

# Units of Measure: Set up packages

SAP Business One Version 9.3



PUBLIC

Welcome to the topic on setting up packages.

## Objectives



At the end of this topic, you will be able to:

- Set up automatic calculations for the type and quantity of package materials to use when shipping or receiving an item

**In this topic, you will learn how to** set up automatic calculations for the type and amount of package materials to use when shipping or receiving an item. You will also see how to automatically create a packing slip showing the contents of the packages in a delivery.

## Business Scenario



OEC Computers purchases paper in pallets and sells paper with or without a package.

When paper is sold in large quantities, the warehouse team packs paper in boxes.

We want to set up automatic calculation for packing materials for paper in order to speed up the process.

Additionally, we want to ensure correct packing slips are automatically created for our items in sales and purchasing.

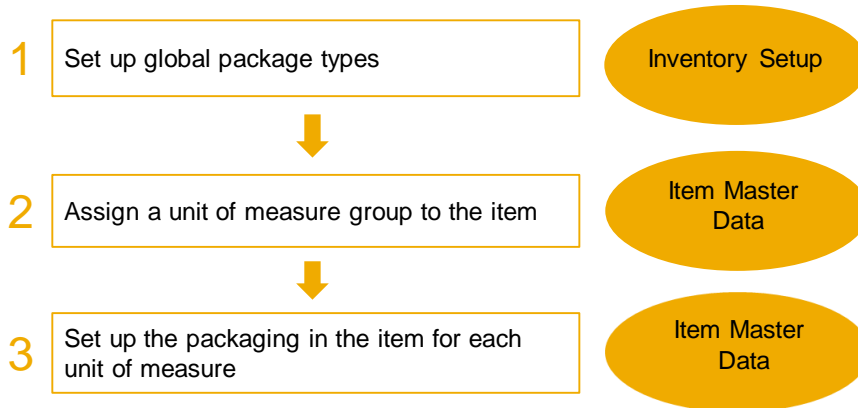
OEC Computers purchases paper in pallets and sells paper with or without a package.

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## Steps to Set Up Packaging



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Let's look at the steps to set up packaging by unit of measure for an item.

1. Set up global package types. This is done in the *Inventory Setup* menu.
2. Assign a unit of measure group to the item (How to set up unit of measure groups for items was covered in an earlier course topic.)
3. Set up packaging in the item for each unit of measure. You can set up packaging for sales from a button on the *Sales Data* tab and for purchasing from a button on the *Purchasing Data* tab.

## A male UPS carrier in a khaki uniform is walking through a warehouse or industrial setting. He is carrying a stack of four brown cardboard boxes in his right arm and holding a white clipboard with a pen in his left hand. He is smiling and looking towards the right. The background shows industrial lighting and structures.

**Package Types - Setup**

| # | Type      | Length | Width | Height | Volume | Volume UoM | Weight |
|---|-----------|--------|-------|--------|--------|------------|--------|
| 1 | Box       | 60cm   | 42cm  | 24cm   | 60.48  | cdm        | 0.5kg  |
| 2 | Pallet    | 84cm   | 60cm  |        |        | ci         |        |
| 3 | Container | 2m     | 1m    | 2m     | 4      | cm         | 200kg  |
| 4 | Barrel    |        |       |        |        | ci         |        |
| 5 |           |        |       |        |        | ci         |        |

**Administration > Setup > Inventory > Package Type**

OK Cancel

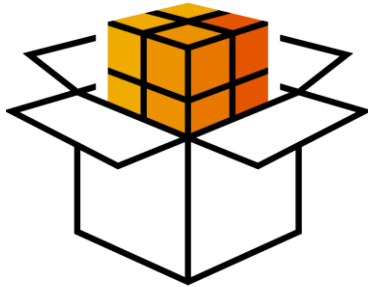
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For our business example, paper is bought on pallets. When the paper is sold, large quantities are shipped either in boxes, containers or on pallets.

As we see in our graphic, dimensions for length, width, height, volume and weight have been entered for each of the package types used for paper products.

## Using weight in a package type



An empty box weighs 0.5 kg

A box containing 6 units of 6-Packs weighs 60.5 kg

A box containing 5 tablets weighs 6 kg

The weight listed for a package type can refer to gross weight including its contents or to the net package weight without contents.

