Microsoft Dynamics NAV 2013

Manufacturing Quick Guides

Microsoft Dynamics ERP

QUICK GUIDES – MANUFACTURING FOUNDATION

This document contains a selection of quick guides written for Microsoft Dynamics NAV manufacturing users.

The quick guides are designed to fit on one page. This means that these documents can easily be printed and posted for easy access. In addition, these guides are released in Microsoft Word format so that users can customize the quick guides with their own data or customized descriptions.

The content in these quick guides focuses on data and functions that are essential to basic manufacturing features. Fields and features that relate to more advanced manufacturing features may not be included in this document.

🗒 **Note**
>   Content in the quick guides is also available in Microsoft Dynamics NAV Help as How To topics.

HOW TO: SET UP ITEMS

Item cards hold the master data required to plan, buy, store, assemble, produce, account, track, sell, and ship items.

📝 **Note**   This topic explains how to set up items for wholesale and basic manufacturing and therefore does not explain MRP planning parameters on the **Planning** FastTab. For more information about a specific field, select the field, and then press F1.

Item cards, such as other master data records, can be created by using master data templates, but for explaining each field, the following procedure describes how to manually create an item card for a basic manufacturing environment.

The following item card fields are required before the item can be used in transactions:

- **No.**
- **Base Unit of Measure**
- **Costing Method**
- **Profit %**
- **Unit Price**
- **Gen. Prod. Posting Group**
- **VAT Prod. Posting Group**
- **Inventory Posting Group**

Procedure Prerequisites

- Item units of measure are set up.
- All posting groups are set up.
- Production BOMs and routings are set up.

▶ **To fill in the General FastTab**

1. In the **Search** box, enter **Items**, and then choose the related link.

2. On the **Home** tab, in the **New** group, choose **New** to open an empty item card.

3. Leave the **No.** field to automatically insert a number from a defined number series.

4. In the **Description** field, enter the name of the item.

5. Choose the **Base Unit of Measure** field, choose **New**.

6. In the **Item Units of Measure** window, choose the **Code** field, select, for example, **PCS**, and then choose the **OK** button.

7. In the **Item Category Code** field, you can specify a product group from which assigned default values will be created for the item, including posting groups (see **Posting Group** fields below).

   Most of the fields on the rightmost side of the FastTab contain lookup fields that you can use to view detailed information about the item's inventory level and its current supply and demand situation.

8. Select the **Blocked** check box if the item must not be used in transactions.

▶ **To fill in the Invoicing FastTab**

1. In the **Costing Method** field, select the costing method that determines how the unit cost of the item is calculated. **Standard** is typically used for manufacturing items. **Specific** is typically used for serial-numbered items.

2. If you choose **Standard** costing method, fill in the **Standard Cost** field by using an initial value for the cost of one unit of the item. The **Unit Cost** field then initializes order lines and journal lines as they are created.

3. For costing methods other than **Standard**, fill in the **Unit Cost** field by using an initial value when you create the item. When you run the **Adjust Cost – Item Entries** batch job, the field is updated to contain the most recent average unit cost.

4. In the **Unit Price** field, enter the sales price of one unit of the item. The **Last Direct Cost** field is updated every time that a purchase is invoiced.

5. Make sure the three posting group fields are filled.

The **Net Invoiced Quantity** field is updated automatically.

The **Sales Unit of Measure** field is filled with the base unit of measure code, but you can change it to specify that items are sold in another unit of measure.

▶ **To fill in the Replenishment FastTab for Purchased Items**

1. In the **Replenishment System** field, select **Purchase** to specify that your standard way of supplying the item is by buying it.

2. In the **Vendor No.** field, specify a default supplier of the item. The planning system creates orders to this vendor.

3. In the **Vendor Item No.** field, enter the vendor's own item identification, if it differs from yours.

4. In the **Lead Time Calculation** field, enter a date formula to specify the time that is required to replenish this purchased item, such as **1W**. This field is used date calculations, as follows:

   order date + default safety lead time + lead time calculation = planned receipt date.

▶ **To fill in the Replenishment FastTab for Assembled Items**

1. In the **Replenishment System** field, select **Assembly** to specify that your standard way of supplying the item is by assembling it.

2. In the **Assembly Policy** field, choose **Assemble-to-Order** if the item is typically not in stock, but is assembled with regard to a sales order.

3. Ensure that the assembly item consists of at least one component. The **Assembly BOM** check box on the **General** FastTab is selected.

▶ **To fill in the Replenishment FastTab for Produced Items**

1. In the **Replenishment System** field, select **Prod. Order** to specify that your standard way of supplying the item is by producing it.

2. In the **Manufacturing Policy** field, select **Make-to-Order** to consider all production BOM levels during planning.

   If both the parent item and its subassemblies use **Make-to-Order**, then the planning system creates a production order with subassembly production order lines indented under the parent's order line.

