Compano Online Software

Manual Metric/Imperial Units
Compano Online Software

Version 4.1

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Content

1 Introduction

This manual describes the use of both ***metric*** and ***imperial*** units and their automatic conversion, as implemented in COS.

Some class features of the ETIM classification system allow for both Metric and Imperial units. Thus, product information can be recorded in either metric or imperial units, or both. These mapped ETIM classification features then get an EFI01234 (imperial) variant next to the regular ETIM feature EF001234. For COS this meant that user-defined fields that are mapped to ETIM features also needed to have an option to enter an Imperial value.

To allow for this 'double' recording of values, Imperial units needed to be added to COS including an easy conversion of metric to imperial values and vice-versa In addition, an option to overrule this automatic conversion in case of nominal values (i.e. DN) was also a requirement.

1.1 Concepts

COS
Compano Online Software.

Metric system
The metric system is a system of measurement that succeeded the decimalised system based on the metre that had been introduced in France in the 1790s. The historical development of these systems culminated in the definition of the International System of Units (SI) in the mid-20th century, under the oversight of an international standards body. The metric system consists of a basic set of units of measurement, now known as *base units*. *Derived units* were built up from the base units using logical rather than empirical relationships while multiples and submultiples of both base and derived units were *decimal-based* and identified by a standard set of prefixes (kilo, milli, centi, etc.). The Metric (IS) system has been adopted as the official system of weights and measures by all nations in the world except for Myanmar, Liberia, and the United States.

Examples: Metre, Celsius, Gram, Litre

Imperial system
The imperial system of units, imperial system or imperial units (also known as British Imperial[1] or Exchequer Standards of 1826) is the system of units first defined in the British Weights and Measures Act 1824 and continued to be developed through a series of Weights and Measures Acts and amendments. The Imperial system is mainly used in English-speaking countries with a historic relations to the British empire: United Kingdom, India, Canada, Australia, New Zealand, Ireland, etc.). The United States makes use of the United States Customary system, which is only partly derived from the Imperial system; Americans use customary units in commercial activities, as well as for personal and social use. In science, medicine, many sectors of industry, and some government and military areas, metric units are used.

Examples: Inch, Fahrenheit, Ounce, Gallon

1.2 Imperial units

Imperial units in COS follow from the ***Imperial System (IS)***. By default the following Imperial units can be added to the application, see below. Additional Imperial units can be added manually.

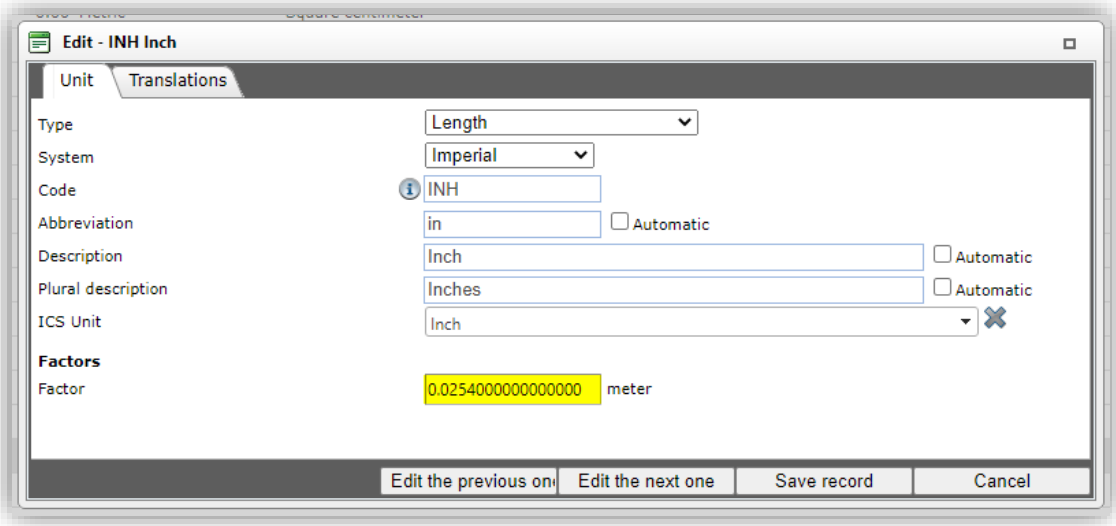
Code	Type	Factor	System	Description
FAH	Temperature	1.80	Imperial	Temperature (FAH)
FOT	Length	0.30	Imperial	Foot
FTK	Surface	0.09	Imperial	Square foot
FTQ	Volume	0.03	Imperial	Cubic foot
GLL	Volume	0.00	Imperial	Gallon
INH	Length	0.03	Imperial	Inch
INK	Surface	0.00	Imperial	Square inch
LBR	Weight	0.45	Imperial	Pound (imperial)
ONZ	Weight	0.03	Imperial	Ounce
OZA	Volume	0.00	Imperial	Fluid ounce (VS)
PSI	Pressure	6894.76	Imperial	Pressure (PSI)
STN	Weight	907.18	Imperial	Short ton (VS)

Figure 1. Default Imperial units in COS

1.3 Automatic conversion

Most metric-imperial conversions can be accomplished with a the use of a ***factor***. For instance: 1 inch equals 2,54 centimetres. An exception to this is the conversion of degrees Celsius to Fahrenheit.

As a result, metric and imperial units in COS are converted automatically to the 'other' system by use of a factor. For Imperial units, conversion factors to Metric units have been added to the unit, for example:



Some conversion factors are an approximation. Where more (or less) accuracy is needed, conversions can also be done manually, which overrides the automatic conversion of units. An alternative options would be to manually adjust the conversion Factor of the Unit.

2 Implementation

Imperial units can only be used with user-defined fields of types ***Decimal*** and ***Range***[1]. For more information on user-defined fields, see the following manuals, which are available on the Compano Help-website:

- Manual User-defined Fields (L03)
- Manual Mapping User-defined Fields (L03)

To incorporate Imperial units, the following solutions were implemented:

- Add imperial units to user-defined fields
- Automatic conversion of imperial to metrical units and vice-versa
- Option to overrule automatic conversion

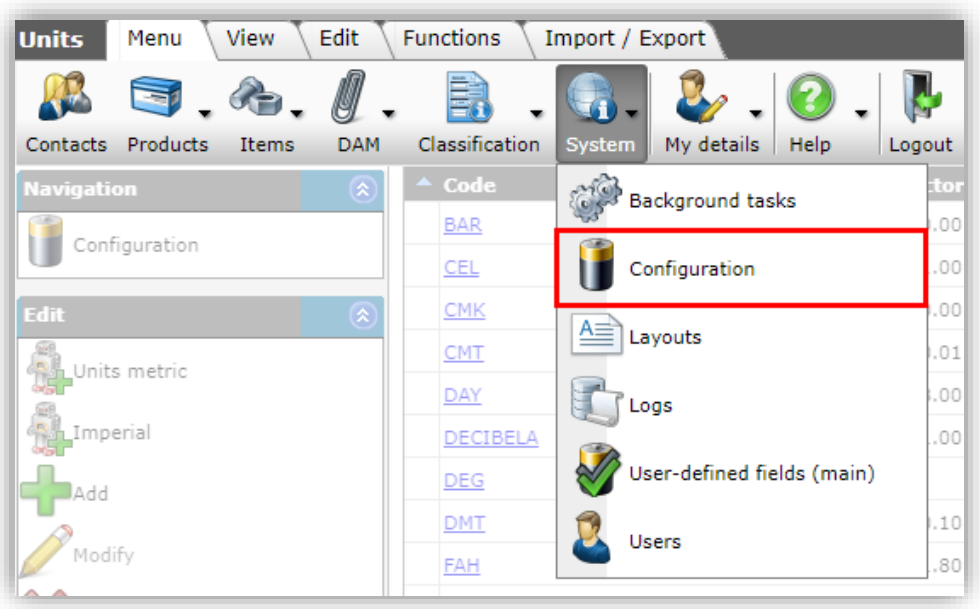
Some solutions and features that still need to be implemented:

- Conversion of system fields such as *Length, Width, Height, Weight* and *Volume* on the entities Product and Item.
- Option to export data with Imperial units in an exchange format that supports ETIM (Dynamic), for instance BMEcat 2005 ETIM Guideline 5 will not contain any `EFI#####-` values.

2.1 Adding imperial units

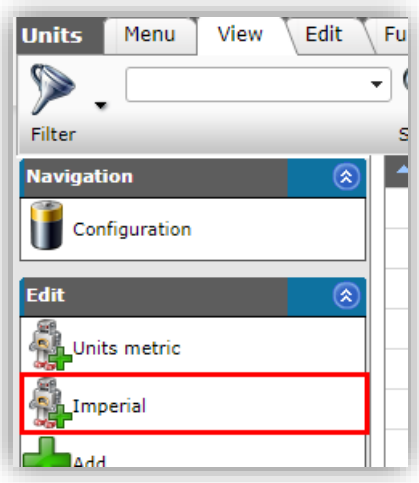
Imperial units are not available in COS by default. To add the most commonly used Imperial units:

1. Through the Menu, go to *System > Configuration*.



2. Under Edit, click on *+Imperial* to add the most common imperial units to the application:

[1] Situation as of 5 September 2022; system field conversion will be added at a future date.