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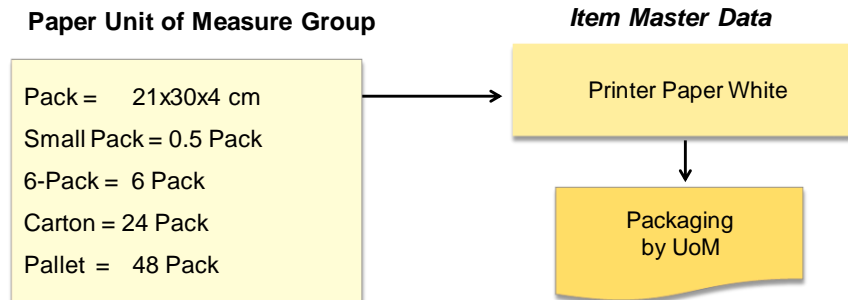
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The weight listed for a package type can either refer to the gross weight including its contents or the net package weight without its contents. This gives you the flexibility to use the weight column based on your business needs.

When deciding how to use this field you should consider whether you plan to use this value to calculate the number of units that can fit into a package. If you want this data to be the default value for the calculation of the number of units in each package, you should refer to the *weight* as the gross weight available for this package.

The disadvantage of using the gross weight is that the package definition will need to be limited to items that share the same weight for the same volume. If you plan to use the package type for many items that vary in weight, then you will not want to use a default gross weight for the item.

## Step 2: Assign the UoM Group to an Item



Once the unit of measure group is assigned to an item master record, you can take the next step to set up packaging for each unit of measure

The second step in setting up automatic package selection for an item, is to assign a units of measure group to an item.

You can assign a unit of measure group to an item manually or have the unit of measure group default into an item from item categories.

You also have a global option of having all the units in the group available in the item rather than having to choose which units of measure you would like to use for the item. This is controlled by the *Auto add All UoM Group Definitions* checkbox in *General Settings*. If this checkbox is not selected, then you need to add the units from the group individually in an item by using the *Add Row* button. Even if you have added all the units as a default, you can also use the context menu to remove unwanted units of measure for an item.

The details on how to set up a unit of measure group are covered in another course topic "Set up Units of Measure".

Once the unit of measure group is assigned to an item master record, you can take the next step to set up packaging for each unit of measure.

### Step 3 – Set up packaging in the item

**Set up packaging for:**  
Sales  
Purchasing

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There are two types of packaging that you can set up for an item: packages for sales and packages for purchasing.

To set up packages for items you sell to customers, choose the *Sales Data* tab and choose the button to the right of the *Package Type* field. To set up the types of packages you use for receiving items, go to the *Purchasing Data* tab and choose the button to the right of the *Package Type* field.

These buttons will open a window where you can set up a relationship between each unit of measure and specific package types based on the number of units needed and dimensions of those units.

The type of packages used in sales can be different from the type of packages used in purchasing. In our business example, OEC Computers receives paper from its suppliers on a pallet. When they sell paper to customers, it may be sold without packages, in boxes, in containers or on pallets.



### Step 3 Details: Item Sales Data - Sales Unit of Measure

The screenshot shows the 'Sales UoM and Package Types' window for Item No. R00001. The 'Sales UoM' list has '6Pack' selected. The 'Unit Name' is '6 Pack' and 'Items per Unit' is '1 6Pack = 6 Pack'. The 'Sales UoM Dimensions' are: Length 30cm, Width 21cm, Height 24cm, Volume 15,120, Weight 15kg. A yellow arrow points from '6Pack' in the list to the 'Sales UoM Code' field in the 'From the Item Master Data - Sales Data tab' window, which shows '6Pack', '6 Pack', and '6 Pack'. Another yellow arrow points from the 'Items per Unit' field to the 'Items per Sales Unit' field in the same window, which shows '6 Pack'. A third yellow arrow points from the 'Volume' field (15,120) to the 'Units of Measure - Setup' table, specifically to the row for '6Pack' which has a volume of 15,120.