3. Choose the **Routing No.** field, and then select a routing to manage the item's manufacturing process. For more information, see How to: Create Routings.

4. Choose the **Production BOM No.** field, and then select a production BOM to manage the product structure of the item. For more information, see How to: Create Production BOMs.

5. In the **Flushing Method** field, select one of the following options.

Option	Description
Manual	To manually calculate and post material consumption.
Forward	To automatically calculate and post consumption when the production order is released.
Backward	To automatically calculate and post consumption when the production order is finished.

6. In the **Scrap %** field, specify the percentage of the item that you expect to be scrapped in production. This percentage is used to calculate unit prices and net requirements.

7. In the **Lot Size** field, specify how many units of the item are produced in one production batch. This number is used to calculate the item's standard cost and to distribute the fixed costs of manufacturing the lot.

►**To fill in the Planning FastTab**

1. In the **Reordering Policy** field, select <BLANK> if you only plan with the Order Planning feature. For more information, see How to: Plan for New Demand.

2. In the **Reserve** field, select one of the following options to specify if and how the item is reserved.

Option	Description
Never	You cannot reserve the item.
Optional	You can reserve the item manually. The item is never reserved automatically.
Always	The item is reserved automatically as soon as demand occurs.

3. In the **Order Tracking** field, select one of the following options to specify if and how links are dynamically created between supply and demand events for the item.

Option	Description
None	No order tracking links are created.
Tracking Only	Order tracking links are created dynamically every time that a supply can cover a demand.
Tracking and Action Msg.	Order tracking links are created dynamically. Action messages are created in the advanced planning system.

HOW TO: CREATE PRODUCTION BOMS

A production BOM holds master data that describes the components and subassemblies used in the production of a parent item. Once a production order is created for that parent item, its production BOM will govern the calculation of material requirements as represented in the **Prod. Order Components** window.

 Prerequisites

- Item cards are created for parent items and their components. For more information, see How to: Set Up Items.
- Gather all data about item structures: Top-level items, subassemblies, components, and their interrelation.

▶**To fill in the production BOM header**

1. In the **Search** box, enter **Production BOM**, and then choose the related link.

2. Create a new production BOM.

3. In the **No.** field, number the production BOM, for example, the same as the parent item.

4. In the **Description** field, name the production BOM, for example, the same as the parent item.

5. In the **Unit of Measure Code** field, select the parent item's unit of measure code.

6. To edit the BOM, set the **Status** field to **New** or **Under Development**. To activate it, set the **Status** field to **Certified**.

▶**To fill in the production BOM lines**

1. In the **Type** field, select whether the item on this BOM line is an ordinary item or a production BOM. If the item on the line is a production BOM, then it must already exist as a certified production BOM.

2. In the **No.** field, look up and select the item or production BOM in question, or type it in the field.

3. In the **Quantity Per** field, enter how many units of the item go into the parent item, for example, 4 wheels for 1 car.

4. In the **Scrap %** field you can enter a fixed percentage of components that are scrapped during production. When the components are ready to be consumed in a released production order, this percentage will be added to the expected quantity in the **Consumption Quantity** field in a production journal. For more information, see How to: Register Consumption and Output.

   📝 **Note**
      This scrap percentage represents components that are scrapped during production when picking from inventory, whereas the scrap percentage on routing lines represents scrapped output before putting on inventory.

5. In the **Routing Link Code** field, enter a code to connect the component to a specific operation. If the column is not visible, open the shortcut menu for the column headings, and then choose **Choose Columns** to add it.

   Routing links between operations and components ensure that material consumption is not posted until it has actually been consumed. In addition, routing links provide a process view in the **Production Journal** window where components are listed under the linked operation. For more information, see How to: Create Routing Links.

6. To copy lines from an existing production BOM, on the **Actions** tab, in the **Functions** group, choose **Copy BOM** to select existing lines.

7. Certify the production BOM.

8. You can now attach the new production BOM to the card of the parent item in question. For more information, see How to: Set Up Items.

   📝 **Note**
      To recalculate the item's standard cost from the item card, on the **Navigate** tab, in the **Bill of Material** group, choose **Manufacturing**, and then choose **Calc. Standard Cost**.

HOW TO: CREATE ROUTINGS

A routing holds master data that captures the process requirements of a given produced item. Once a production order is created for that item, its routing will govern the scheduling of operations as represented in the **Prod. Order Routing** window under the production order.

Prerequisites

- Item cards are created. For more information, see How to: Set Up Items.
- Production resources are set up. For more information, see How to: Set Up Work Centers.
- Gather all data about produced items, production resources, operation specifications, and process times.