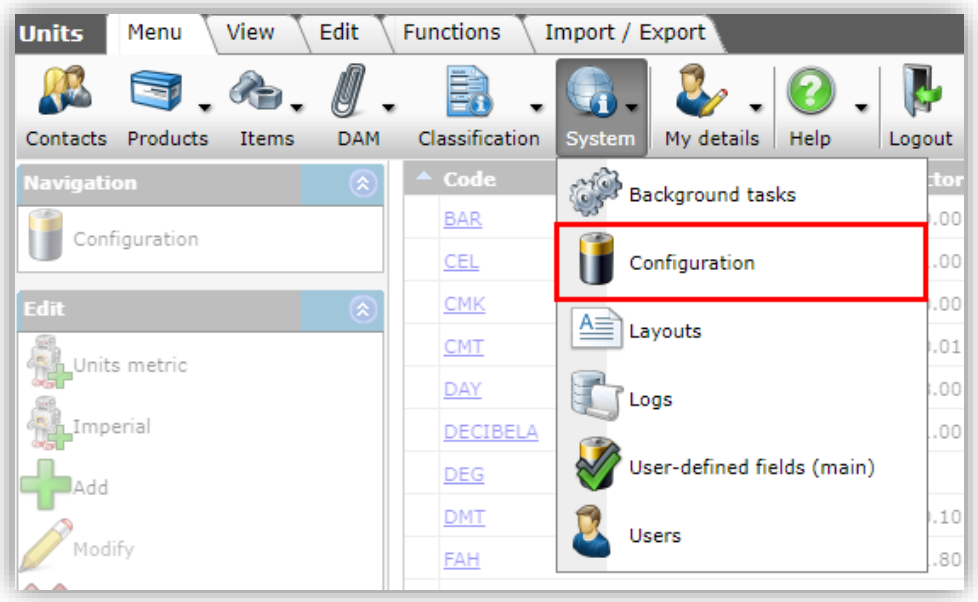


Note: The *+Imperial* function only adds the ***twelve*** most commonly used imperial units. Additional imperial units need to be added manually.

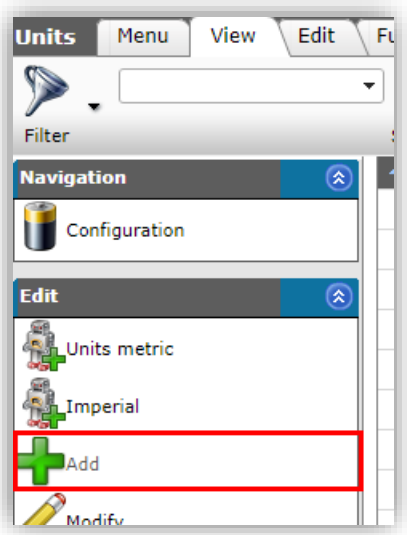
2.1.1 Manually add additional imperial units

To add any additional imperial units:

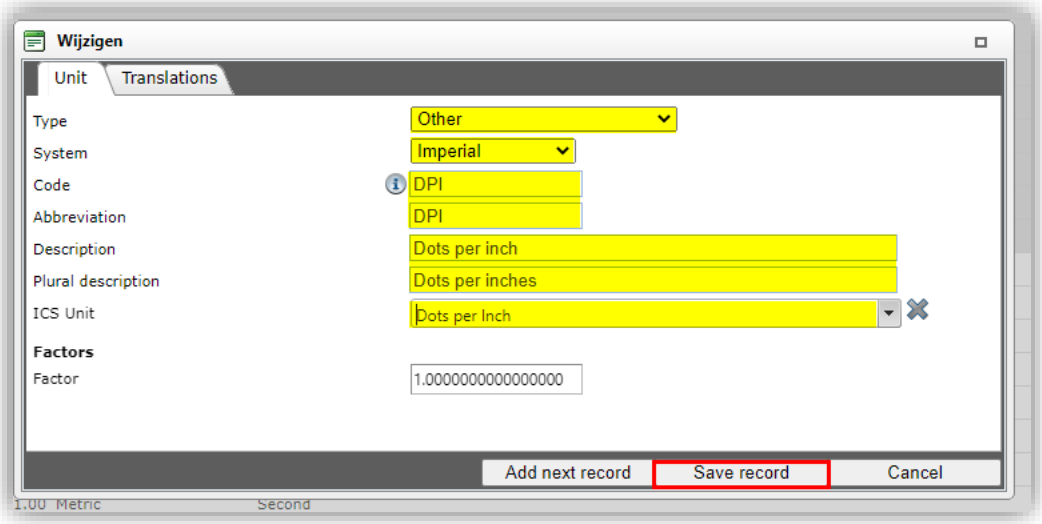
1. Through the Menu, go to *System > Configuration*:



2. Under Edit, click on *+Add* to add an imperial units of your own choosing to the application, for instance `Dots per inch`:



3. In the pop-up window:



   a. **Type**: Select a unit type, for instance `Length`, `Surface`, etc. Use the `Other` type for any other units.
   b. **System**: Select the Imperial system.
   c. **Code**: Type a code for the unit. The Unit Code may consist numbers and/or characters.
   d. **Abbreviation**: (optional). Type an abbreviation for the unit.
   e. **Description**: Type a description for the unit.
   f. **Plural description**: Type a plural description for the unit.
   g. **ICS unit**: Select the appropriate ICS unit. Note: You can search for the unit by typing (key)words into the selection box.
   h. **Factor**: (optional). For some units a conversion factor can be set; these are: `Length`, `Surface`, `Volume`, `Weight` and `Pressure`.

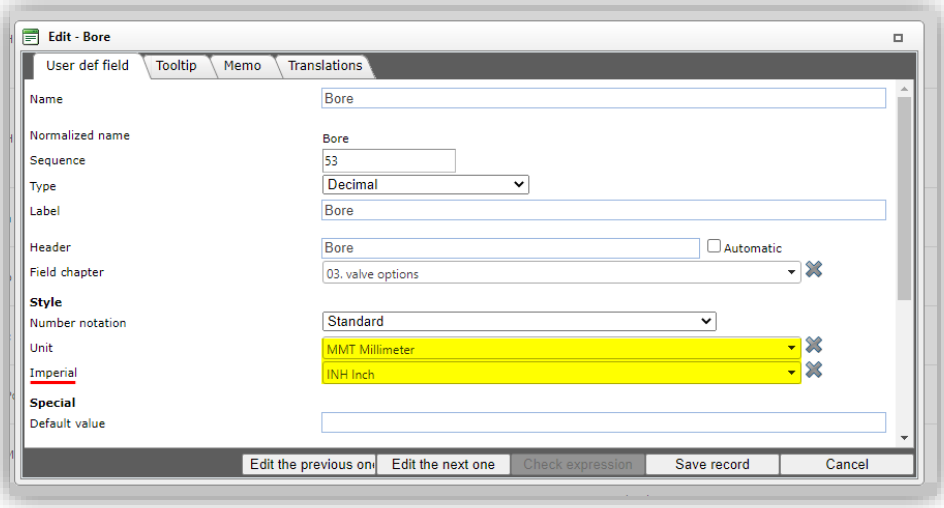
4. Click on Save record.

The unit will now be added to the list of available units:

Code	Type	Factor	System	Description
FTQ	Volume	0.03	Imperial	Cubic foot
GLL	Volume	0.00	Imperial	Gallon
LBR	Weight	0.45	Imperial	Pound (imperial)
OZA	Volume	0.00	Imperial	Fluid ounce (VS)
FOT	Length	0.30	Imperial	Foot
INH	Length	0.03	Imperial	Inch
FTK	Surface	0.09	Imperial	Square foot
INK	Surface	0.00	Imperial	Square inch
ONZ	Weight	0.03	Imperial	Ounce
DPI	Other	1.00	Imperial	Dots per inch
FAH	Temperature	1.80	Imperial	Temperature (FAH)
PSI	Pressure	6894.76	Imperial	Pressure (PSI)

2.2 Using imperial units

To use Imperial units, simply select a unit type for both the Metric and Imperial unit of the user-defined field, for instance:

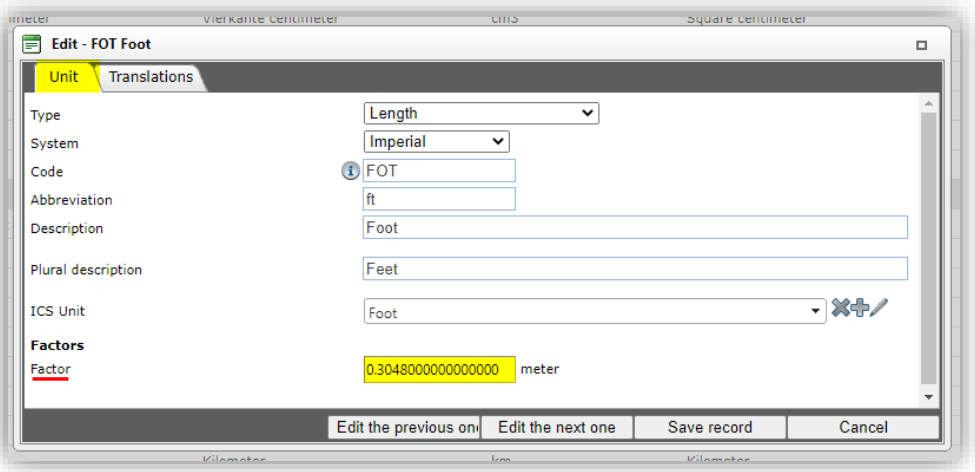


Conversion from metric to imperial values and vice-versa is 'automatic'. For instance:

Unchecking the *Automatic* tick box will allow you to set a different factor[2]:

Note: Conversion factors are managed for each unit, under *System > Configuration > Unit*.