From the Item Master Data – Sales Data tab

Sales UoM Code: 6Pack  
Sales UoM Name: 6 Pack  
Items per Sales Unit: 6 Pack

Units of Measure - Setup

| # | UoM Code | UoM Name   | Length | Width | Height | Volume  | Volume UoM | Weight |
|---|----------|------------|--------|-------|--------|---------|------------|--------|
| 1 | Manual   | Manual     |        |       |        |         | ci         |        |
| 2 | Pack     | Pack       | 30cm   | 21cm  | 4cm    | 2,520   | cc         | 2.5kg  |
| 3 | 6Pack    | 6 Pack     | 30cm   | 21cm  | 24cm   | 15,120  | cc         | 15kg   |
| 4 | Carton   | Carton     | 60cm   | 42cm  | 24cm   | 60,480  | cc         | 60kg   |
| 5 | Pallet   | Pallet     | 84cm   | 60cm  | 24cm   | 120,960 | cc         | 120kg  |
| 6 | SmlPack  | Small Pack | 30cm   | 21cm  | 2cm    | 1,260   | cc         | 1.25kg |

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For our example, we will look at sales windows, but keep in mind that packages for sales and purchasing are set up in the same way.

From the Sales Data tab, the button leads you to the *Sales UoM and Package Types window*.

This window is where you define the default units of measure, their measurements and package data for each unit.

On the left side of the graphic, we see the left side of the *Sales UoM and Package Types window*. Here we see the units of measure.

One of the units of measure can be set as the default for sales. In our example, the most popular unit for this paper item is the 6-pack so it has been set as the unit default for sales. We see that the 6-pack unit is highlighted and appears on Sales Data tab along with its ratio to the inventory unit of measure (the pack).

When you choose a unit, the dimensions for that unit are displayed at the bottom of the window. These measurements are drawn from the global *Unit of Measure setup* and can be changed manually.

### Step 3 Details: Item Sales Data – Package Type

From the *Item Master Data – Sales Data* tab

Package Type  ...  
 Quantity per Package

Package Types - Setup

| # | Type      | Length | Width | Height | Volume | Volume UoM | Weight |
|---|-----------|--------|-------|--------|--------|------------|--------|
| 1 | Box       | 60cm   | 42cm  | 24cm   | 60.48  | cdm        | 0.5kg  |
| 2 | Pallet    | 84cm   | 60cm  |        |        | ci         |        |
| 3 | Container | 2m     | 1m    | 2m     | 4      | cm         | 200kg  |
| 4 | Barrel    |        |       |        |        | ci         |        |

Paper Inventory UoM Pack

Package Types

- Box
- Pallet
- Container
- Barrel

Set as Default

Qty per Package

Package Type Dimensions

Length   
 Width   
 Height   
 Volume  cdm  
 Weight

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- Now we see the right side of *Sales UoM and Package Types* window.
- On this side we enter the package information for each item.
- You have the option of having all package types appear in this window as a default. This option is controlled by the *Auto. add All Package Definitions* check box in *General Settings*.
- This can be a very useful setting if you do not have a large number of package types. However if you have a large number of package types and do not select this checkbox, then you can add the package types individually by using the *Add Row* button. Of course you always have an option to delete package types using the context menu.
- You can set a package type as the default for when you sell the item. The default package type is copied to the *Package Type* field in the Sales Data tab.
- When you click on a package type, you can see and define its dimensions. The dimensions are drawn by default from the *Package Types Setup* but they can be changed manually.

### Step 3 Details: Quantity per Package

Sales UoM and Package Types

Item No. R00001 UoM Group Paper Inventory UoM Pack

Sales UoM: Pack, **6Pack**, Carton, Pallet

Package Types: **Box**, Pallet, Container, Barrel

Unit Name: 6 Pack

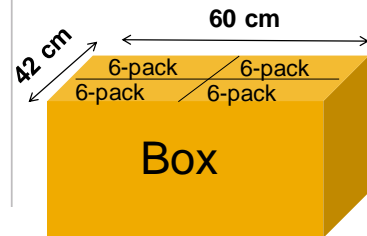
Items per Unit: 6 Pack = 6 Pack

Qty per Package: 4

Sales UoM Dimensions: Length 30cm, Width 21cm, Height 24cm, Volume 15,120 cc, Weight 15kg

Package Type Dimensions: Length 60cm, Width 42cm, Height 24cm, Volume 60,480 cdm, Weight 0.5kg

