and *Resource* type lines and the *Resource Allocation* field for all *Resource* type lines, or only the *Routing Date Calculation* field.

  No matter which option you select, when you create a new *Resource* type line subsequently, the default *Resource Allocation* field value in the grid will be taken from the *Resource Allocation* field from *Resource Master Data* of a specified resource.
- For a routed production order whose *Routing Date Calculation* field value is *On Start Date* or *On End Date*, you can choose to update the *Start Date* and *End Date* of *Item* and *Resource* type lines and the *Resource Allocation* field for all Resource type lines, or update only the *Routing Date Calculation* field.

  No matter which option you select, when you create a new Resource type line subsequently, the *Resource Allocation* field value in the grid will be taken from the *Resource Allocation* field from *Resource Master Data* of a specified resource.

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- For a routed production order whose *Routing Date Calculation* field value is *Start Date Forwards* or *End Date Backwards*, you can choose to update the *Resource Allocation* field value with that of the *Routing Date Calculation* field for all *Resource* type lines, and at the same time, update the *Start Date* and *End Date* for all *Resource* type lines, or not to update either of them.

  No matter which option you select, when you create a new *Resource* type line subsequently, the *Resource Allocation* field value in the grid will be taken from the *Routing Date Calculation* header field of the production order.

7.3 Calculating Required Days and Total Days

Required Days, *Waiting Days* and *Total Days* are periods of time measured in days that are used by resource components in each route stage. That is, these days will be calculated **only** for *Resource* type lines for routed production orders. Required days are the number of days needed to complete a route stage. Waiting days are the number of days needed after the production of one route stage, and before the start of the next route stage.

In addition to displaying the *Required Days* on the *Production Order*, the calculation allocates the resources to the *Resource Capacity* screen as per the calculated *Required Days* and the *Start Date* and *End Date* of the *Production Order* line.

Required Days and *Total Days* are automatically calculated based on the routing date calculation (resource allocation method) that is applied to the order. while *Waiting Days* are usually manually entered according to real production scenarios. For each route stage, their relations are: Total Days = Required Days + Waiting Days.

Only when the *Routing Date Calculation* field value is either *Start Date Forward* or *End Date Backwards*, will the automatic calculation of *Required Days* begin. The following describes how the calculation of *Required Days* proceeds.

> **Note**
>
> The calculation algorithm of *Required Days* is set up based on the assumption that a single production order can be produced on a single machine. So only *Single Run Capacity* rather than *Daily Internal Capacity* counts in this calculation.

- When the *Routing Date Calculation* field value is *Start Date Forwards*
  - If *Planned Qty*. < *Single Run Capacity* (of the start date) for a *Resource* line, then the *Required Days* field value will be *Planned Qty*. / *Single Run Capacity*, and the calculation stops here. This *Required Days* value will be the percentage of the *Single Run Capacity* of the resource that is allocated on the start date.
  - If *Planned Qty*. > *Single Run Capacity* (of the start date) for a *Resource* line, then the system allocates only as much resource capacity as there is *Single Run Capacity* defined for the start date and continues to allocate the remaining capacity to the day after the start date. The process continues forwards for each day until it allocates all the remaining *Planned Qty*.

> **Example**
>
> This is one route stage of a production order. Resource 1 and Resource 2 are used in production of this stage. The resource capacity data are as follows:

Date		1/1/2017	1/2/2017	1/3/2017	1/4/2017
Resource 1					
Single Run Capacity		18	6	6	5

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Date		1/1/2017	1/2/2017	1/3/2017	1/4/2017
Resource 2					
Single Run Capacity		15	3	3	4

The production order header *Start Date* is 1/1/2017, and header *Due Date* is 1/2/2017. The *Resource Allocation* is *Start Day Forwards*. The *Planned Qty.* is 15 for Resource 1, and 20 for Resource 2. Then the *Required Days* value for this route stage is calculated as follows:

	Planned Qty.	1/1/2017	1/2/2017	1/3/2017	*Required Days*
Resource 1	15	15			**15/18 = 0.83**
Resource 2	20	15	3	2	**2 + 2/3 = 2.67**

So the *Required Days* value for this route stage is 2.67. If you manually enter the *Waiting Days* value of 1.10, then the *Total Days* value will be 3.77 (*Total Days* = *Required Days* + *Waiting Days*). The *End Date* for this route stage will then be set to *Start Date* + 3.77 days = 1/4/2017. If this is the only route stage on the *Production Order,* the header *Due Date* will be set to 1/4/2017.

- When *Routing Date Calculation* field value is *End Date Backwards*
  - If *Planned Qty*. < *Single Run Capacity* (of the end date) for a *Resource* line, then the *Required Days* field value will be *Planned Qty* / *Single Run Capacity*, and the calculation stops here.
  - If *Planned Qty*. > *Single Run Capacity* (of the end date) for a *Resource* line, then the system allocates only as much capacity as there is *Single Run Capacity* defined for the end date and continues to allocate the remaining capacity to the day before the end date. The process continues forwards for each day until it allocates all the remaining *Planned Qty*.

7.4 Start Date / End Date Calculation Algorithm

Start date and end date display, respectively, the earliest and the latest date when the component is needed in the production process. By default, the start date is copied from the *Start Date* field in the header area, and the end date is the same as the *Due Date* field. The start date and the end date are only valid for a routed production order, where there is at least one route stage.

When necessary, you can change the start date and end date manually, within the range of the start date and due date in the header area.

For a production order that has route stages, there is an algorithm that automatically calculates the start date and end date of each route stage. The algorithm is explained in detail as follows.

> **Note**
>
> This automatic calculation algorithm applies only to routed production orders, that is, production orders that have at least one route stage and that have a *Routing Date Calculation* of *Start Date Forwards* or *End Date Backwards*.

The automatic calculation algorithm starts only when automatic resource allocation is triggered, that is, the *Routing Date Calculation* field is set to either *Start Date Forwards* or *End Date Backwards*. For each route stage, *Total Days* are used in the automatic calculation, as follows: *End Date* = *Start Date* + *Total Days* (integer number).