►To fill in the routing header

1. In the **Search** box, enter **Routings**, and then choose the related link.

2. Create a new routing. On the **Home** tab, in the **New** group, choose **New**.

3. In the **No.** field, number the routing, for example, according to the process or the parent item.

4. In the **Description** field, name the routing, for example, after the process or the parent item.

5. In the **Type** field, select **Serial** to calculate the production routing according to the value in the **Operation No.** field. Select **Parallel** to calculate the operations according to the value in the **Next Operation No.** field.

6. To edit the routing, set the **Status** field to **New** or **Under Development**. To activate it, set the **Status** field to **Certified**.

►To fill in the routing lines

1. In the **Operation No.** field, enter the number of the first operation, for example, **10**.

2. In the **Type** field, specify which kind of resource is used, for example, **Work Center**.

3. In the **No.** field, select the resource to be used, or type it in the field.

4. In the **Routing Link Code** field, enter a code to connect the component to a specific operation. If the column is not visible, open the shortcut menu for the column headings, and then choose **Choose Columns** to add it.

   📝 **Note**
   Routing links between operations and components ensure that material consumption is not posted until it has actually been consumed. In addition, routing links provide a process view in the **Production Journal** window where components are listed under the linked operation. For more information, see How to: Create Routing Links.

5. In the **Run Time** and **Setup Time** fields, enter the process times needed to perform the operation.

   📝 **Note**
   Setup time is calculated per production order, whereas run time is calculated per produced item.

6. In the **Concurrent Capacities** field, specify how many units of the selected resource are used to perform the operation. For example, two people allocated to one packing operation will halve the run time.

7. Continue to fill in lines for all operations involved in producing the item in question.

8. To copy lines from an existing routing, on the **Actions** tab, in the **Functions** group, choose **Copy Routing** to select existing lines.

9. Certify the routing.

10. You can now attach the new routing to the card of the production item in question. For more information, see How to: Set Up Items.

    📝 **Note**   Remember also to recalculate the item's standard cost from the **Item** card: On the **Navigate** tab, in the **Item** group, choose **Manufacturing**, and then set **Calc. Standard Cost** to **All Levels**.

HOW TO: CREATE WORK CENTER CALENDARS

A work center calendar specifies the working days and hours, shifts, holidays, and absences that determine the work center's gross available capacity, measured in time, according to its defined efficiency and capacity values. Creating and enabling a work center calendar involves several preparatory tasks.

As a foundation for calculating a specific work center calendar, you must first set up one or more general shop calendars. A shop calendar defines a standard work week according to start and end times of each working day and the work shift relation. In addition, the shop calendar defines the fixed holidays during a year.

Prerequisite

Gather all data about work times on your shop floor.

▶**To create work shifts**

1. In the **Search** box, enter **Work Shifts**, and then choose the related link.

2. On a blank line, enter a number in the **Code** field to identify the work shift, for example, **1**.

3. Describe the work shift in the **Description** field, for example, **1st shift**.

4. Optionally, fill in lines for a second or third work shift.

Even if your work centers do not work in different work shifts, enter at least one work shift code.

▶**To set up a shop calendar**

1. In the **Search** box, enter **Shop Calendars**, and then choose the related link.

2. On a blank line, enter a number in the **Code** field to identify the shop calendar.

3. Describe the shop calendar in the **Description** field.

   The initial naming of the new shop calendar is complete. Now, you can proceed to define its contents.

4. Select the shop calendar. On the **Navigate** tab, in the **Shop Cal.** group, choose **Working Days**. The **Shop Calendar Working Days** window opens with the name of the shop calendar.

5. Define a complete work week, with the start and end times for each day.

   In the **Work Shift Code** field, select one of the shifts that you previously defined. Add a line for every working day and every shift. For example:

   Monday 07:00 15:00 1
   Tuesday 07:00 15:00 1

   If you need a shop calendar with two work shifts, you must fill it in in this manner:

   Monday 07:00 15:00 1
   Monday 15:00 23:00 2
   Tuesday 07:00 15:00 1
   Tuesday 15:00 23:00 2

   Any week days that you do not define in the shop calendar, such as Saturday and Sunday, are considered non-working days and will have zero available capacity in a work center calendar.

   When all the working days of a week are defined, you can close the **Shop Calendar Working Days** window and proceed to enter holidays.

6. In the **Shop Calendars** window, select the shop calendar. On the **Navigate** tab, in the **Shop Cal.** group, choose **Holidays**. The **Shop Calendar Holidays** window opens.

7. Define the holidays of the year by entering the start date and time, the end time, and description of each holiday on individual lines. For example:

04/07/14 0:00:00 23:59:00 Summer Holiday
05/07/14 0:00:00 23:59:00 Summer Holiday
06/07/14 0:00:00 23:59:00 Summer Holiday

The defined holidays will have zero available capacity in a work center calendar.