A "Box" package can contain 4 "6-Packs"



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- Here we see the full window for the *Sales UoM and Package Types* window. We can see the connection between the units of measure and the packages and what the system uses to calculate the quantity per package. The system uses the volume dimensions of the package and of the unit of measure to determine how many units will fit in a package. The result of the calculation appears in the *Quantity per Package* field.
- Notice the dimensions of the 6-Pack unit. It is 30 centimeters long and 21 centimeters wide.
- Now, look at the dimensions of the Box Package. It is 60 centimeters long and 42 centimeters wide.
- The 6-Pack UoM and the Box package are the same height. This means that 2 6-Pack units can fit in the Box length and another 2 6-Pack units can fit in the Box width. This means a total of 4 6-pack units can fit in the box since the height is the same.

## Calculating Packages in Documents

1 8 "6-Packs" (4 "6-packs" in 1 box) equals 2 boxes

2 8 "6-Packs" multiplied by 6 items per unit equals 48 packs

3 8 "6-Packs" multiplied by 6 items per unit equals 48 packs

4 Qty per Package 4

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Let's look in detail at how the number of packages is calculated automatically by the system.

First notice the *Quantity* and *Number of Packages* fields. The *Number of Packages* field shows a calculation of the quantity entered in the row, divided by the quantity per package.

We can see where that number comes from by looking at the *Sales UoM and Package Types* window in the bottom left of the graphic. We see that the Box is default because it is highlighted in bold. The Quantity per Package field shows that the box can contain 4 of the default unit (the 6-pack).

Therefore, if we sell 8 6-packs of paper, then we need 2 boxes.

The inventory isn't counted by the sales unit of 6-pack. Instead the inventory unit is a pack. We can see in the upper right of the graphic the total number of inventory units is calculated. The *Quantity (Inventory Unit of Measure)* field shows the sales quantity multiplied by the items per unit.

In our example, the items per unit defined in the *Sales/ Purchasing UoM and Package Type* window, is 6. This means 1 6-Pack unit equals 6 packs. The *Quantity (inventory Unit of Measure)* field shows the total quantity of packs. Therefore the system calculates: a quantity of 8 multiplied by 6 inventory units equals 48 inventory units

## Useful tips



- It is always possible to change dimensions of units and package types within the item sales data or purchasing data
- If volume dimensions are missing, then the *Qty per Package* field in the sales and purchasing package type windows in the *Item Master Data* record will be calculated according to weight.
- If you want to calculate by weight, then remember to use the gross weight of a fully loaded package in the package type definition.
- The *Qty per Packaging* field can only contain integers and the result of a calculation is always rounded down.

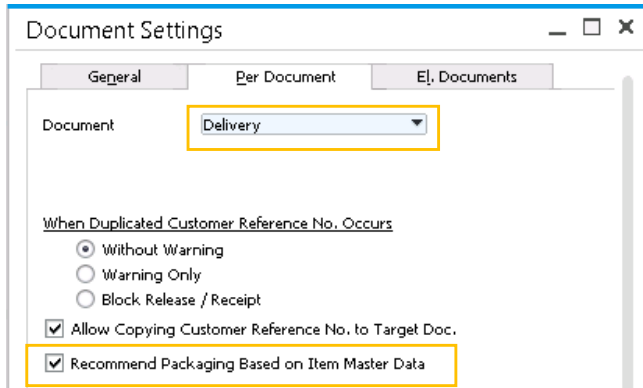
It is always possible to change dimensions of units and package types within the item sales data or purchasing data

If volume dimensions are missing, then the *Quantity per Package* field in the sales and purchasing package type windows in the *Item Master Data* record will be calculated according to weight. If you want to calculate by weight, then remember to use the gross weight of a fully loaded package in the package type definition.

The *Quantity per Packaging* field can only contain integers and the result of a calculation is always rounded down. In our example the box can hold 4 six-packs based on its size. If the box size could have held only 3-1/2 six packs based on the dimensions, it would have rounded down to 3. Furthermore, if the calculation of the package quantity for a specific unit of measure is less than 1, then no value will appear in the field.

## Automatic Creation of a Packing Slip

**System initialization → Document Settings → Per Document tab**



Document Settings

General Per Document E|. Documents

Document Delivery

When Duplicated Customer Reference No. Occurs

☒ Without Warning  
☐ Warning Only  
☐ Block Release / Receipt

☒ Allow Copying Customer Reference No. to Target Doc.

☒ Recommend Packaging Based on Item Master Data



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SAP Business One can create an automatic packing slip for deliveries and A/R invoices made for multiple unit of measure items. Set up this option in the Document Settings window on the Per Document tab.

In the Document field, choose Delivery or A/R Invoice, then select the box Recommend Packaging Based on Item Master Data.

## Packing Slip Contents

The screenshot shows the SAP Packing Slip window with three main sections: Existing Packages, Sales UoM and Package Types, and Package Contents.

**Existing Packages Table:**

| # | Package No. | Type | Total Weight | Units      |
|---|-------------|------|--------------|------------|
| 1 | 1           | Box  | 60           | Kilogramme |
| 2 | 2           | Box  | 60           | Kilogramme |

**Sales UoM and Package Types Window:**

- Item No.: R00001
- UoM Group: Paper
- Inventory UoM: Pack
- Package Types: Box, Pallet, Container, Barrel
- Qty per Package: 4
- Package Type Dimensions: Length 60cm, Width 40cm, Height 24cm, Volume 60.480 cdm, Weight 0.5kg

**Package Contents Table:**

| # | Item Number | Quantity | UoM Name |
|---|-------------|----------|----------|
| 1 | R00001      | 4        | 6 Pack   |

**Annotations:**

- A yellow box highlights the calculation:  $15 \text{ kg} \times 4 \text{ units in a Box} = 60 \text{ kg}$ .
- An arrow points from the 'Qty per Package' field (4) in the Sales UoM window to the 'Quantity' field (4) in the Package Contents table.
- Another arrow points from the 'Box' package type in the Existing Packages table to the 'Box' package type in the Sales UoM window.

Here is a look at a packing slip that was automatically created for a delivery that includes packages.

The data is drawn from the *Sales UoM and Package Type* window combined with the data entered in the delivery.

In our business example, we issued a delivery for 8 units of 6-Pack. According to the definitions made in the *Sales UoM and Package Type* window, 4 units of 6-Pack fit into 1 box. This means, we need 2 boxes to deliver 8 units.

The total weight is a calculation of the weight per unit times the number of units in each package. In this example, 1 6-Pack unit weighs 15 kg and 1 box contains 4 units. This means that the total weight of the box is 60 kg.

When we choose a row in the list of existing packages, we can view the items packed in the box at the bottom right of the window.

## Summary



Here are some key points:

- There are three steps to set up packages based on the units of measure.
  1. Set up global package types. This is done in the Inventory Setup menu.
  2. Assign a unit of measure group to the item
  3. Set up packages in the item master record for each unit of measure.
- You have the option of having all package types appear in this window as a default.
- You can set default package types for sales and for purchasing.
- The system uses the volume dimensions of the package and of the unit of measure to determine automatically how many units will fit in a package
- SAP Business One can create an automatic packing slip for deliveries and A/R invoices made for multiple unit of measure items.

- There are three steps to set up packages for selling or purchasing items based on the units of measure.
  1. Set up global package types. This is done in the Inventory Setup menu.
  2. Assign a unit of measure group to the item (How to set up unit of measure groups for items was covered in an earlier course topic.)
  3. Set up packaging in the item for each unit of measure. You can set up packaging for sales from a button on the Sales Data tab and for purchasing from a button on the Purchasing Data tab.
- You have the option of having all package types appear in this window as a default. This option is controlled by the *Auto. add All Package Definitions* check box in *General Settings*. This can be a very useful setting if you do not have a large number of package types.
- You can set default package types for sales and for purchasing.
- The system uses the volume dimensions of the package and of the unit of measure to determine automatically how many units will fit in a package. The result of the calculation is shown in the *Quantity per Package* field in the *Sales Uom and Package Types* and *Purchasing Uom and Package Types* windows in the *Item Master Data* record. If volume dimensions are missing, then the *Quantity per Package* field will be calculated according to weight.
- SAP Business One can create an automatic packing slip for deliveries and A/R invoices made for multiple unit of measure items. This setting is maintained on the *Document Settings* tabs for deliveries and A/R invoices.



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