The following is a description of the calculation algorithm.

- *Routing Date Calculation* field value is set to *Start Date Forwards*

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The start day of the first route stage is the same as the production order *Start Date* in the header area. For the first route stage, the actual resource capacity that can be consumed equals the single run capacity multiplied by the *Calculation Proportion* of this stage. This actual capacity will be used in the *Required Days* calculation.

For the first route stage, the end day is calculated by adding to the start day the integer value of *Total Days*. However, for all *Resource* type lines in the first stage, the end date is calculated by adding to the start day the integer number of *Required Days*.

The end day for one route stage is automatically set as the start day of the next route stage. If there are no further route stages, the end day will be the same as the production order *Due Date* in the header area. If there is a further route stage, the end day will be calculated by adding to the start day the integer value of new *Total Days*, the total of the remaining total days (from the previous stage) and total days (of the current stage). The calculation continues as such for the next route stage.

Example

Suppose there is a production order that uses 2 resources in 2 route stages. Resource 1 and Resource 2 are used in each route stage. The *Single Run Capacity* values of these 2 resources are as follows:

Date		1/1/2017	1/2/2017	1/3/2017	1/4/2017	1/5/2017	1/6/2017
Resource 1							
Single Run Capacity		20	6	6	16	18	18
Resource 2							
Single Run Capacity		15	3	4	14	15	15

The general information of the production order is:

Start Date	1/1/2017
Due Date	1/8/2017
Resource Allocation	Start Date Forwards

Then, according to the above calculation algorithm, together with the one mentioned in *7.3 Calculating Required Days and Total Days*, the *Start Date*, *End Date* and *Required Days* information will be as follows:

		Planned Qty.	Required Days	1/1/2017	1/2/2017	1/3/2017	1/4/2017	1/5/2017
Stage 1								
	Resource 1	15	15 / 20 = **0.75**	15				
	Resource 2	20	2 + 2 / 4 = **2.5**	15	3	2		
	Required Days		**2.5**					
	Waiting Days		1					
	Total Days		3.5					

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		Planned Qty.	Required Days	1/1/2017	1/2/2017	1/3/2017	1/4/2017	1/5/2017
	Integer Part of Total Days		3					
	Start Date		**1/1/2017**					
	End Date		**1/4/2017**					
	Calculation Proportion for Stage 2		3.5 - 3 = **0.5**					
Stage 2								
	Resource 1	14	1 + 6 / 18 = **1.34**				16 * (1 - 0.5) = 8	6
	Resource 2	19	1 + 12 / 15 = **1.8**				14 * (1 - 0.5) = 7	12
	Required Days		**1.8**					
	Waiting Days		1					
	Total Days		2.8					
	Integer Part of Total Days		2					
	Start Date		**1/4/2017**					
	End Date		**1/6/2017**					

- *Routing Date Calculation* field value is set to *End Date Backwards*

  The end day of the last route stage is the same as the production order *Due Date* in the header area. For the last route stage, the actual resource capacity that can be consumed equals the single run capacity multiplied by the *Calculation Proportion* of this stage. This actual capacity will be used in the *Required Days* calculation.

  For the last route stage, the start date is the end day minus the integer number of *Total Days*. However, for all *Resource* type lines in the first stage, the start date is the end day minus the integer number of the *Required Days*.

  The start day for one route stage is automatically set as the end day of the previous route stage. If there are no further route stages, the start day will be the same as the production order *Start Date* in the header area. If there is a further route stage, the start day will be the end day minus the integer number of new *Total Days*, the total of the remaining total days (from the next stage) and total days (of the current stage). The calculation continues as such for the previous route stage.

  ### Example

  Suppose there is a production order that uses 2 resources in 2 route stages. Resource 1 and Resource 2 are used in each route stage. The *Single Run Capacity* values of these 2 resources are as follows:

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Date		1/1/2017	1/2/2017	1/3/2017	1/4/2017	1/5/2017	1/6/2017
Resource 1							
Single Run Capacity		20	6	6	16	18	20
Resource 2							
Single Run Capacity		15	3	4	14	15	15

The general information of the production order is:

Start Date	1/1/2017
Due Date	1/6/2017
Resource Allocation	End Date Backwards

Then, according to the above calculation algorithm, together with the one mentioned in *7.3 Calculating Required Days and Total Days*, the *Start Date*, *End Date* and *Required Days* information will be as follows:

		Planned Qty.	Required Days	1/1/2017	1/2/2017	1/3/2017	1/4/2017	1/5/2017	1/6/2017
Stage 2									
	Resource 1	15	15 / 20 = **0.75**						15
	Resource 2	18	1 + 3 / 15 = **1.2**					3	15
	Required Days		**1.2**						
	Waiting Days		1						
	Total Days		2.2						
	Integer Part of Total Days		2						
	End Date		**1/6/2017**						
	Start Date		**1/4/2017**						
	Calculation Proportion		2.2 - 2 = **0.2**						
Stage 1									
	Resource 1	20	2 + 1.2 / 6 = **2.2**		1.2	6	16 * (1 - 0.2) = 12.8		
	Resource 2	18	2 + 2.8 / 3 = **2.93**		2.8	4	14 * (1 - 0.2) = 11.2		
	Required Days		**2.93**						
	Waiting Days		1						
	Total Days		3.93						

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	Planned Qty.	Required Days	1/1/2017	1/2/2017	1/3/2017	1/4/2017	1/5/2017	1/6/2017
	Integer Part of Total Days	3						
	End Date	**1/4/2017**						
	Start Date	**1/1/2017**						

Note

If the *Routing Date Calculation* is *End Date Backwards*, and the calculated *Start Date* is earlier than the current system date, then the production order start date will be automatically changed to *Current System Date,* and any resource capacity that would have been allocated to a date earlier than the current system date will be allocated to the *Current System Date.*

Note

The *Internal Capacity* data from the *Resource Capacity* screen will always be ignored when allocating resources for production orders (both routed and non-routed). A production order will only consider the *Single Run Capacity* data from the *Resource Capacity* screen.