The shop calendar can now be assigned to a work center to calculate the work shop calendar that will govern all operation scheduling at that work center.

▶ To calculate a work center calendar

1. In the **Search** box, enter **Work Centers**, and then choose the related link. Open the work center that you want to update.

2. On the **Scheduling** FastTab, in the **Shop Calendar Code** field, select which shop calendar to use as the foundation for a work center calendar.

3. On the **Navigate** tab, in the **Planning** group, choose **Calendar**.

4. In the **Work Center Calendar** window, on the **Actions** tab, in the **General** group, choose **Show Matrix**.

   The left side of the matrix window lists the work centers that are set up. The right side shows a calendar displaying the available capacity values for each working day in the defined unit of measure, for example, **480** minutes. Each line represents the calendar of one work center.

   📝 **Note**   You can also select to view the capacity values for each week or month by changing the selection in the **View By** field on the **Matrix Options** FastTab in the **Work Center Calendar** window.

   To reflect the new shop calendar as a line on the selected work center, it must first be calculated.

5. On the **Actions** tab, in the **Functions** group, choose **Calculate**.

6. On the **Work Center** FastTab, you can set a filter to only calculate for one work center. If you do not set a filter, all existing work center calendars will be calculated.

7. Define the starting and ending dates of the calendar period that should be calculated, for example, one year from 01/01/14 to 31/12/14. Choose the **OK** button to calculate capacity.

Calendar entries are now created or updated displaying the available capacity for each period according to the following three sets of master data:

- The working days and shift defined in the assigned shop calendar.

- The value in the **Capacity** field on the work center card.

- The value in the **Efficiency** field on the work center card.

The calculated work center calendar will now define when and how much capacity is available at this work center. This controls the detailed scheduling of operations performed at the work center.

▶ To record work center absence

1. In the **Work Center Calendar** window, on the **Actions** tab, in the **General** group, choose **Show Matrix**. The **Work Center Calendar Matrix** window opens.

2. Select the work center and calendar day when the absence time should be recorded. On the **Navigate** tab, in the **Planning** group, choose **Absence**.

3. In the **Absence** window, define the starting time, ending time, and description of that day's absence. For example:

   25/01/01 08:00 10:00 Maintenance

4. On the **Navigate** tab, in the **Absence** group, choose **Update**, and then close the **Absence** window.

The capacity of the selected day has now decreased by the recorded absence time.

HOW TO: SET UP WORK CENTERS

A **Work Center** card organizes the fixed values and requirements of the production resource, and thus governs the output of production performed in that work center.

 Prerequisites

- Capacity units of measure are set up.
- At least one work center group is set up.
- A shop calendar is created. For more information, see How to: Create Work Center Calendars.

Before you can set up a work center, you must gather all data about your production resources.

▶To fill in the General FastTab

1. In the **Search** box, enter **Work Centers**, and then choose the related link.

2. Create a new work center card. On the **Home** tab, in the **New** group, choose **New**.

3. In the **No.** field, enter a work center number.

4. In the **Description** field, name the work center.

5. In the **Work Center Group** field, select the higher-level resource grouping that the work center is organized under.

6. Select the **Blocked** field if you want to prevent the work center from being used in any processing. This means, among others, that an item produced at the work center cannot be posted from a production journal. For more information, see How to: Register Consumption and Output.

▶To fill in the Posting FastTab

1. In the **Direct Unit Cost** field, enter the cost of producing one unit of measure at this work center, excluding any other cost elements. This cost is often referred to as the *direct labor rate*.

2. In the **Indirect Cost %** field, enter the general operation costs of using the work center as a percentage of the direct unit cost. This percentage amount is added to the direct cost in the calculation of the unit cost.

3. In the **Overhead Rate** field, enter any non-operational costs, for example maintenance expenses, of the work center as an absolute amount.

4. The **Unit Cost** field contains the calculated unit cost of producing one unit of measure at this work center, including all cost elements.

   Unit Cost = Direct Unit Cost + (Direct Unit Cost x Indirect Cost %) + Overhead Rate.

5. In the **Unit Cost Calculation** field, define whether the above calculation should be based on the amount of time used: **Time**, or on the number of produced units: **Units**.

6. Select the **Specific Unit Cost** field if you want to define the work center's unit cost on the routing line where it is being used. This may be relevant for operations with dramatically different capacity costs than what would normally be processed at that work center.

7. In the **Flushing Method** field, select whether output posting at this work center should be calculated and posted manually or automatically, using either of the following methods.

Option	Description
Forward	Calculate and post output consumption automatically when the production order is released.
Backward	Calculate and post consumption automatically when the released production order is finished.

📝 **Note**
　　If necessary, the flushing method selected here and on the **Item** card, can be overridden for individual operations by changing the setting on routing lines.

The **Department Code** and **Project Code** fields relate to the use of dimensions.