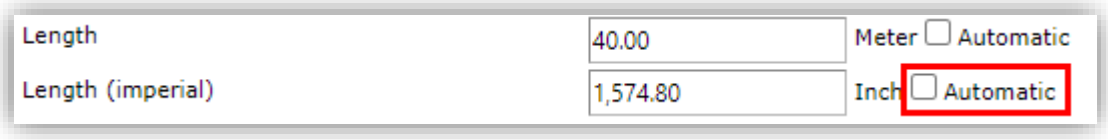
[2] This is a good option when working with nominal values, for instance Nominal Pipe Size or DN.



Note: Conversion of degrees ***Celsius to Fahrenheit*** and vice-versa is hardcoded as this cannot be accomplished with a factor only.

2.2.1 Manual conversion

When working with nominal values such as NPS or DN, it can be become necessary to overrule the conversion factor and enter the corresponding metric and imperial data directly. This can be done by unchecking the tick box next to *Automatic*:



Note: The tick box appears once a value has been filled out for either the metric or imperial data field.

2.3 Importing imperial data

Data with imperial values can be imported using the Import function. For each user-defined field, for which an imperial unit is defined, a separate `[field-name] (imperial) field` will be generated. This data field can be used to import (or export) imperial data. Thus, to import imperial data, an import layout needs to be created which contains the correct user-defined fields (imperial)[3], for instance:

[3] User-defined fields can be found in the Field selector in a separate category under the entity for which they were defined.

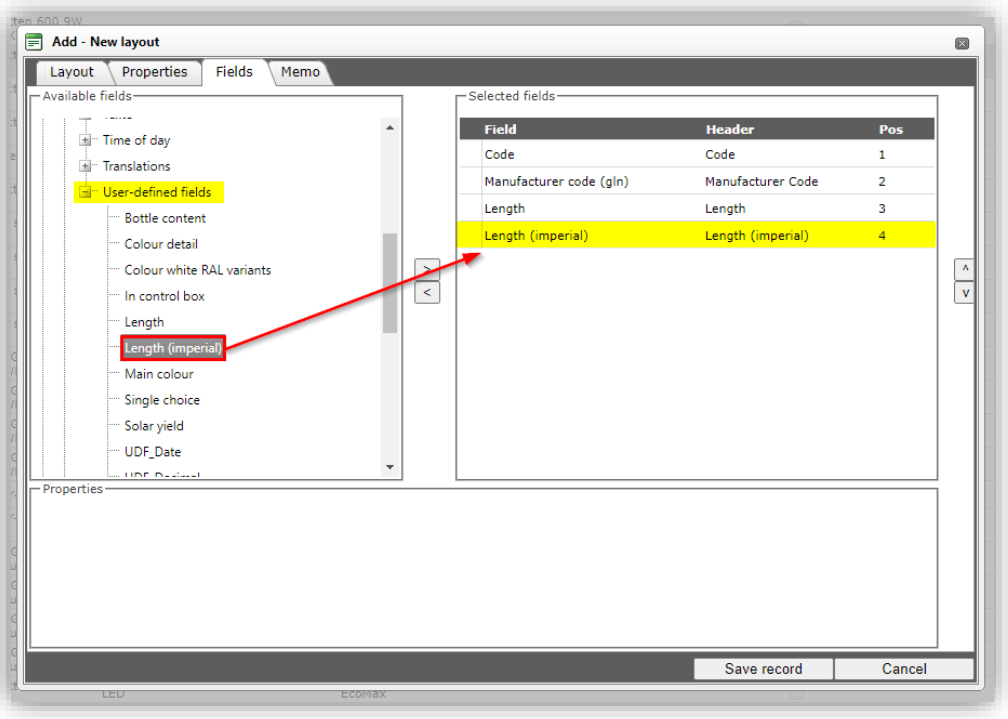


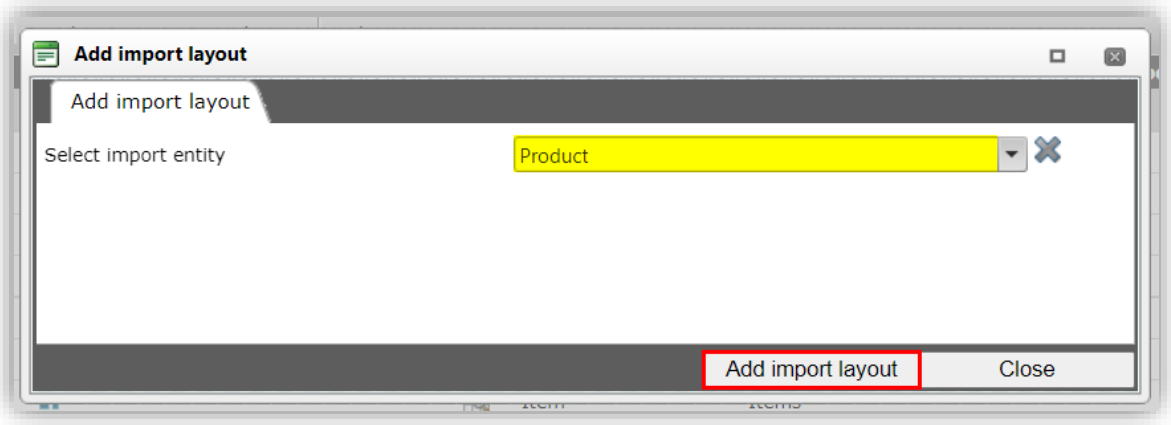
Figure 2. User-defined field 'Length' and corresponding 'Length (imperial)'

More information on import layouts and importing data can be found in the *Manual Universal Import/Export*.

2.3.1 Add import layout

To add an import layout with imperial data fields:

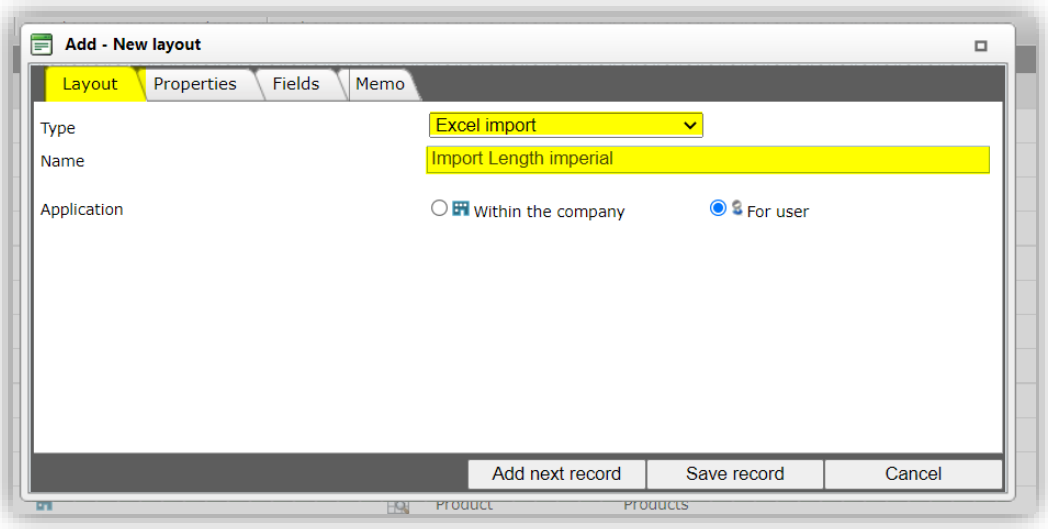
1. Through the Menu, go to *System > Layouts*.
2. Under Edit, click on *Add import layout*.
3. In the pop-up window:



   a. Select import entity: Select the entity for which you need to import imperial data , for instance `Product`.
4. Click on *Add import layout*.