7.5 Recalculate Route Stage Dates

When necessary, you can recalculate start and end dates from a specific route stage. When you do this, you can either change the *Start Date* or *End Date* of the route stage from which you want to recalculate, or not. The start or end dates of subsequent route stages will be automatically updated.

To recalculate from a specific route stage, right click on that route stage, and select *Recalculate Route Stage Dates* option.

7.6 By-Product Handling in Production Orders and Production Processes

By-product item components are inventory item components entered with a negative quantity in the *Bill of Materials* and *Production Order* windows.

- The Manual issue method for by-products is available in addition to the Backflush issue method, and by-products are then displayed in receipts from production. The ability to receive by-products with the Manual issue method enables you to manage them with the Serial/Batches valuation method.
- Upon receiving a by-product in the receipt from production, you can define its cost in the *Unit Price* field.
- By-products can be rejected in the receipt from production document; rejection of a by-product has no impact on the posting behind nor on the *Rejected Quantity* field on the *Summary* tab of the *Production Order* window.

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> **Note**
>
> Non-inventory items and resources cannot be by-products.

7.7 Change of Valuation Method of Item Included in Open Production Order

An item's valuation method cannot be changed if the item is a parent item included in an open production order.

7.8 Disassembly Production Order

Resources cannot be included in a disassembly production order. When a BOM automatically populates a disassembly production order, the resource lines are omitted. You cannot change *Production Order Type* to *Disassembly* as long as the production order contains resource components.

7.9 User-Defined Fields (UDF) Handling

If a UDF field with the same name and same type exists in both the *Bill of Materials* window component table and on the *Production Order* window table, then on entry of the parent item into a production order, the values of the UDF fields from the *Bill of Materials* window are copied into the corresponding UDF fields in the *Production Order* window.

By setting a UDF field in the *Bill of Materials* window to hold a link to a file, you cause that link to be copied into the corresponding UDF field in the *Production Order* window. This feature is important as a means of handling attachments such as manufacturing plans or other documents.

7.10 Document Settings and WIP Account

You can decide whether you want the costs of components in the production order to be posted to the WIP account of the parent item or to the WIP account defined for each component.

To do so, from the SAP Business One *Main Menu*, choose *Administration → System Initialization → Document Settings*.

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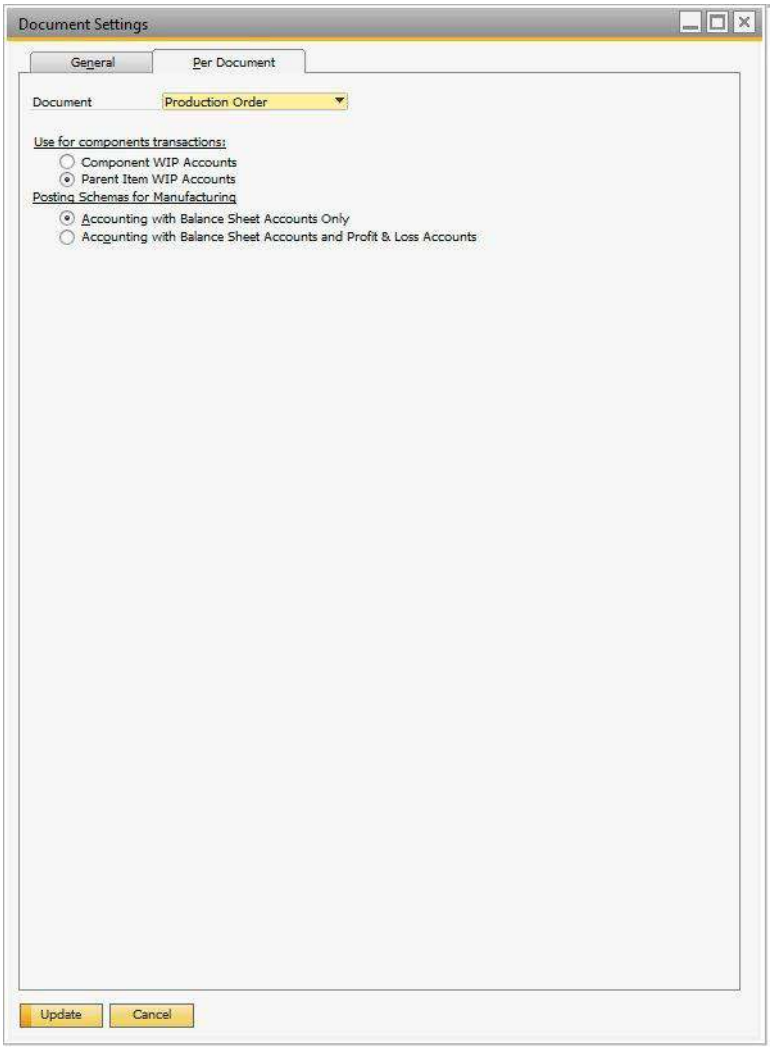

In the *Document Settings* window for the production order document, in *the Use for Components Transactions* section, choose one of the following options:

- *Component WIP Accounts* - Uses the component WIP accounts throughout the production process. For example, if a parent item consists of a child item Item01 and a resource Res01, the default accounts are used as displayed below.

Component	Default WIP Account	Comment
Item01	Depending on the definition in the *Set G/L Accounts By* field on the *Inventory* tab of the *Item Master Data* window of the component item, the WIP Inventory account defined at the warehouse, item group, or item level is used. **Note** If advanced G/L account determination rules are defined for the warehouse, item group, or	If you define a different account in the *WIP Account* field of the *Production Order* window for this item component, then the defined account is used as the WIP account. (The value from the *WIP Account* field of the *Bill of Materials* window is copied into the production order; however, if no account is defined in the bill of materials, then the *WIP Account* field in the production order is left blank.)