▶**To fill in the Scheduling FastTab**

1. In the **Unit of Measure Code** field, enter the time unit in which this work center's cost calculation and capacity planning are made.

2. In the **Capacity** field, define whether the work center has more than one machine or person working at the same time. If your Microsoft Dynamics NAV installation does not include the Machine Center functionality, then the value in this field must be **1**).

3. In the **Efficiency** field, enter the percentage of the expected standard output that this work center actually outputs. If you enter **100**, it means that the work center has an actual output that is the same as the standard output.

　　📝 **Note**
　　　　The **Consolidated Calendar** field is only relevant if the installation includes the Machine Center granule.

4. In the **Shop Calendar Code** field, select a shop calendar. For more information, see How to: Create Work Center Calendars.

5. In the **Queue Time** field, specify a fixed time span that must pass before assigned work can begin at this work center. Note that Queue Time is added to other non-productive time elements such as Wait Time and Move Time that you may define on routing lines using this work center.

6. If you use the **Queue Time** field above then you must define a time unit of measure in the **Queue Time Unit of Meas. Code** field.

HOW TO: PLAN FOR NEW DEMAND

This planning task can be performed in the **Order Planning** window, which displays all new demand along with availability information and suggestions for supply. It provides the visibility and tools needed to effectively plan demand from sales lines and component lines and then create different types of supply orders directly.

You can enter the **Order Planning** window in two ways depending on your focus.

▶**To plan for new production order demand**

1. In the **Search** box, enter **Production Orders**, and then choose the related link. You can perform these steps for a planned, firm planned, or released production order.

2. Open the production order you want to plan. On the **Navigate** tab, in the **Order** group, choose **Planning**.

3. In the **Order Planning** window, on the **Action** tab, in the **Functions** group, choose **Calculate Plan**.

The window displays planning lines according to the view filter **Production Demand**, meaning unfulfilled component lines of all existing production orders. Demand for only the one production order is not shown because t is necessary to plan for one production order with an overview of demand for potentially earlier components lines. Planning lines for the production order in context are expanded.

▶**To plan for any new demand**

1. In the **Order Planning** window, on the **Action** tab, in the **Functions** group, choose **Calculate Plan**.

   The window displays planning lines according to the view filter **All Demand**, meaning sales order lines as well as production component lines with insufficient availability. You can change this filter as you like.

   When the plan is being calculated, any new demand that has arisen since a plan was last calculated is analyzed. The quantity needed is calculated based on total availability of each demand line found. This calculation is done order-by-order, meaning that the order that includes the demand line with the earliest due date or shipment date is considered first, and all other demand lines in that production order, irrespective of their individual due dates or shipment dates, are also calculated for that order. Therefore, all planning lines under one order header line have the same demand date. When the calculation is completed, all unfulfilled demand is displayed as planning lines, sorted by the earliest demand date, with the various quantity fields filled in.

   The **Order Planning** window is filled with order header lines representing orders with unfulfilled demand.

   a. The **Demand Date** field contains the earliest shipment or due date of a demand line in the order.

   b. The **Demand Type** field shows whether the demand is from sales lines or component lines.

   c. The **Description field** contains the following depending on the demand type.

Demand type	Description
Production	The description of the produced item. For production demand for a project production order, the customer name is displayed. For more information, see How to: Plan Project Orders.
Sales	The customer name.

   The first planning line has the earliest demand date, and therefore you should plan this line first. To see the actual demand lines, either sales order lines or component lines, of each order header line, you must expand the line.

2. Choose the **Expand (+)** button in front of the date in the **Demand Date** field to see the underlying planning lines that represent demand lines with insufficient availability.

3. For each expanded planning line, that is, demand line, you can see values in information fields at the bottom of the window.

Option	Description
Qty. on Other Locations	Shows if the item exists on another location. You can then look up and select it.
Substitutes Exist	Shows if a substitute item is created for the item. You can then look up and select it. Note that this feature only applies to components, that is, from demand lines of type **Production**.
Quantity Available	Shows the total availability of the item, that is, the Projected Available Balance.
Earliest Date Available	Shows the arrival date of an inbound supply order that can cover the needed quantity on a date later than the demand date.

4. In the **Replenishment System** field, select which type of supply order to create.

The default value is that of the item card, or SKU card, but you can change it to one of three options:

Option	Description
Purchase	Creates a purchase order.
Transfer	Creates a transfer order.
Prod. Order	Creates a production order.

In the **Supply From** field you must select a value according to the selected replenishment system.

📝 **Note**   If the field is not filled in, the system will display an error message when you use the **Make Supply Order** function, and no supply order will be created for the planning line in question. This, however, is not the case if the replenishment system is **Prod. Order**.