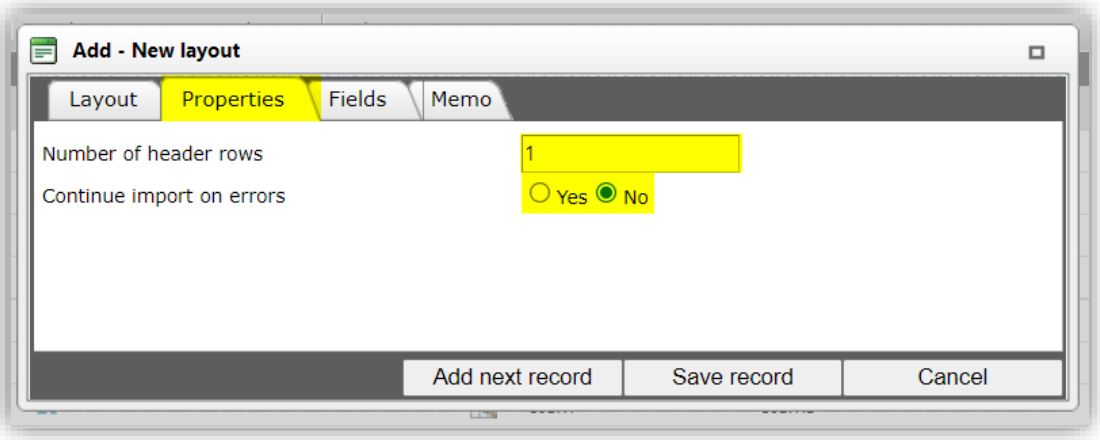
6. In the next window:

Layout tab



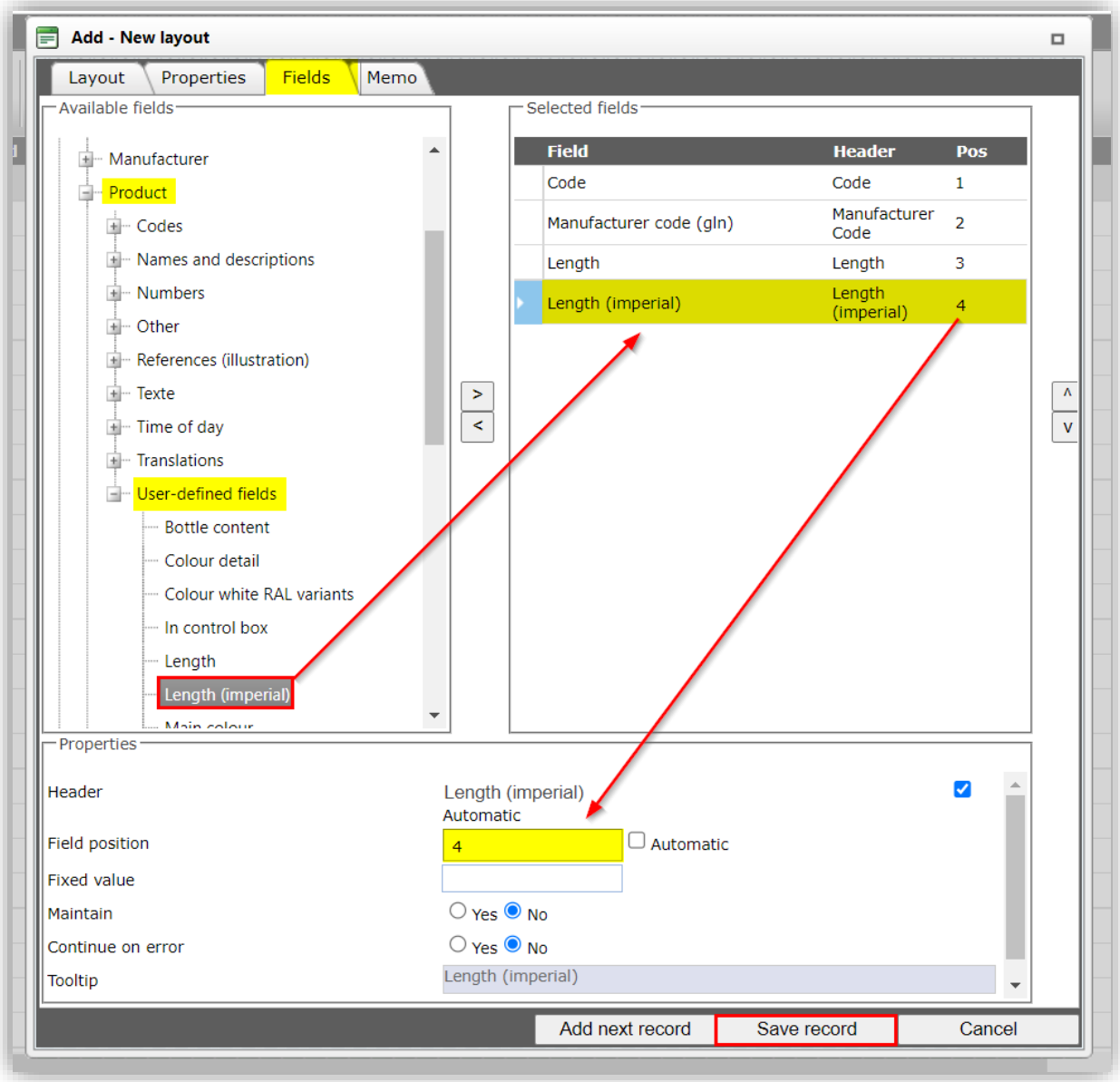
a. **Type**: Choose the type of import file (Excel, Text)
b. **Name**: Type a name for the import layout
c. **Application**: Select who can use the import layout

Properties tab



a. **Number of header rows**: Enter the number of headers rows in your import file; these are ***not*** imported.
b. **Continue import on errors**: Set to *Yes* if you need to check the complete import file on errors.

Fields tab



a. **Available fields**: From the field selector, select the user-defined field(s) that you need to import.
b. **Selected fields**: Set the *Position* number of the field to the correct import file data position (column).

8. Save the record.

2.3.2 Import imperial data

The resulting import layout can be used to import imperial data. Some common pitfalls to take into consideration are:

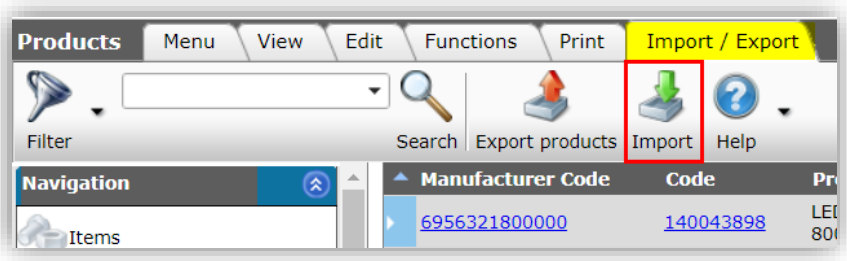
- Upon import an imperial value will also be converted to a metric value, provided you ***only*** import the imperial value.
- When importing ***both*** the metrical and the imperial value at the same time, automatic conversion will be switched off to prevent any conflict with the built-in conversion factor.

This also mean you can override any metric or imperial value, for instance to correct for nominal values.

- To ***empty*** an imperial data field in COS, both the metric and imperial data field in the import file need to be empty, as any filled out field will automatically trigger the built-in conversion process.

To import Imperial values:

1. Though the Menu go to the entity where you need to import imperial values, for instance *Products*.
2. Go to the Import/Export tab and click on Import:

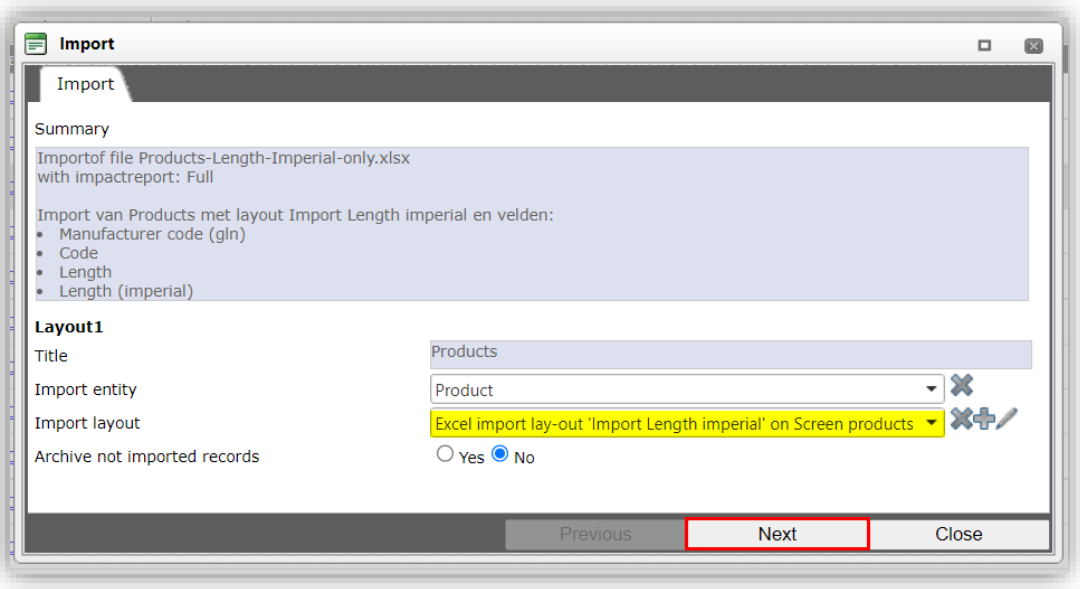


3. In the pop-up window:

a. **Import file**: Select the data file with Imperial data, for instance:

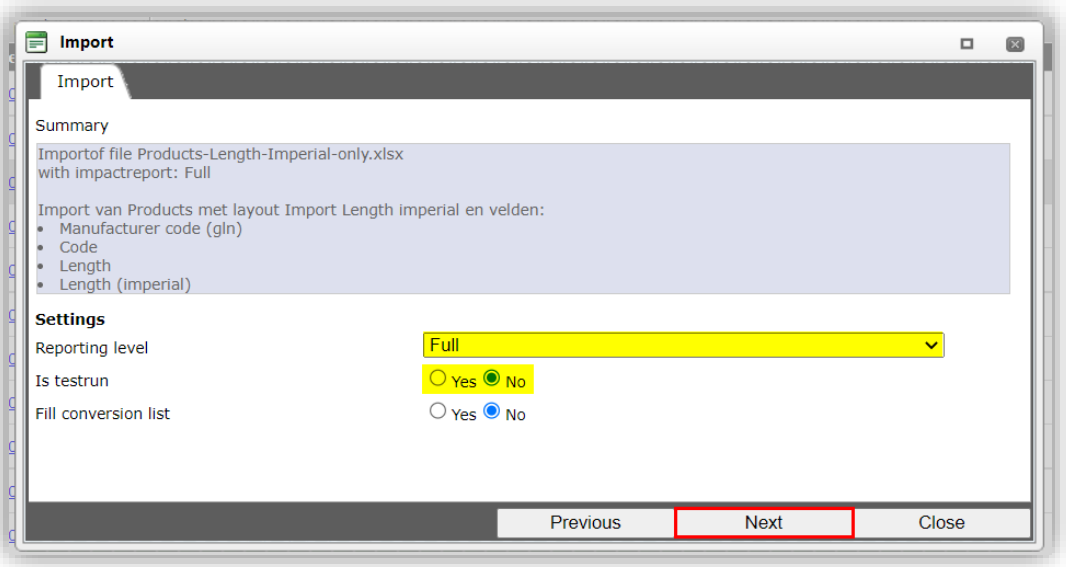
	A	B	C	D
1	Manufacturer Code	Code	Length	Length (imperial)
2	6956321800000	140043898		5,00
3	6956321800000	140043899		10,00
4	6956321800000	140043900		15,00
5	6956321800000	140043901	Left empty for automatic conversion	20,00
6	6956321800000	140043902		5,00
7	6956321800000	140043903		10,00
8	6956321800000	140043904		15,00
9	6956321800000	140043967		20,00
10				

4. Click on *Next*.



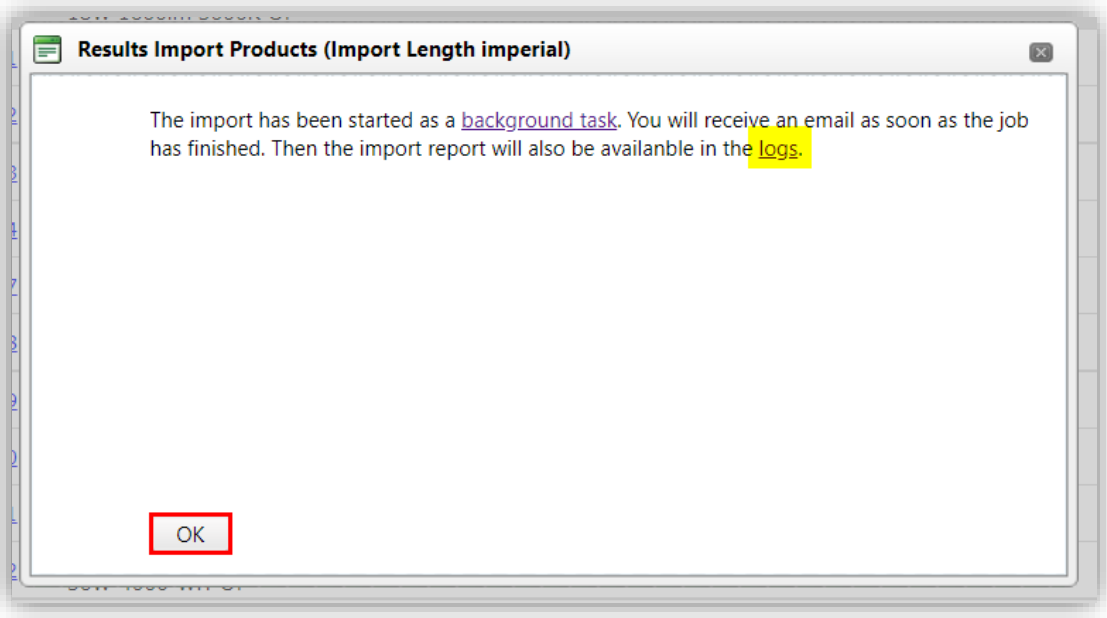
a. **Import entity**: Should be set to the entity that you selected for import.
b. **Import layout**: Select the import layout for Imperial data.
c. **Archive imported records**: Leave set to *No*.

5. Click on *Next*.



a. **Reporting level**: Leave set to *Full*.
b. **Is testrun**: Optionally set to No to perform a testrun; you will receive a simulated import report, but no actual data will be imported into the application.
c. **Fill conversion list**: Leave set to *No*.

6. Click on *Next* to start the import:



7. Click on *Logs* to review the import analysis report, or wait for it to arrive in your Inbox.
8. Click on *OK* to exit the import dialog.

The imperial data should now be imported (yellow) and any automatic conversion (green) handled:

Manufacturer Code	Code	Product description	Length	Length (imperial)
6956321800000	140043898	LED E T5 BATTEN 600 9W 800LM 3000K CT (langer)	0.13	5.00
6956321800000	140043899	LED E T5 batten 600 9W 800lm 4000K CT	0.25	10.00
6956321800000	140043900	LED E T5 batten 1200 18W 1600lm 3000K CT	0.38	15.00
6956321800000	140043901	LED E T5 batten 1200 18W 1600lm 4000K CT x	0.51	20.00
6956321800000	140043902	LED E T5 batten 900 11W S 3000K BL	0.13	5.00
6956321800000	140043903	led e t5 batten 600 9w s 3000k bl	0.25	10.00
6956321800000	140043904	LED E T5 batten 300 4.5W S 3000K BL	0.38	15.00
6956321800000	140043967	ledpanelrc-g sq598-36w-3000-wh-ct	0.51	20.00
		ledpanelrc-g sq598-36w-		

2.3.3 Updating imperial data

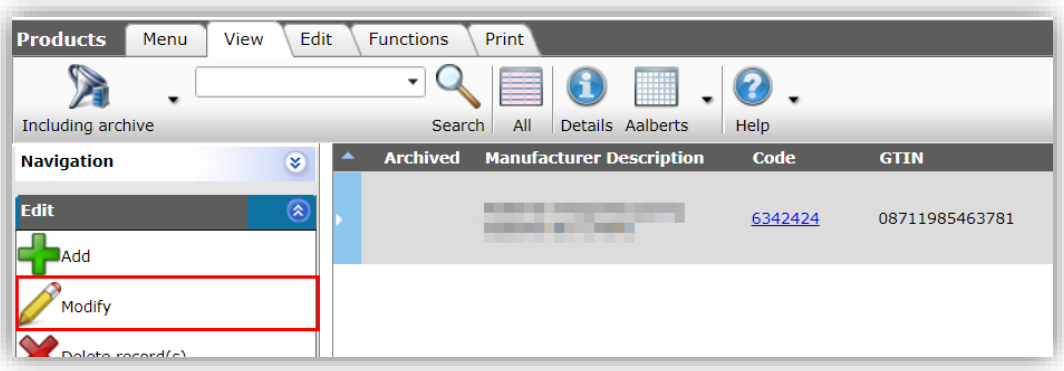
Imperial data can be update either:

- Manually
- With an import update

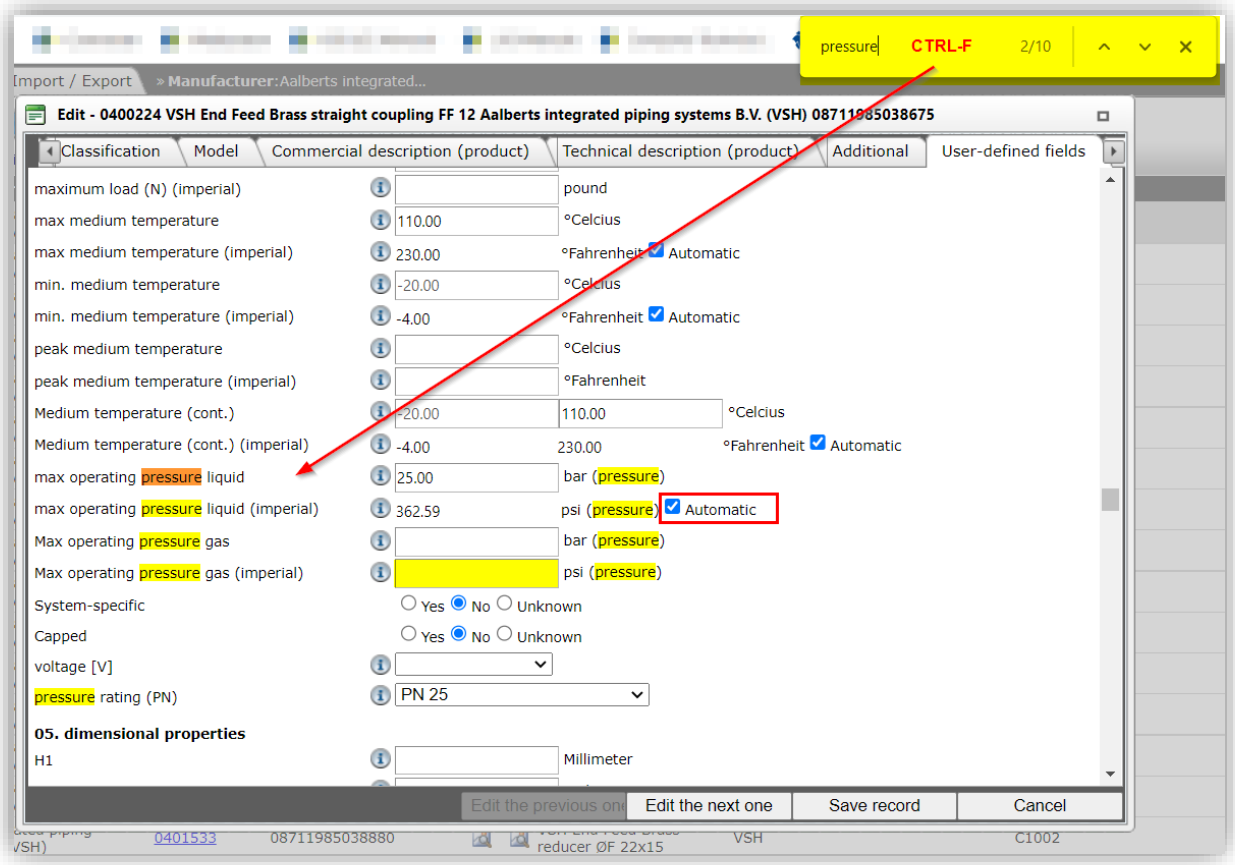
2.3.3.1 Manual update

To manually update imperial data:

1. Through the Menu, go to the entity where you need to update data.
2. Under Edit, click on *Modify*.



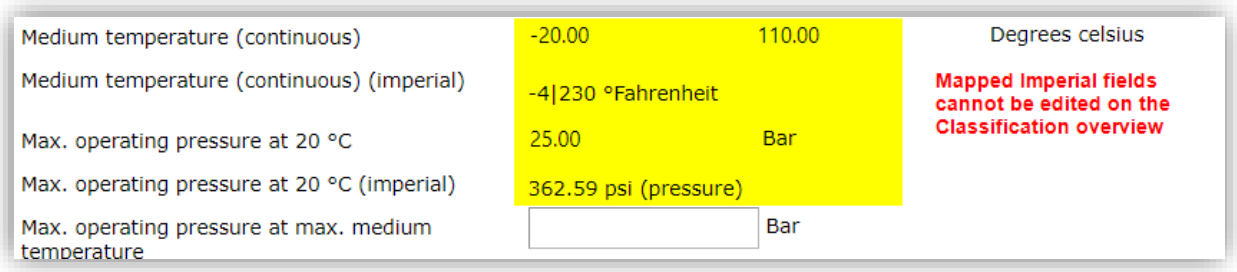
3. In the pop-up window, go to the tab *User-defined fields*:



4. Edit any Imperial data fields.

Note: Use the Search function (CTRL-F) of your browser to find the correct field.

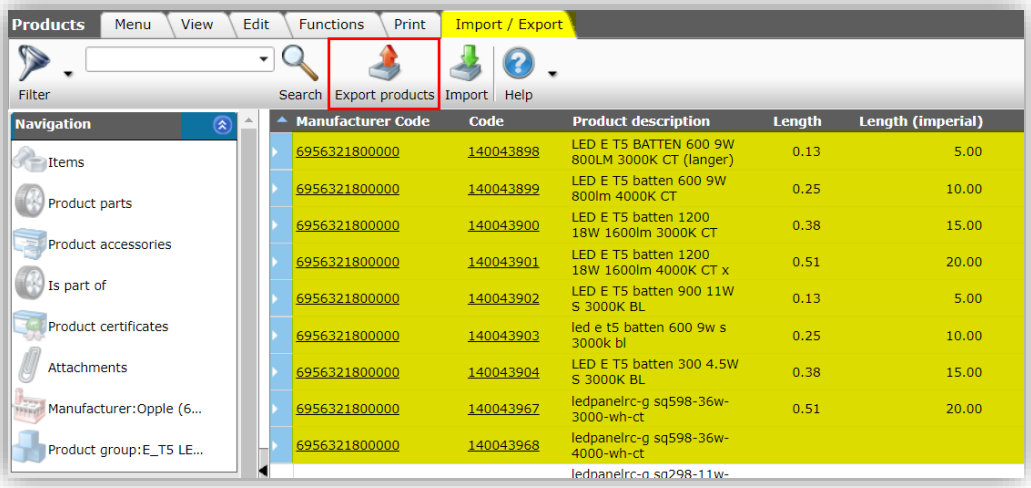
Important: Classification features which have been mapped to data fields which use ***both*** a metrical and an imperial value ***cannot*** be updated manually on the Classification overview, but need to be changed at the corresponding user-defined field:



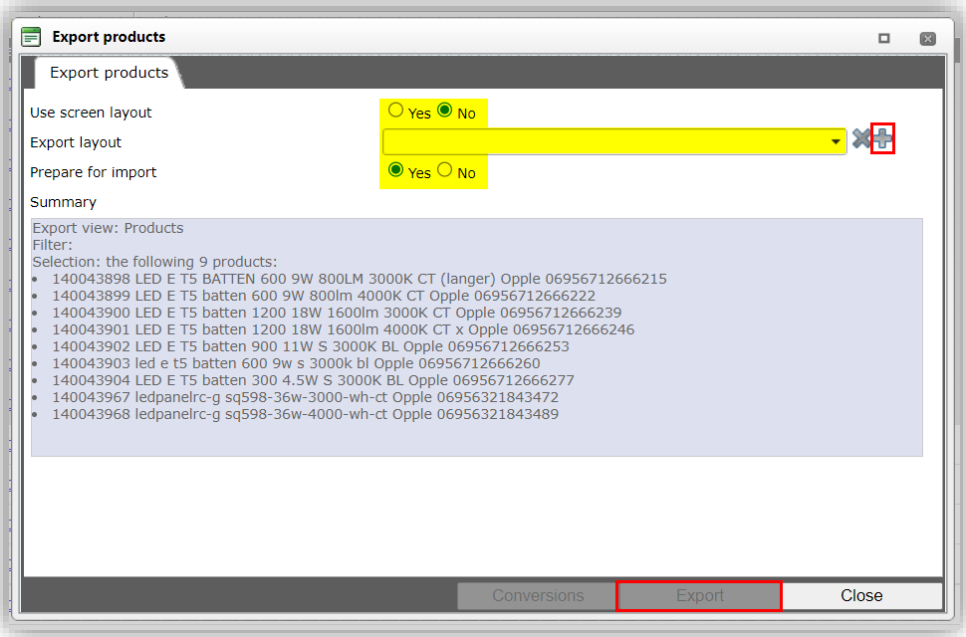
2.3.3.2 *Import update*

Another way to update data is to make use of the Import update option:

1. Through the Menu, go to the entity where you need to update data and switch *Import/Export* tab.
2. In the Overview, select the records you need to update and click on *Export [Entity]*.



3. In the pop-up window:



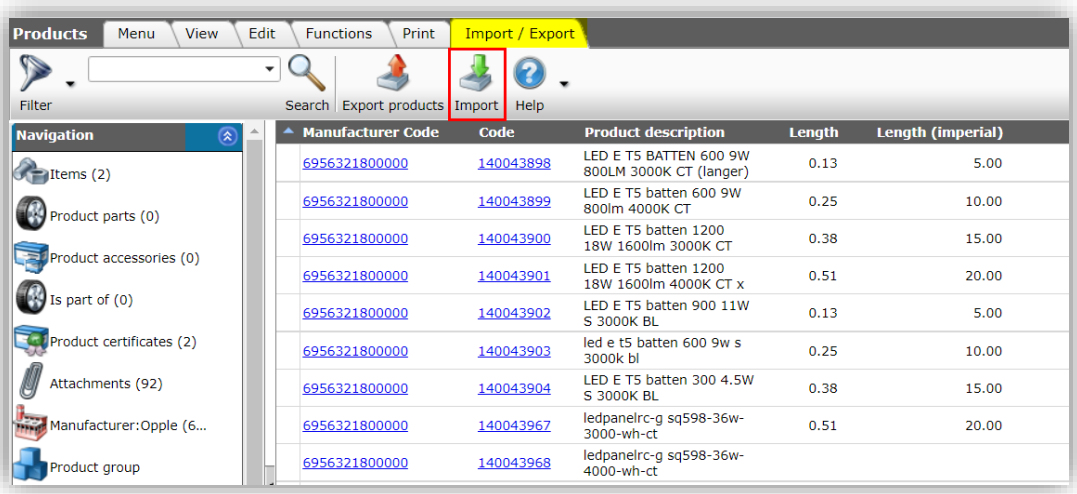
a. **Use screen layout**: Set to Yes if the user-defined fields which you wish to update are visible on you screen layout, otherwise select an Export layout (or create one using the **+**-icon).
b. **Export layout**: When not using a screen layout, select an Export layout (or create one using the **+**-icon).
c. **Prepare for import**: Set this option to `Yes`.

4. Click on *Export*, an ***ExcelForImport file*** will be created, which can be used to change or add any data:

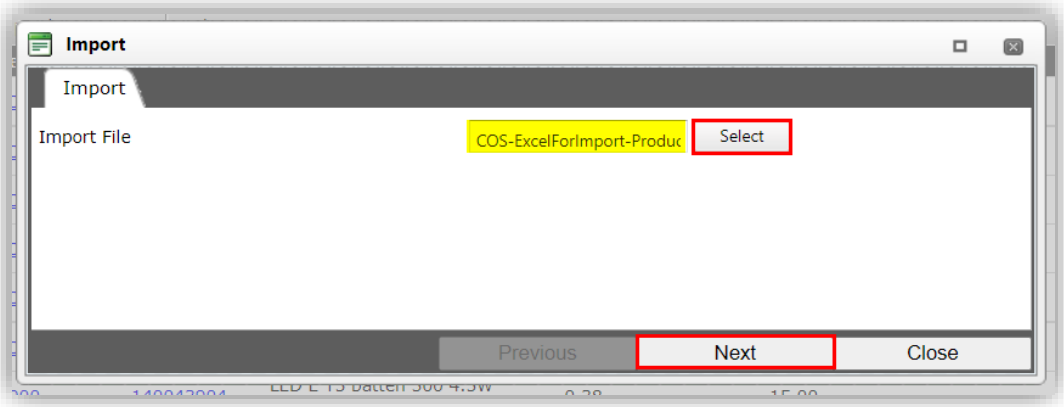
	A	B	C	D	E
3	Manufacturer Code	Code	Product description	Length	Length (imperial)
4	6956321800000	140043898	LED E T5 BATTEN 600 9W 800LM 3000K CT (langer)	0,13	5,00
5	6956321800000	140043899	LED E T5 batten 600 9W 800lm 4000K CT	0,25	10,00
6	6956321800000	140043900	LED E T5 batten 1200 18W 1600lm 3000K CT	0,38	15,00
7	6956321800000	140043901	Change metrical value	0,51	25,00
8	6956321800000	140043902	LED E T5 batten 900 11W S 3000K BL	0,13	5,00
9	6956321800000	140043903	Delete metric and imperial value		
10	6956321800000	140043904	LED E T5 batten 300 4.5W S 3000K BL	0,38	15,00
11	6956321800000	140043967	ledpanelrc-g sq598-36w-3000-wh-ct	0,51	20,00
12	6956321800000	140043968	Add imperial value with automatic conversion to metrical value		25,00

3. ExcelForImport file

5. Once the data in the ExcelForImport file has been updated, save the file and use the Import button to import the changed data back into the COS application:



6. In the pop-up window:

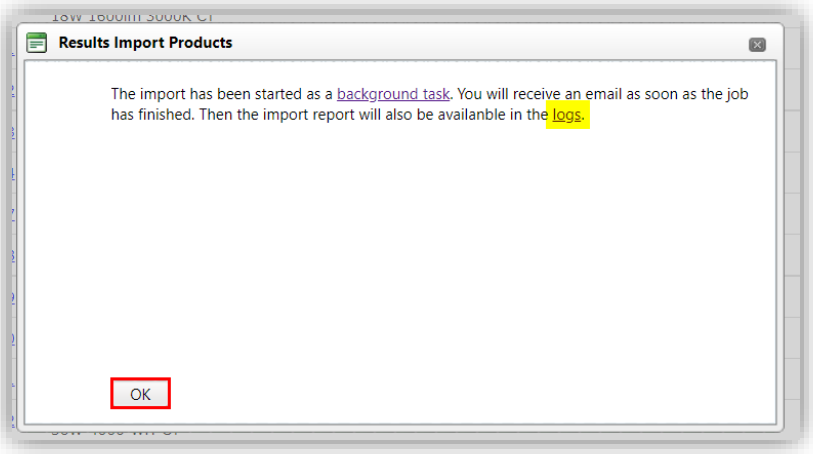


a. **Import file**: Select the COS_ExcelForImport file.

7. Click on *Next*:

   a. **Reporting level**: Leave this option set to Full.
   b. **Is testrun**: Optionally, set this option to Yes to simulate an import; you will receive an Import analysis report, but no actual data will be changed.

8. Click on *Next* to start the Import:



9. Click on *Logs* to review the import analysis report, or wait for it to arrive in your Inbox.
10. Click on *OK* to exit the import dialog; the Overview will reload to show the added/changed data:

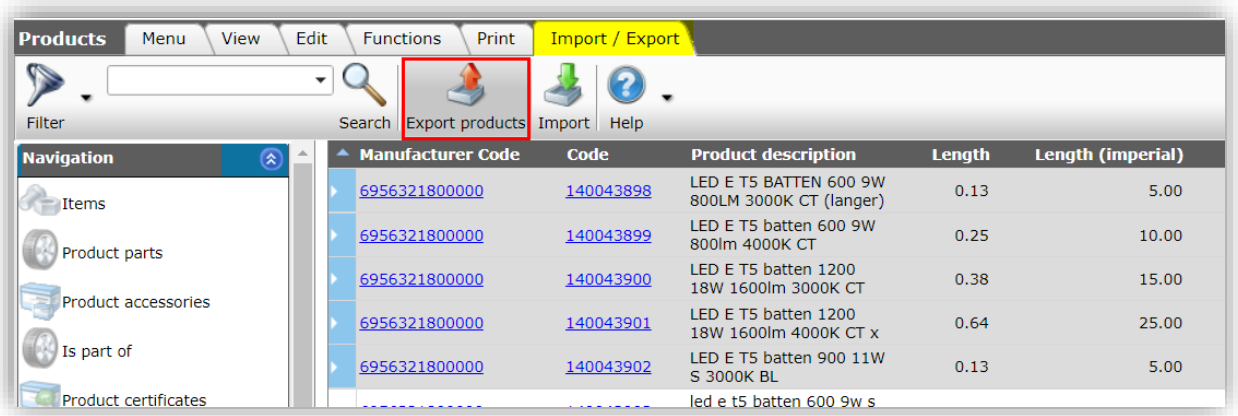
Manufacturer Code	Code	Product description	Length	Length (imperial)
6956321800000	140043898	LED E T5 BATTEN 600 9W 800LM 3000K CT (langer)	0.13	5.00
6956321800000	140043899	LED E T5 batten 600 9W 800lm 4000K CT	0.25	10.00
6956321800000	140043900	LED E T5 batten 1200 18W 1600lm 3000K CT	0.38	15.00
6956321800000	140043901	LED E T5 batten 1200 18W 1600lm 4000K CT x	0.64	25.00
6956321800000	140043902	LED E T5 batten 900 11W S 3000K BL	0.13	5.00
6956321800000	140043903	led e t5 batten 600 9w s 3000k bl		
6956321800000	140043904	LED E T5 batten 300 4.5W S 3000K BL	0.38	15.00
6956321800000	140043967	ledpanelrc-g sq598-36w-3000-wh-ct	0.51	20.00
6956321800000	140043968	ledpanelrc-g sq598-36w-4000-wh-ct	0.64	25.00

Important: When updating imperial data which are automatically converted from the metric value, ***make sure*** to leave the imperial data field ***empty***, as otherwise the imperial value will not be recalculated. Should you wish to completely delete the Imperial value, then make sure to empty ***both*** the metric and the imperial data field.

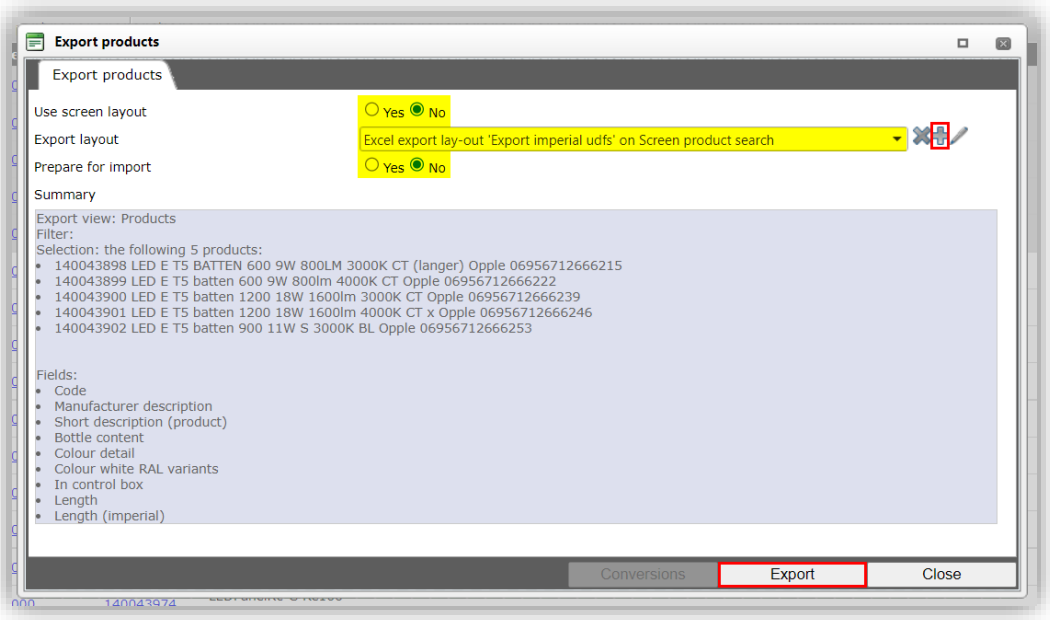
2.4 Exporting imperial data

Imperial data can be exported using the Export function on the Import/Export tab:

1. Through the Menu, go to the entity where you need to update data and switch *Import/Export* tab.
2. In the Overview, select the records you need to update and click on *Export [Entity]*.

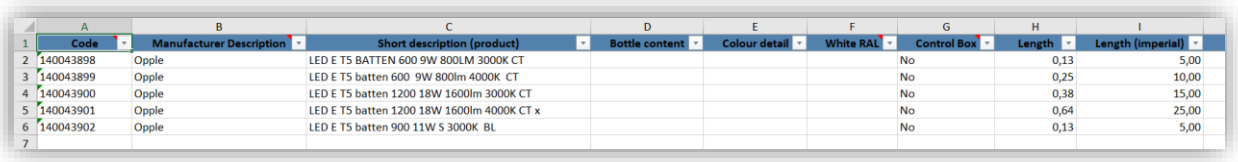


3. In the pop-up window:



a. **Use screen layout**: Set to `Yes` if the user-defined fields which you wish to update are visible on your screen layout, otherwise select an Export layout (or create one using the **+**-icon).
b. **Export layout**: When not using a screen layout, select an Export layout (or create one using the **+**-icon).
c. **Prepare for import**: Set this option to `No`.

4. Click on *Export* to start the export. You will receive an Excel (or text-based) export file containing your data:

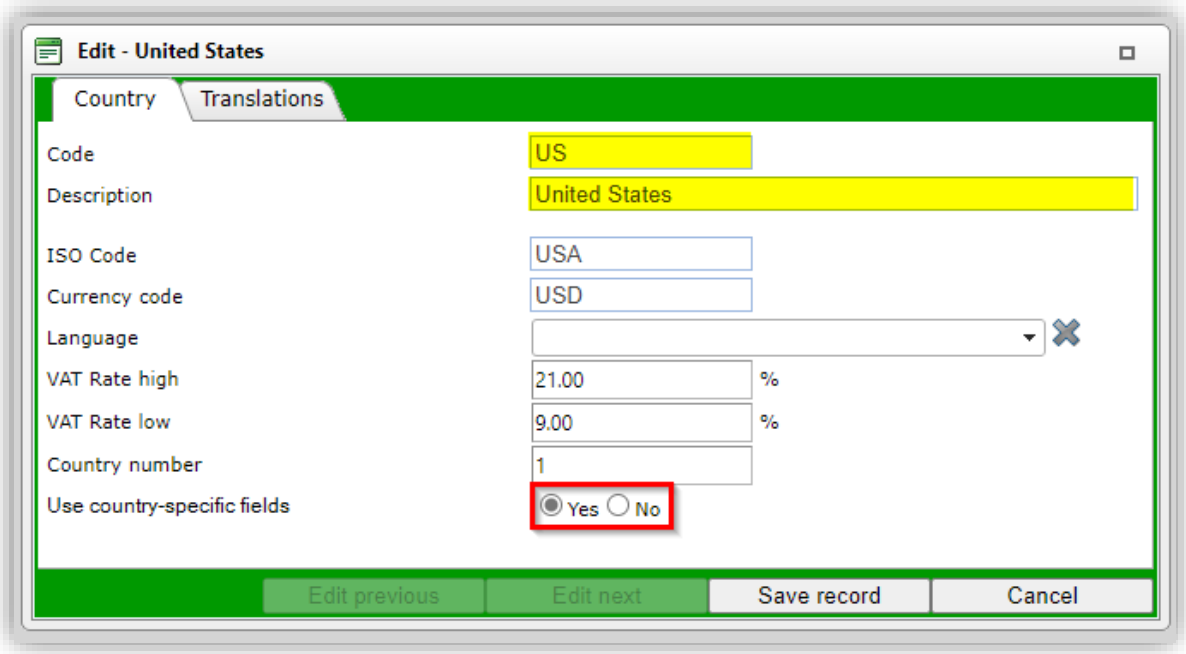


	A	B	C	D	E	F	G	H	I
1	Code	Manufacturer Description	Short description (product)	Bottle content	Colour detail	White RAL	Control Box	Length	Length (imperial)
2	140043898	Opple	LED E T5 BATTEN 600 9W 800LM 3000K CT				No	0,13	5,00
3	140043899	Opple	LED E T5 batten 600 9W 800lm 4000K CT				No	0,25	10,00
4	140043900	Opple	LED E T5 batten 1200 18W 1600lm 3000K CT				No	0,38	15,00
5	140043901	Opple	LED E T5 batten 1200 18W 1600lm 4000K CT x				No	0,64	25,00
6	140043902	Opple	LED E T5 batten 900 11W S 3000K BL				No	0,13	5,00
7									

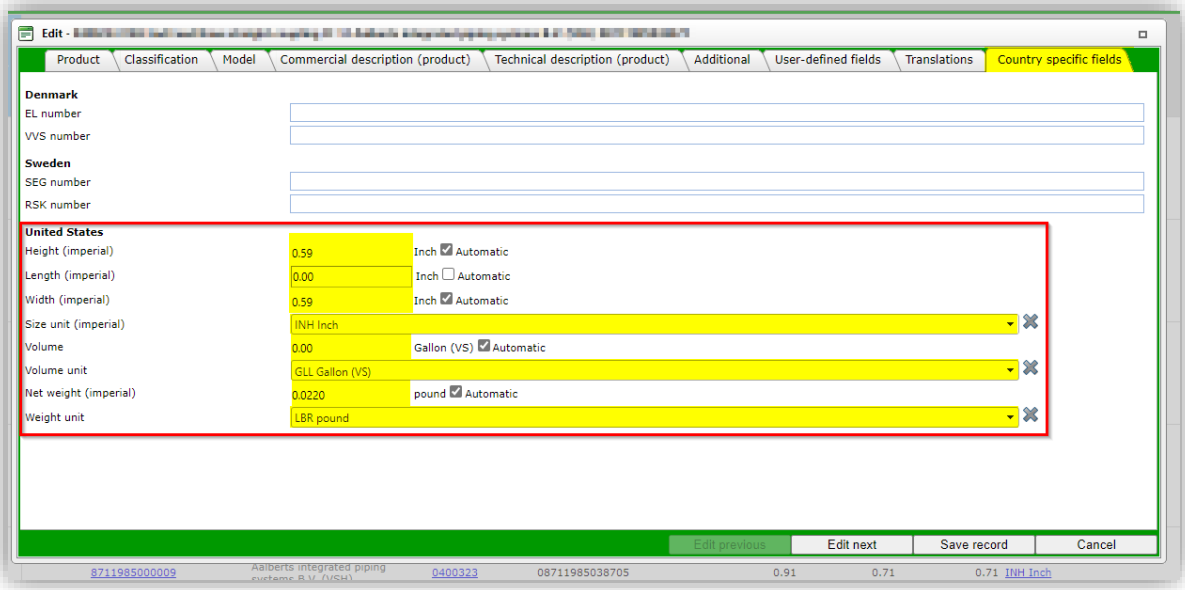
2.5 System units

The conversion of Imperiale to Metric measures and vice versa is done via user-specific fields and their mapping to ETIM attributes.

However, the system fields `Height`, Length, `Width` and their units `Meter`, `Kilo` and `Square Meter`, are listed as USA country-specific fields. When a field is filled in, its Metric or Imperial counterpart is calculated and filled in.



Note: Calculation of Metric or Imperial values is automatic as soon as one of the two fields is filled in. By removing the checkmark next to 'automatic', the automatic value can be overwritten with a self-filled value. This can be useful, for example, for nominal values, where a calculated value of 50.8 is equal to the nominal connection size 50.



2.6 UDF-type Table value

For user-defined fields of type ***Table value***, an Imperial value can now also be filled in (extra field). This value is converted from the Metric value and ***cannot*** be adjusted. Associated ETIM features are provided with an additional field for an Imperial value; these too cannot be adjusted.