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Component	Default WIP Account	Comment
	the item component in question, other WIP Inventory accounts may be used.	
Res01	The Resource WIP account defined on the *Resources* tab of the *G/L Account Determination* window applies, unless an advanced G/L account rule requires a different Resource WIP account.	If you define a different account in the *WIP Account* field of the *Production Order* window for this resource component, then the defined account is used as the WIP account. (The value from the *WIP Account* field of the *Bill of Materials* window is copied into the production order; however, if no account is defined in the bill of materials, then the *WIP Account* field in the production order is left blank.)

- *Parent Item WIP Accounts* - Uses the parent WIP account as the WIP account for the journal entries of the component transactions (both for item and resource components) throughout the production process. The parent item is defined in the bill of materials that was selected in the production order.

  For example, if a parent item consists of a child item Item01 and a resource Res01, the default accounts are used as displayed below.

Component	Default WIP Account	Comment
Item01	Depending on the definition in the *Set G/L Accounts By* field on the *Inventory* tab of the *Item Master Data* window of the parent item, the WIP Inventory account defined at the warehouse, item group, or item level is used. **Note** If advanced G/L account determination rules are defined for the warehouse, item group, or the parent item in question, other WIP Inventory accounts may be used.	If you define a different account in the *WIP Account* field of the *Production Order* window for this item or resource component, then the defined account is used as the WIP account. (The value from the *WIP Account* field of the *Bill of Materials* window is copied into the production order; however, if no account is defined in the bill of materials, then the *WIP Account* field in the production order is left blank.)
Res01		

7.11 Closing Production Order and Handling Components Cost

Upon the closing of the production order, a journal entry is created automatically in which all WIP accounts used during the production process are zeroed down; the value from the WIP accounts is transferred to the WIP Inventory Variance account of the parent item.

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> **Note**
>
> If an interim WIP consolidation mapping is defined for a WIP account, the WIP account is zeroed down and the value is transferred to the defined interim WIP account. This process may continue if further interim WIP accounts are defined. The last interim WIP account in the chain of interim WIP account mapping is then zeroed down and the value is transferred to the WIP Variance account of the parent item. For more information on the interim WIP consolidation mapping, see section 10 Interim WIP Consolidation Account Mapping.

Before posting the journal entry behind the production closure, a check is made to verify if the total component cost equals the total cost of the received parent items and its by-products. If there is a difference, it is transferred from the WIP Inventory Variance account of the parent item back to the Inventory account of the parent item.

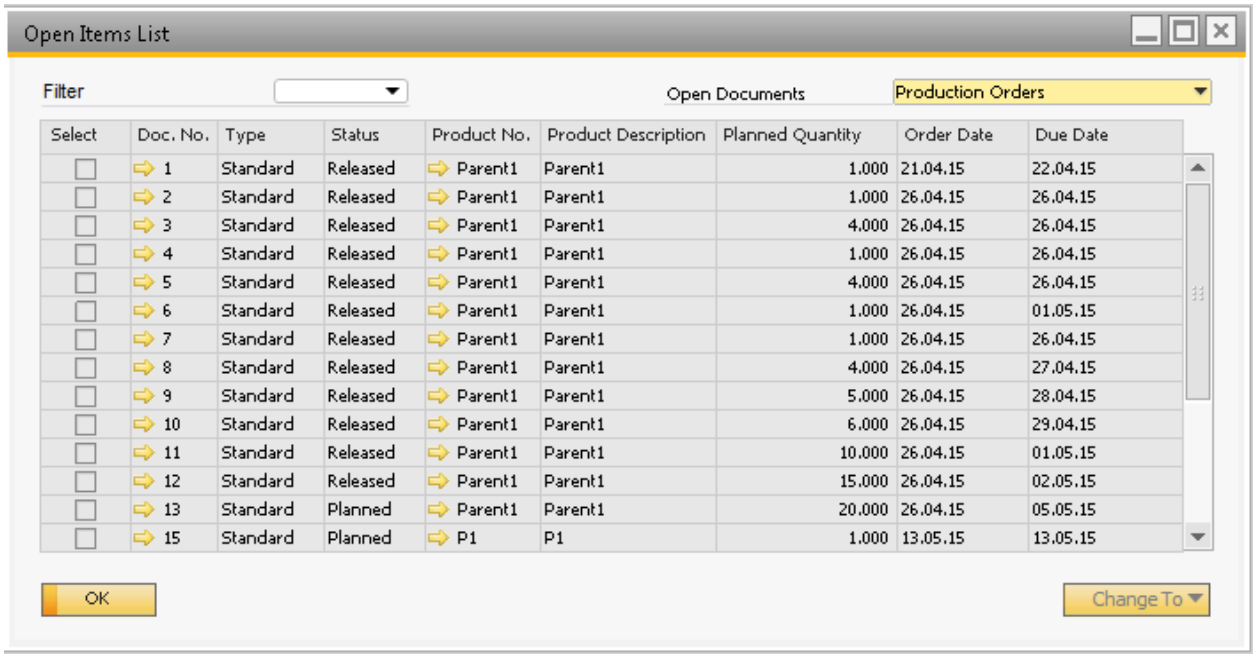
However, this applies only if the following two conditions are met:

- The parent item is managed by a validation method other than Standard.
- The parent item's quantity in the inventory is greater than zero; it has not been sold out before the production order closure.

7.12 Changing Production Order Status in Batch

It is always important to regularly close production orders. And more than often, it is necessary to change production order status from *Planned* to *Released*, or vice versa. To facilitate the efficiency in doing these tasks, a batch update functionality is available to allow you to select and change the status of multiple production orders.

To access this function, go to *Production -> Production Reports -> Open Items List*, and in *Open Documents* drop-down list, select *Production Orders.*



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You can filter production orders by selecting an option in the drop-down list in the *Filter* field. There are the following options here:

- *Released* - select this option, and all production orders with *Release* status will be displayed.

  You can select the orders you want to handle, and change their status to:

  - *Released*
  - *Canceled*

  > **Note**
  >
  > Select the production orders by selecting the checkboxes in the Select field. You can select the checkbox one by one, or you can select a range of production orders by selecting the first required production order and then shift-selecting the last one required in the range.

- *Planned* - select this option, and all production orders with *Planned* status will be displayed.