5. From the **Supply From** field, you can look up in the relevant list and select where the supply should come from:

- If replenishment system is **Purchase**, the look-up button in this field looks up in the **Item Vendor Catalog** window.
- If replenishment system is **Transfer**, the look-up button in this field looks up in the **Location List** window.

In case the item exists in another location, the **Qty. on Other Location** field at the bottom shows a value and you can then look up and select the location from which the item should be supplied when you make the transfer order.

If a substitute exists for the demanded item, the **Substitute Exists** field is set to **Yes**, and you can then look up to the **Item Substitution Entries** window and select the substitute.

6. Select the **Reserve** check box if you want to make a reservation between the supply order you are creating and the demand line that it is created for. It is empty by default.

📝 **Note**   You can only select this check box if the item has **Optional** or **Always** in the **Reserve** field on its item card.

7. In the **Qty. to Order** field, you can enter the quantity that will go on the supply order you are creating.
The default value is the same quantity as that in the **Needed Quantity** field. But you may decide to order more or less than this quantity based on your knowledge of the demand situation. If, for example, you see in the **Order Planning** window that several unrelated demand lines are for the same purchased item, and they are due around the same date, you can consolidate these by entering the total needed quantity in the **Qty. to Order** field of one line, and then delete the other, obsolete planning lines for that item.

8. In the **Due Date** and **Order Date** fields, you can enter the dates that should apply to the created supply orders.

These two fields are interrelated according to the **Default Safety Lead Time** field, which can be found in the **Manufacturing Setup** window. By default, the due date is the same as the demand date, but you can change this as you like.

📝 **Note**   If you enter a date later than the demand date, you will receive a warning message.

▶ **To make supply orders**

1. In the **Search** box, enter **Production Orders**, and then choose the related link. You can perform these steps for a planned, firm planned, or released production order.

2. Open the production order you want to plan. On the **Navigate** tab, in the **Order** group, choose **Planning**.

3. Place the cursor on a relevant planning line. In the **Order Planning** window, on the **Action** tab, in the **General** group, choose **Make Orders**.

4. In the **Make Supply Orders** window, on the **Order Planning** FastTab, in the **Make Orders for** field, select one of the following options.

Option	Description
The Active Line	Make a supply order only for the line where the cursor is placed.
The Active Order	Make supply orders for all lines in the order where the cursor is placed.
All Lines	Make supply orders for all lines in the **Order Planning** window.

5. On the **Options** FastTab, define what kind of supply orders, or requisition worksheet lines, should be made.

    📝 **Note**
    The settings you last made in the **Make Supply Orders** window will be saved under your user ID so that they are the same the next time you use the window.

6. Choose the **OK** button to make the suggested supply orders or requisition worksheet lines.

You have now planned for the unfulfilled demand by making respective supply orders. Details about specific work flows when using the **Order Planning** window would depend on a company's internal policies.

When you have finished your planning work in the **Order Planning** window, for example defined an alternative way to supply the quantity, you can proceed to create supply orders for one or more of the planning lines.

📝 **Note**
The supply orders you create may introduce new dependent demand, for example for underlying production orders, and you should therefore choose **Calculate Plan** again to find and resolve this before moving down the list.

HOW TO: REFRESH PRODUCTION ORDERS

This planning function calculates changes made to a production order header and does not involve production BOM levels.

The **Refresh** function calculates and initiates the values of the component lines and routing lines based on the master data defined in the assigned production BOM and routing, according to the order quantity and due date on the production order's header. It is typically used after you have done one of the following:

- Created a production order header manually to calculate and create line data for the first time.
- Made changes to the production order header to recalculate all the line data.

 Note
You can change component lines and routing lines, and the production order schedule is updated accordingly. When you refresh, those changes are cancelled as the order is reset according to master data.

▶**To refresh a production order**

1. In the **Search** box, enter **Planned Production Orders**, and then choose the related link.

2. Create a new production order or open one that you want to refresh and change the **Quantity** or **Due Date** fields.

3. On the **Actions** tab, in the **Functions** group, choose **Refresh Production Order**.

   In the **Refresh Production Order** window, on the **Options** FastTab, define how and what to refresh.

4. In the **Scheduling Direction** field, select one of the following options.

Option	Description
Back	To calculate the operation sequence backwards from the earliest possible ending date, as defined by due date and other scheduled orders, to the latest possible starting date. **Note** This default option is relevant in the majority of situations.
Forward	To calculate the operation sequence forward from the latest possible starting date, as defined by due date and other scheduled orders, to the earliest possible ending date. **Note** This option is relevant for ASAP orders.

5. In the **Calculate** field, select which parts of the production order to calculate when refreshing.

6. Select the **Warehouse – Create Inbound Request** field to create a warehouse request for the putting away of the production order's components.

    Note
   The warehouse location must be set up to require put-away processing but not directed put-away and pick.