  You can select the orders you want to handle, and change their status to:

  - *Planned*
  - *Closed*
  - *Canceled*

  > **Note**

If, apart from any scenario explicitly mentioned above, the status of any individual production order cannot be changed, then on attempting to change the status, the production orders which could not be updated will remain in the list, with their *Select* field.

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8 Issue for Production

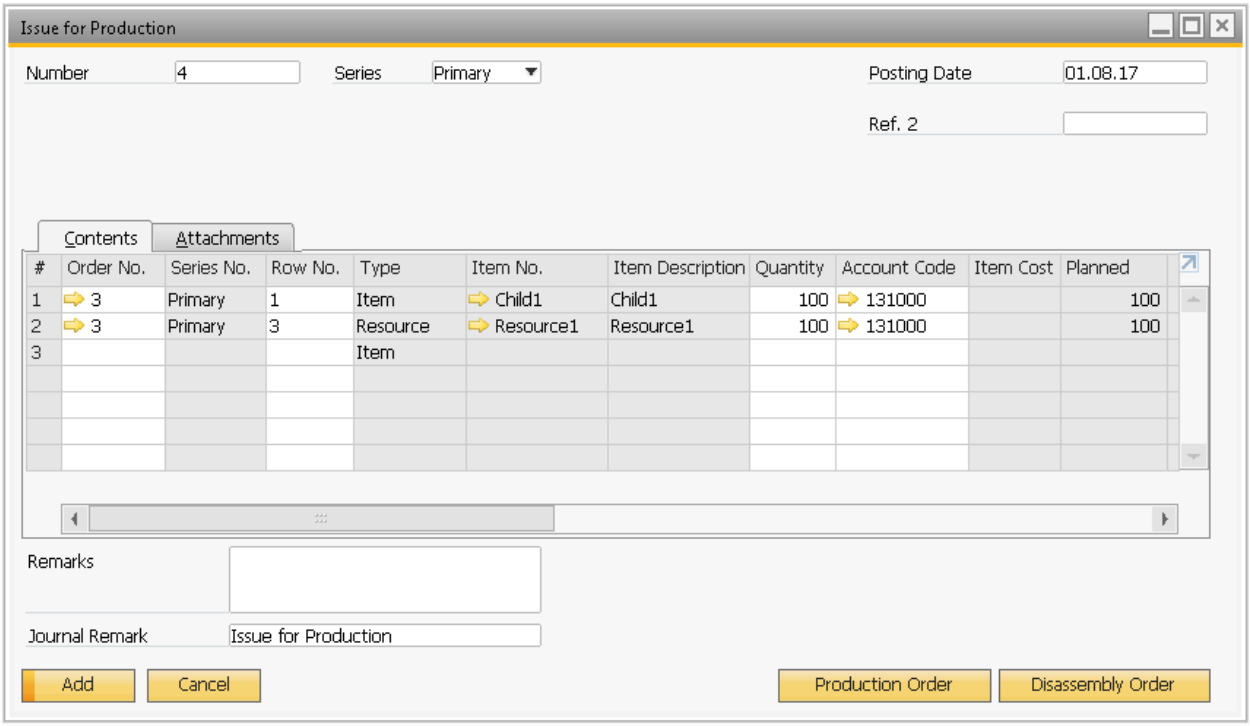
The following enhancements have been made to the Issue for Production window:

Some routing related fields, such as *Route Stage*, *Route Sequence* and *Stage Description*, are now included in the table for reference. They will be displayed only when a routed production order is selected for issuing.

8.1 Issue for Production Window

Procedure

1. From the SAP Business One *Main Menu*, choose *Production → Issue for Production*.



2. View the following fields:

Field	Activity/Description
Type	For each item or resource component, the value of this field, as well as of the remaining fields, is copied from the *Production Order* window. The remaining fields are also inherited from the production order; however, for resources the following fields are blank and not editable: • *Vendor Catalog No.* • *Bin Location Allocation*

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Field	Activity/Description
	• *In Stock* • *Committed* • *Ordered* • *Minimum Inventory Level - Displays zero.* • *Available* • *Inventory UoM - Displays Yes.* • *UoM Code* • *Items per Unit* • *UoM Group*
Account Code	For both resource and item components, the value from the *WIP Account* field of the production order is copied into this field unless no WIP account is defined in the production order. In such a case, it is defined according to the definitions in the *Document Settings* window. For more information, see section *7.6 Document Settings and WIP Account*. **Note** If you update the *Whse* field in the *Issue for Production* window, this field is updated accordingly.
Item Cost	This field displays the total standard cost value posted in respect of the resource after the issue for production document is added.
Distribution Rule, Project Code	For each component, the values of these fields are taken from the relevant fields of the *Production Order* window.

8.2 Posting Behind Issue for Production

When you add an issue for production, in addition to posting expenses for items, in the same journal entry you also post resource expenses. The resource expenses are transferred from the resource expense account to the related resource WIP account. The total value posted for each resource unit equals Total Std Resource Cost as defined in the Resource Master Data window. The actual posting itself is split across up to ten resource expense accounts as defined by the advanced G/L account determination rules or the G/L account determination and the WIP account that is defined in the Account Code field of the Issue for Production window.

Example

- An ExampleResource has a Total Std Resource Cost of 100 per unit which is split between Resource Std Cost 1 = 60 and Resource Std Cost 2 = 40.

Resource No.	Total Std Resource Cost	Std Cost Expense 1	Std Cost Expense 2

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ExampleResource	100	60	40

- The journal entry in respect of the resource component consumption of 10 resource units is as displayed in the table below.

Account	Debit	Credit
Std Cost Expense 1		600
Std Cost Expense 2		400
WIP Account	1000	

This posting is added to the posting of any other item and resource component within a single journal entry created upon adding the issue for production. The total value that is posted to all the resource WIP accounts is added cumulatively to the *Actual Resource Component Cost* field on the *Summary* tab of the production order whenever an issue for production is added.

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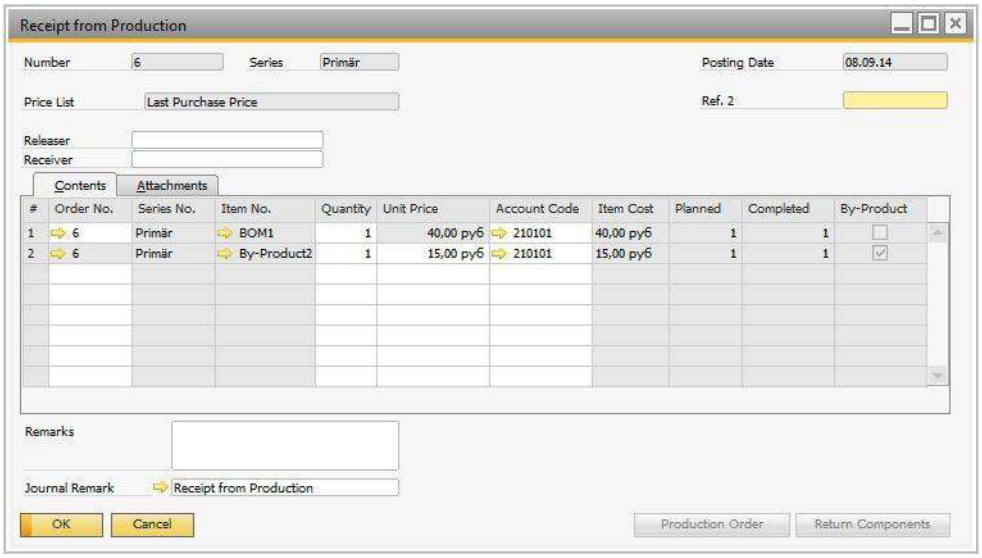
9 Receipt from Production

Procedure

1. From the SAP Business One *Main Menu*, choose *Production → Receipt from Production.*



2. View or update the following fields:

Field	Activity/Description
By-Product	In addition to displaying the parent item, the receipt from production now displays the by-products as well. If an item is a by-product, the checkbox for this field is selected. **Note** o You cannot delete by-products with the *Backflush* issue method, only those with the *Manual* issue method. o Backflush by-products have their quantity set to read-only and it is proportional to the quantity of the parent produced, but you can update the quantity for by- products with *Manual* issue method.
Unit Price	Displays the current cost of the by-product. You can update this field manually, unless the by- product has the Standard valuation method. The value in this field is used for posting the inventory value of the by-product in the journal entry behind the receipt from production.
Quantity	• For by-products with the *Backflush* issue method, you cannot update this field. However, if you update the quantity of the parent item, the value in this field updates proportionally.

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Field	Activity/Description
	• For by-products with the *Manual* issue method, you can update this field manually. Updating the parent item's quantity does not affect this field.
Item Cost	After adding the receipt from production, this field displays the following: • For by-products, the cost of the by-product which has been posted in the journal entry behind the receipt from production. • For parent items, the cost of the parent item which has been posted in the journal entry behind the receipt from production.

Note

When returning item components, the *Account Code* field is by default populated with the value of the *WIP Account* field in the corresponding production order. If that field is blank, then the system applies the appropriate WIP account according to the definitions in the *Document Settings* window.

9.1 Backflush Components Handling and Impact of Additional Quantity

The following applies when processing Backflush components:

- Backflush components are always automatically consumed in proportion to the quantity of the parent item which is currently being received in the receipt from production.
- The consumption of Backflush components which are to be processed together with a receipt from production of the parent item is recorded in a separate journal entry linked to an issue from production document. The *Remarks* field of this issue for production reads that the document has been automatically generated to handle Backflush components related to a specific receipt from production.
- If *Additional Qty* has been specified for a Backflush component, it is automatically consumed on the first receipt of the parent item from the production order in addition to the regular proportional receipt of components.

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10 Interim WIP Consolidation Account Mapping

This functionality enables businesses to automatically identify sub-assembly costs on closing a production order without the need to use nested BOMs and separate production orders for subcomponents.

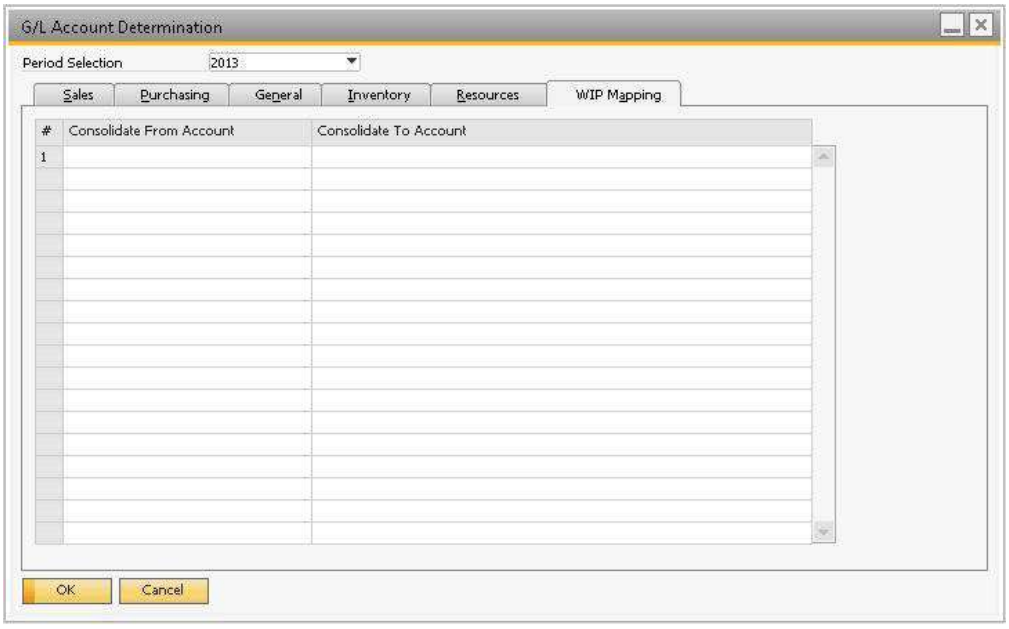
Example

You produce bicycles and you want to identify the cost of bicycle parts at various stages of the production order. A bicycle wheel is made up of a number of components whose costs add up to the cost of the wheel. In addition to identifying the overall cost of the bicycle, you need to identify the cost of the wheel which would normally not be identified. Using the combination of WIP account settings and the interim WIP consolidation matrix, you can track the cost of the sub-assemblies through the chart of accounts.