7. Choose the **OK** button to start the **Refresh** function according to your settings.

 Note
You cannot refresh a reserved production order. You can restore the reservation after the production order is refreshed, but in that case you should cancel the reservation before you refresh.

 Note
Changes implemented with the **Refresh** function are very likely to change the capacity need of the production order. You may have to reschedule operations afterwards.

HOW TO: REPLAN PRODUCTION ORDERS

This planning function calculates changes made to components and routings lines, and it includes items on lower production BOM levels for which it may generate new production orders.

Based on the changes you have made to the components and routing lines, the **Replan** function calculates and plans for any new demand for the production order. It is typically used after you have added or changed components that constitute underlying production orders.

📝 **Note**
> To include changes made to the header, you must first refresh the production order. For more information, see How to: Refresh Production Orders.

▶ **To replan a production order**

1. In the **Search** box, enter **Production Orders**, and then choose the related link.

2. Select the production order you want to replan.

3. On the **Lines** FastTab, choose **Actions** , choose **Lines**, and then choose **Components**.

4. Add a component, which is a produced item or subassembly.

5. From the production order, on the **Actions** tab, in the **Functions** group, choose **Replan**.

   In the **Replan Production Order** window, define how and what to replan.

6. In the **Scheduling Direction** field, select one of the following options.

Option	Description
Back	Calculates the operation sequence backwards from the earliest possible ending date, defined by due date and/or other scheduled orders, to the latest possible starting date. 📝 **Note** This default option is relevant in the majority of situations.
Forward	Calculates the operation sequence forward from the earliest latest possible starting date, defined by due date and/or other scheduled orders, to the earliest possible ending date. 📝 **Note** This option is only relevant for expedite orders.

7. In the **Plan** field, select whether to calculate production requirements for produced items on the production BOM, as follows.

Option	Description
No Levels	Do not consider lower level production. This only updates the item's schedule, like refresh.
One Level	Plan for first-level production demand. First-level production orders may be created.
All Levels	Plan for all-level production demand. All-level production orders may be created.

8. Select **One Level**, and choose the **OK** button to replan the production order, and calculate and create a new underlying production order for the introduced subassembly, if it is not fully available.

📝 **Note**
> Changes implemented with the **Replan** function are very likely to change the capacity need of the production order and you may therefore have to reschedule operations afterwards.

HOW TO: PLAN PROJECT ORDERS

This planning task starts from a sales order and uses the **Sales Order Planning** window. Once you have created a project production order, you can plan it further by using the **Order Planning** window.

▶**To create a project production order**

1. In the **Search** box, enter **Sales Orders**, and then choose the related link.

2. Select the sales order that represents the production project.

3. On the **Navigate** tab, in the **Plan** group, choose **Planning**.

4. In the **Sales Order Planning** window, on the **Actions** tab, in the **Functions** group, choose **Create Prod. Order**.

5. In the **Create Order from Sales** window, in the **Order Type** field, select **Project Order**.

6. Choose the **Yes** button.

7. In the **Search** box, enter **Production Orders**, and then choose the related link. Open the production order just created.

    The **Source Type** field of the production order contains **Sales Header** and the order has multiple lines, one for each sales line item that must be produced.

8. On the **Navigate** tab, in the **Plan** group, choose **Planning** to open the **Order Planning** window.

9. On the **Actions** tab, in the **Functions** group, choose **Refresh** to calculate new demand.

The order header line for the project order is displayed with all unfulfilled demand lines expanded under it. Although the production order contains lines for several produced items, the total demand for all production order lines is listed under one order header line in the **Order Planning** window, and the original customer name is displayed. You can now proceed to plan for the demand as described in How to: Plan for New Demand.

📝 **Note**
  Demand lines in the project production order that have **Prod. Order** in their **Replenishment System** field represent underlying production orders. After you have generated these production orders, you must again calculate a plan in the **Order Planning** window to identify any unfulfilled component demand for them. In that case, they are displayed as demand lines under a normal production order header line, meaning, the project relation is no longer visible in the window. However, if you are using the Order Tracking feature, then you can look back and forth to all supply orders made under the original sales order.

HOW TO: REGISTER CONSUMPTION AND OUTPUT

This execution task is performed in the **Production Journal** window. The journal combines the functions of the separate consumption journal and output journals into one journal. The combined journal is accessed directly from a released production order. Its main purpose is to manually post the consumption of components, the quantity of end items produced, and the time spent in operations. The values are posted to ledger entries under the released production order. Consumption quantities are posted as negative item ledger entries, output quantities are posted as positive ledger entries, and times spent are posted as capacity ledger entries. Such posted values can also be viewed at the bottom of the journal as actual quantities.

   📝   **Note**   Because consumption data is processed together with output data, this journal offers an opportunity to display linked components and operations in a logical process structure. Components are indented under their respective operation. This requires that you use routing link codes.

   📝   **Note**   Components without routing link codes are listed first in the journal.

▶**To register consumption and output**

1.   In the **Search** box, enter **Released Prod. Orders**, and then choose the related link.

2.   Open a released production order line that is ready for registration. On the **Lines** FastTab, choose **Actions**, choose **Line**, and then choose **Production Journal**.

   The **Production Journal** window opens showing journal lines for the production order line according to the **Prod. Order Component** and **Prod. Order Routing** windows. These lines originate from the production BOM and routing assigned to the item that is being produced. For more information, see How to: Create Production BOMs and How to: Create Routings.

3.   In the **Posting Date** field at the top of the journal, enter a posting date that applies to all lines. The work date is entered by default. The field is meant as a quick way to align posting dates on all lines, if relevant.

   📝   **Note**   Posting dates entered on individual lines will override this field.

4.   In the **Flushing Method Filter** field at the top of the journal, you can choose to also view consumption and output that is posted automatically according to the flushing methods defined for the item and resource respectively.

   On each type of line in the journal, only the relevant fields are shown. The rest are blank and write-protected.

   When the journal is opened, it is preset with the quantities to be posted. If nothing is posted so far, all quantity fields will show by default the expected quantities carried from the production order. If partial postings have been made, the quantity fields on the lines will show the remaining quantities. The quantities and times already posted for the order are displayed at the bottom of the journal as actual entries.

   Concerning the quantities in the **Output Quantity** field, you have the option to set up which values to preset when the journal is first opened. This is done from the **Manufacturing Setup** window, **General** FastTab, in the **Preset Output Quantity** field. For more information, see **Preset Output Quantity**.

5.   Proceed to enter the relevant consumption and output quantities in the editable fields.

   📝   **Note**   Only the output quantity on the last journal line of entry type **Output** will adjust the inventory level when posting the journal. Therefore, do not to post the journal, with the expected output quantity preset on the last output line, until all end items are actually produced.

6.   Select the **Finished** field of output lines to indicate that the operation is finished. This field is related to the **Routing Status** field on a production order routing line.

7.   On the **Actions** tab, in the **Posting** group, choose **Post** to register the quantities you have entered and then close the journal.

If values remain to be posted, the journal will contain these remaining values next time it is opened. Posted values are shown as actual values in the bottom of the journal.

   📝   **Note**   If an item that is being consumed is blocked, the journal will not post consumption quantities for that item. If a machine or work center is blocked, the journal will not post output quantities or process times for the output line in question.

   📝   **Note**   If you close the journal without posting, the changes will be lost.

⚠ **Warning**   The **Production Journal** window cannot be used by two users simultaneously. This means that if User 2 opens the window and enters data when User 1 is already working in the window, then User 2 may lose data when User 1 closes the window.

HOW TO: CREATE ROUTING LINKS

You can create routing links to connect components to specific operations in order to retain their relationship even though the production BOM or routing is modified. It also facilitates just-in-time flushing of components, namely when the specific linked operation starts, not when the complete production order is released.

Another important benefit is that linked components and operations are displayed in a logical process structure when you use the **Production Journal** window for output and consumption posting.

To create a new routing link, you must start in the routing and connect the links in the production BOM.

▶To create a routing link

1. In the **Search** box, enter **Routings**, and then choose the related link.

2. Open the routing that contains the operations that you want to link.

   Make sure the routing status is **Under Development**.

3. On the relevant routing line, in the **Routing Link Code** field, select a code. If the column is not visible, open the shortcut menu for the column headings, and then choose **Choose Columns** to add it. For information about how to create routing link codes, see **How to: Set Up Routing Link Codes**.

4. Proceed to add different routing link codes to other operations in the routing, if relevant.

   📝 Note
   You should not use the same routing link code in different operations on a routing because you may incorrectly link a component to two different operations, so that it is consumed two times.

   It is a good idea to name the routing link code after the operation in order to ensure operation-specific routing links.

5. Set the routing status to **Certified**.

   Routing link codes are now assigned to operations. Next, you must create the actual link by assigning the same codes to specific components in the relevant production BOM.

6. Open the **production BOM** that contains the components that you want to link to the above operations.

7. Make sure the BOM status is **Under Development**.

8. On the relevant production BOM line, in the **Routing Link Code** field, select the code that you have just assigned to the relevant operation.

9. Proceed to add routing link codes to other components according to the unique operations where they are used.

10. Set the production BOM status to **Certified**.

    📝 Note
    To enable the routing links on an existing production order, you must first refresh. For more information, see How to: Refresh Production Orders.

The selected components will now be linked to the selected operations when you create or refresh a production order using the production BOM and routing in question. This is visible in the **Prod. Order Components** window under the production order, and here you can also remove and add the defined routing link codes at any time.

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