This functionality provides mapping for multiple WIP accounts such that upon the closing of a production order, the WIP account postings for sub-assembly components are all zeroed down and transferred to a single sub-assembly interim WIP account. For example, to contain the total wheel cost, and then the sub-assembly, interim WIP accounts are zeroed down and their values are transferred to the WIP Inventory Variance account. If there is any difference between the value posted to the WIP Inventory Variance account and the value of the received parent items and its by-products, it is posted back to the Inventory account of the parent item according to the enhancements regarding the production order closing. The mapping matrix allows multiple levels of mapping.

Procedure

1. From the SAP Business One *Main Menu*, choose *Administration → Setup → Production*.



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2. In the *Consolidate From Account* (left-hand side) column, select a WIP account from which the value will be transferred. In the *Consolidate To Account* (right-hand side) column, select an interim WIP account to which you want to transfer the value.

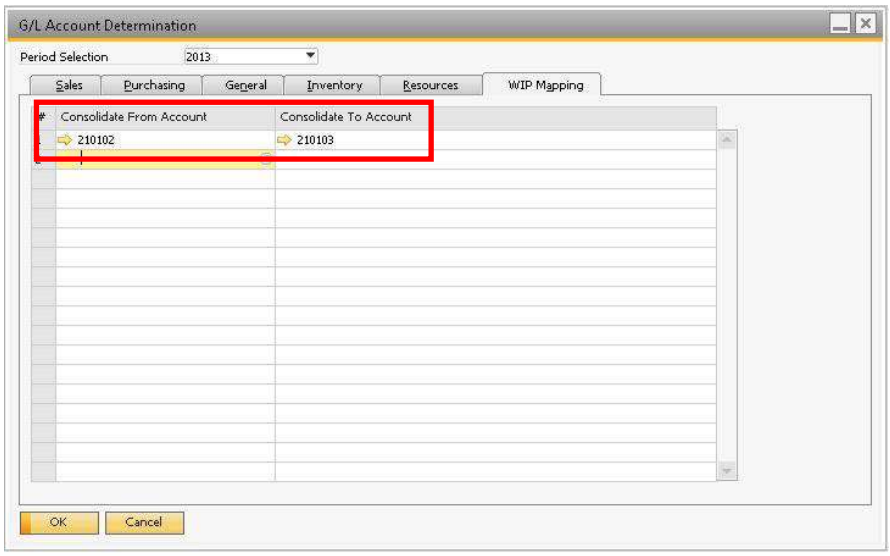
   Note

   - If an account in the right-hand side column is also separately defined in the left-hand side column, then its value will be zeroed down and transferred to the account in the *Consolidate To Account* column.
   - You cannot define one account in the *Consolidate From Account* more than once.
   - Any WIP account or interim WIP account which is not included in the mapping matrix will have its value automatically transferred to the WIP Variance account of the parent item and subsequently to the relevant Inventory account.

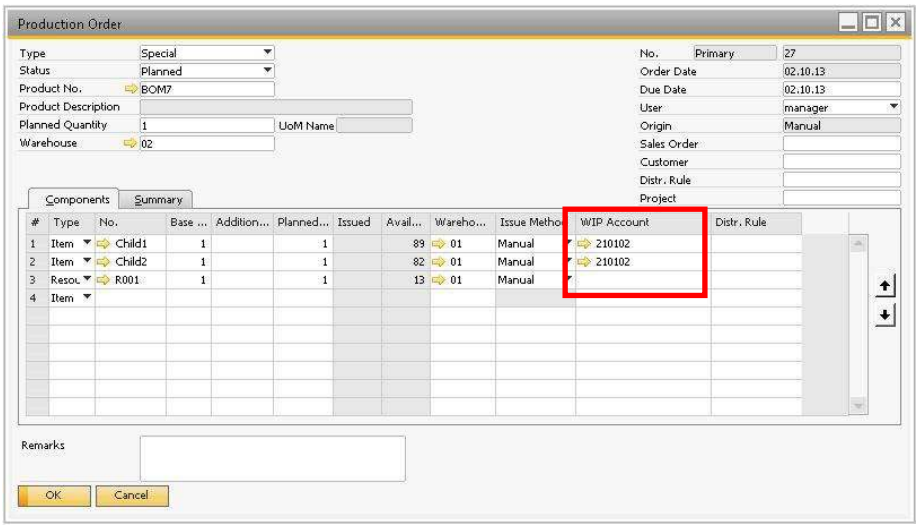
3. To save the settings, choose *Update*.

   Example

   1. You define interim WIP consolidation mapping as displayed below.



   2. You open a production order as displayed below.



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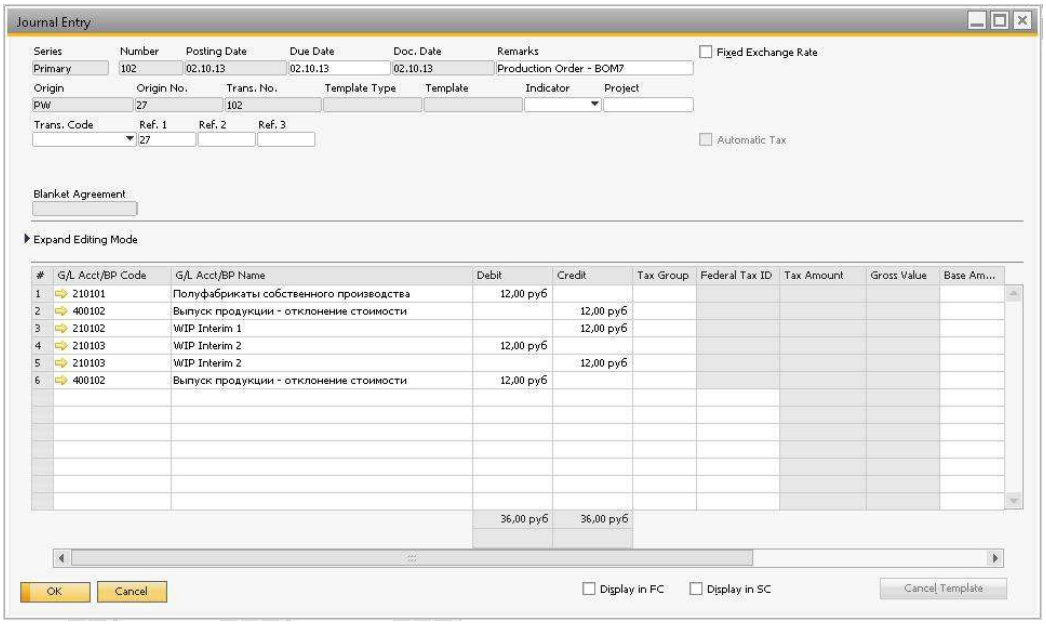
The Child1 and Child2 items use WIP account 210102, which is included in the WIP consolidation mapping matrix.

3. You issue all the components. In the journal entry created behind, the values for Child1 and Child2 are credited from the Inventory account and debited to the WIP account 210102. The value for R001 is credited from the relevant standard cost expense accounts and debited to the WIP account 210102.
4. You report the production order's completion. The journal entry created behind credits the WIP Inventory account (defined for the parent item) with the parent item cost and debits the Inventory account.
5. You close the production order. The journal entry created behind closing the production order does the following:
   - Zeroes down the WIP account 210102 and transfers the value to the interim WIP account 210103 according to the WIP consolidation settings.
   - Zeroes down the interim WIP account 210103 and transfers the amount to the WIP Variance account.



   - If there is a difference between the value transferred to the WIP Variance account and the value of the received parent item and its by-product, it is posted to the Inventory of the parent item.

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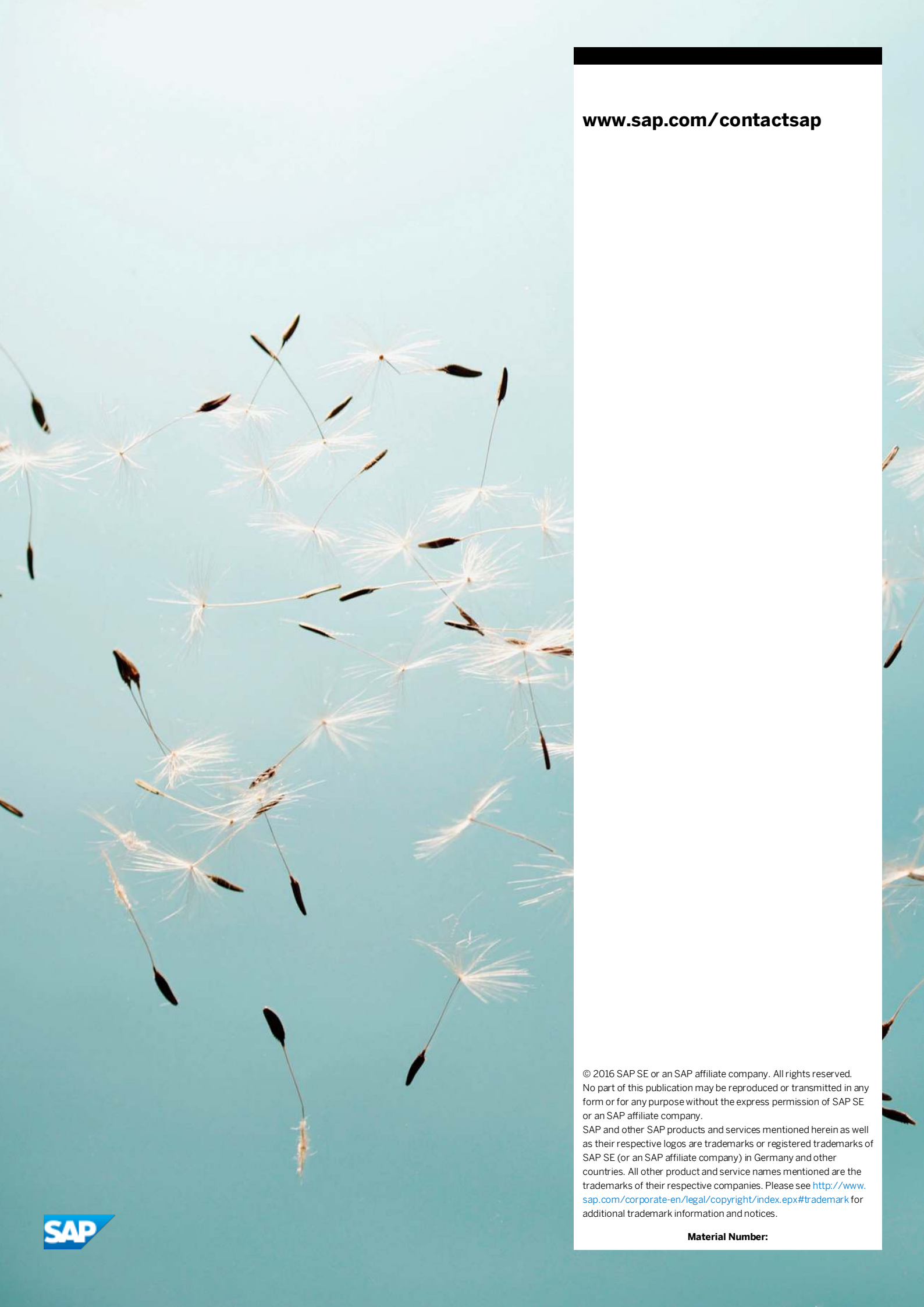

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Material Number: